Cambridge Assessment International Education

Grade thresholds – November 2017

Cambridge IGCSE Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the November 2017 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 11	75	46	37	29	24	20	16	12
Component 12	75	51	43	36	31	26	22	18
Component 13	75	48	38	29	26	22	19	16
Component 21	60	43	37	31	28	22	17	12
Component 22	60	41	37	33	29	23	20	17
Component 23	60	41	36	32	28	25	21	17
Component 3	60	50	42	35	28	22	17	12
Component 41	60	36	29	23	20	17	14	11
Component 42	60	39	34	29	25	22	16	10
Component 43	60	38	34	30	25	21	16	11

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AX	03, 11, 21	176	152	128	105	88	71	55	39
AY	03, 12, 22	178	157	136	116	98	80	66	52
AZ	03, 13, 23	177	153	129	106	91	76	63	50
BX	11, 21, 41	161	138	115	93	79	66	52	38
BY	12, 22, 42	164	146	128	110	95	80	65	50
BZ	13, 23, 43	161	141	121	101	88	75	62	49
CX	11, 21, 83	176	152	128	105	88	71	55	39
CY	12, 22, 83	178	157	136	116	98	80	66	52
CZ	13, 23, 83	175	153	129	106	91	76	63	50

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GEOGRAPHY **0460/21**

Paper 2 **October/November 2017**

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Paper 2 **October/November 2017**

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Survey Map

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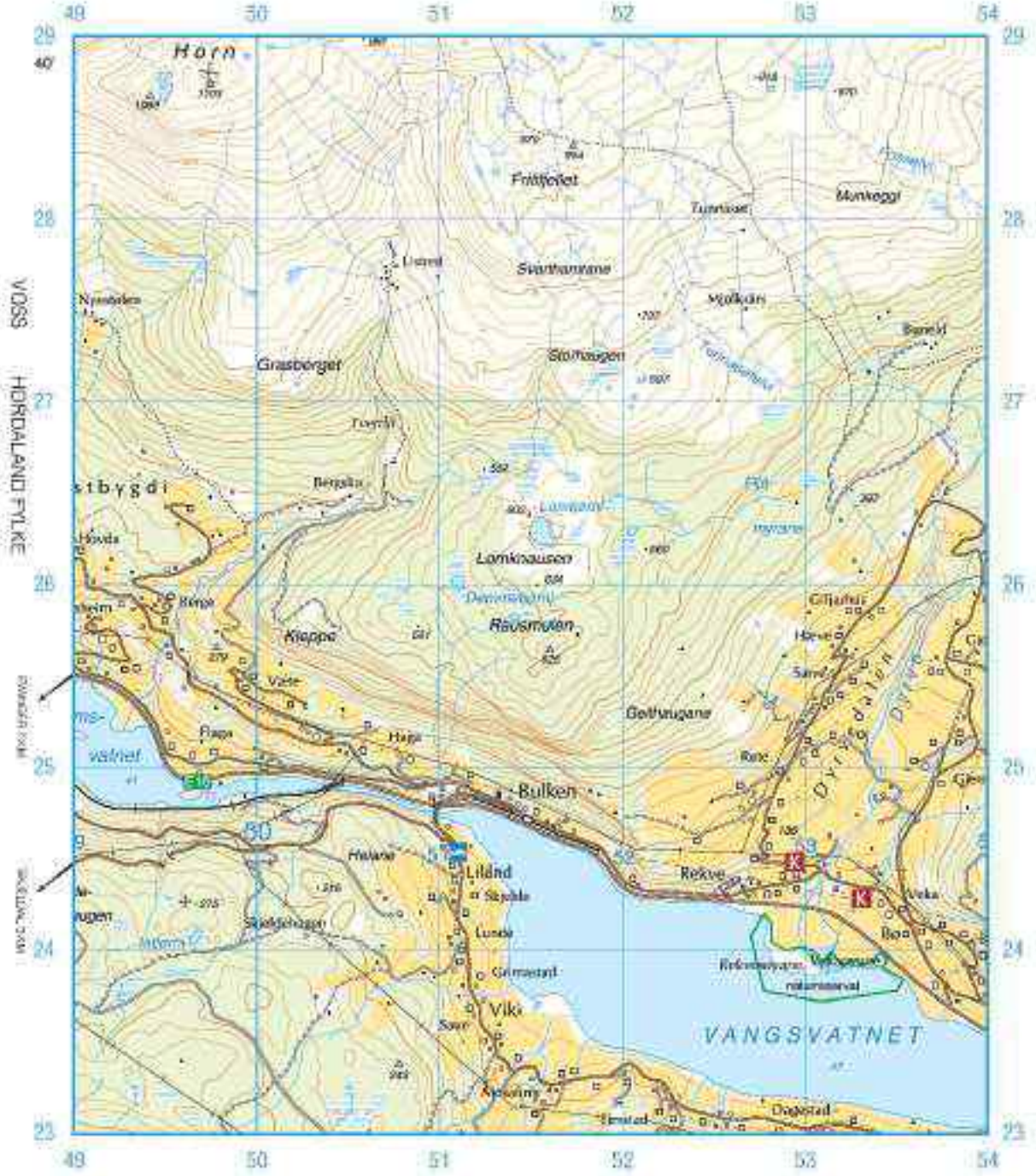
Vangsvatnet

Scale: 1:25 000
Contour level: 20 m



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Survey Map

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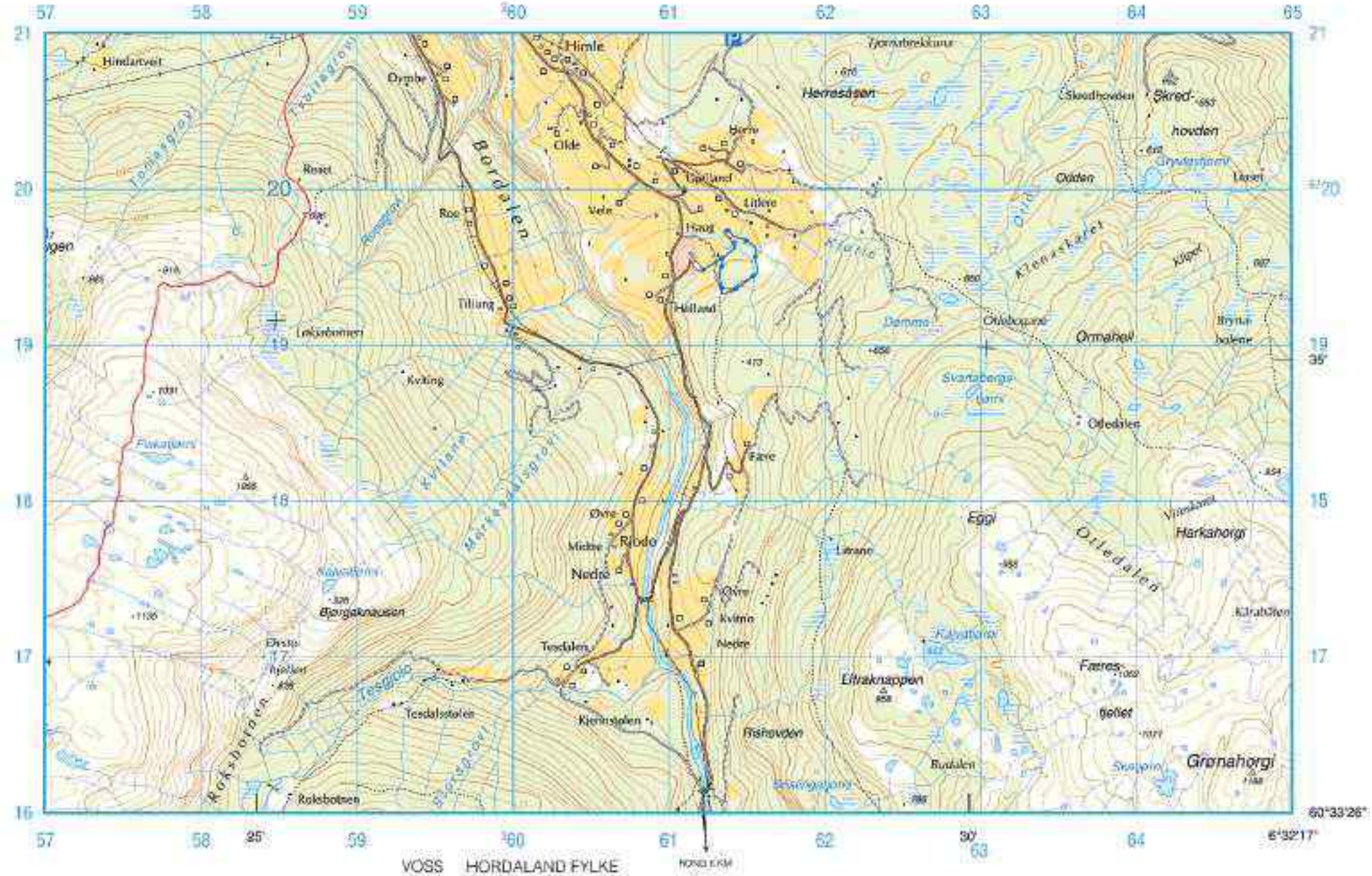
Bordalen



Scale: 1:25 000
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Survey Map

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Mesnali

Scale 1: 50 000

0 1 2 3 4 km

Vegetation and land cover

- Group of trees. Forest
- Marsh
- Cultivated area

Relief

- Contour line
- 467 Trigonometric point
- 359 Spot elevation
- Lake elevation
- Max./min. lake elevation

Tourist information

- Marked footpath
- Unmarked footpath
- Marked prepared ski trail
- Partly prepared ski trail
- Summated ski trail
- Ski lift
- Training area for dogs
- Luge and Bobsleigh
- Down hill
- Swimming
- Freestyle course
- Outdoor recreation
- Golf
- Ski jump
- Multisports hall
- Ice rink/Artificial ice arena
- Sports park
- Canoeing
- Nature trail
- Riding
- Rifle shooting
- Tele ski
- Ski lift
- Indoor swimming pool
- Tourist cabin, unstaffed with appliances
- Tourist cabin without supplies
- Viewpoint
- Camp site cabins
- Camp site
- Caravan site
- Farm tourism
- Hotel/lodging
- Information
- Cafeteria
- Grocery
- Car park
- Winter parking
- Picnic area
- Restaurant
- Handicapped accessible
- Conservation area protected by law
- Ancient monument
- Historical site

Communications

- State road
- County road
- District road
- Private road
- Toll road. Road barrier
- Cart track
- Footpath, marked, unmarked
- Tunnel
- Railway. Station

Buildings and populated area

- Urban area. Built-up area. Industrial area
- Dominant building
- Farm. House
- Cabin, mountain cabin. Shanty, boatshed
- Church. Cemetery. Meeting house
- School. Sports hall. Cultural centre
- Public transport building Council offices
- Hospital. Nursing home

Other cultural features

- Industry, power plant. Mine
- Quarry, gravel pit
- Power line
- Dam
- Ski jump
- Rifle range
- Sports ground
- Mast, tower
- Cafe

Boundaries

- County-/District boundary
- Nature conservation area

nordeca

True North
Magnetic North
Grid North
Diagrammatic only

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GEOGRAPHY **0460/11**

Paper 1 **October/November 2017**

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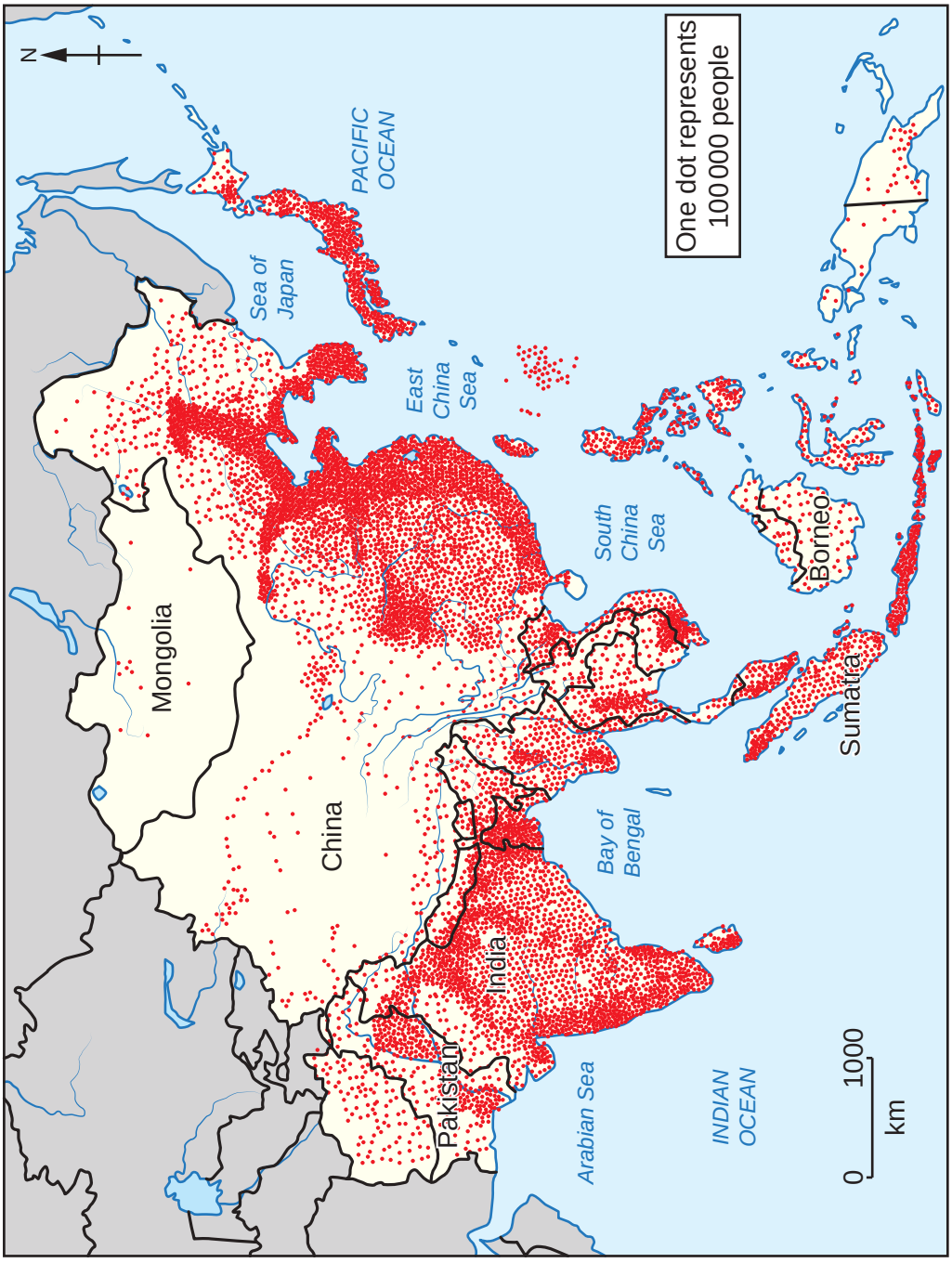

Fig. 1 for Question 1

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Photograph A for Question 5



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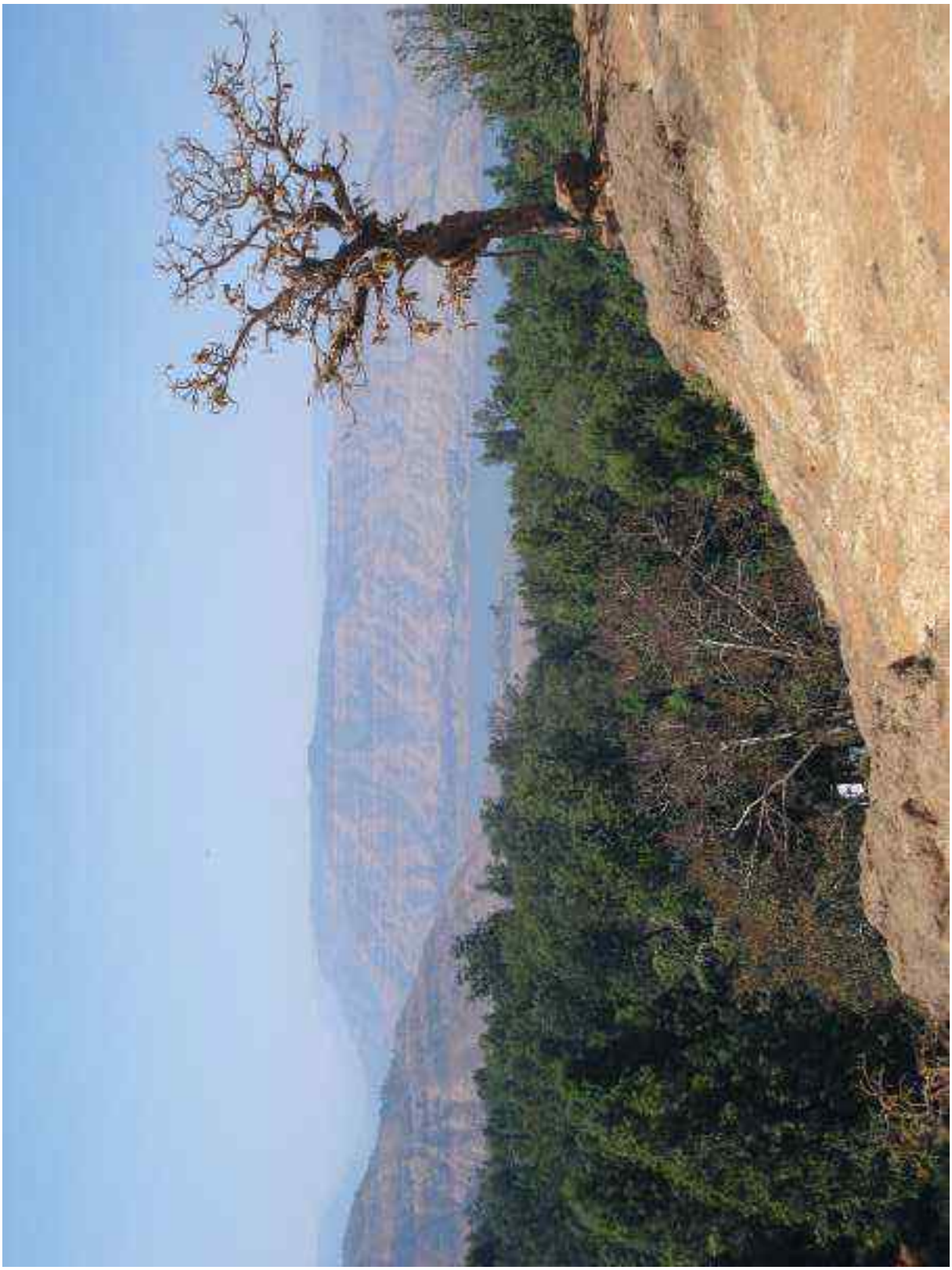

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GEOGRAPHY **0460/12**

Paper 1 **October/November 2017**

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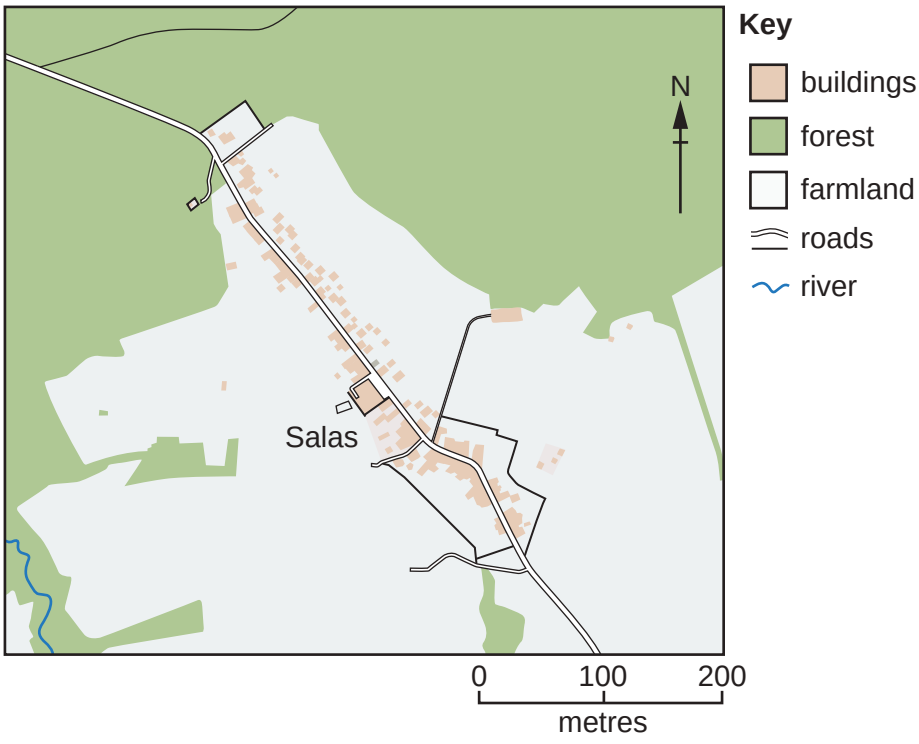
Fig. 3A for Question 2



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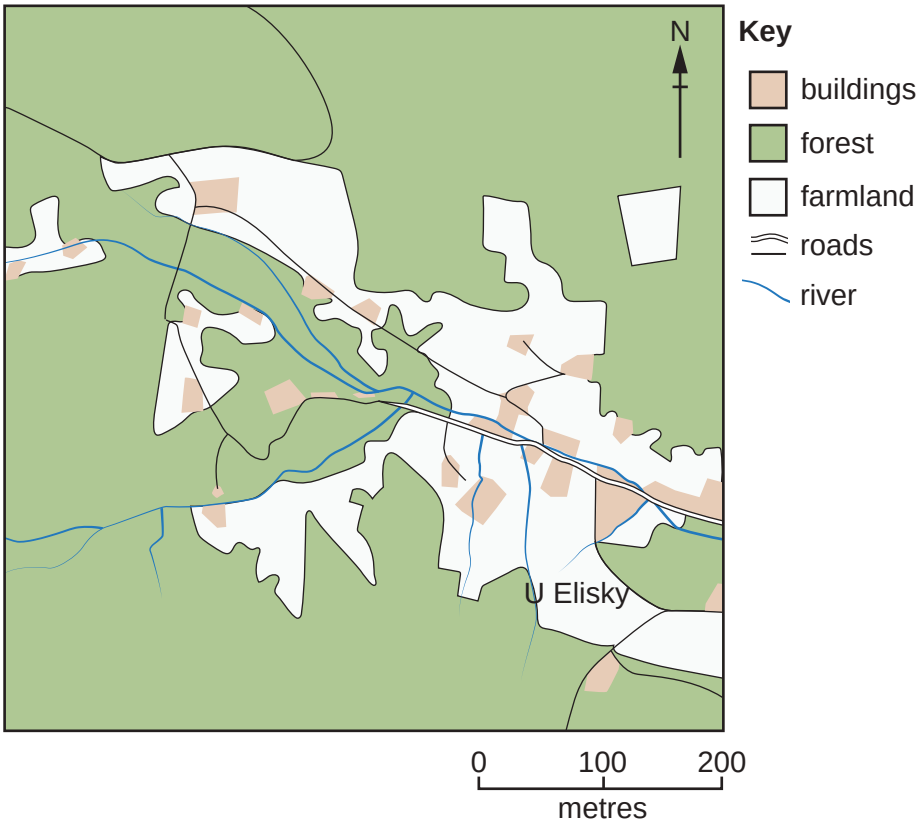
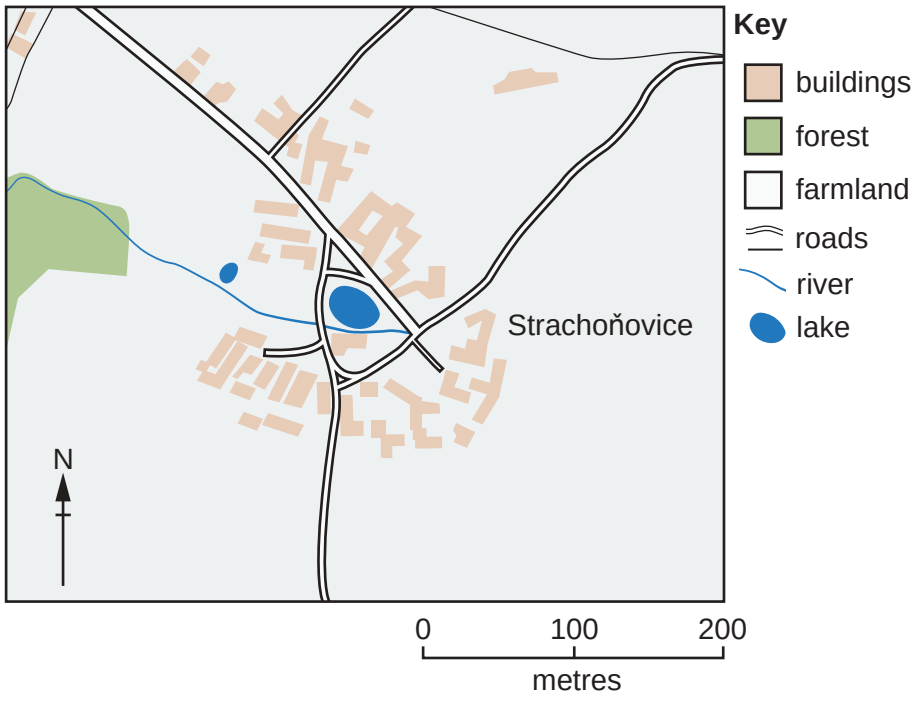


Fig. 3C for Question 2



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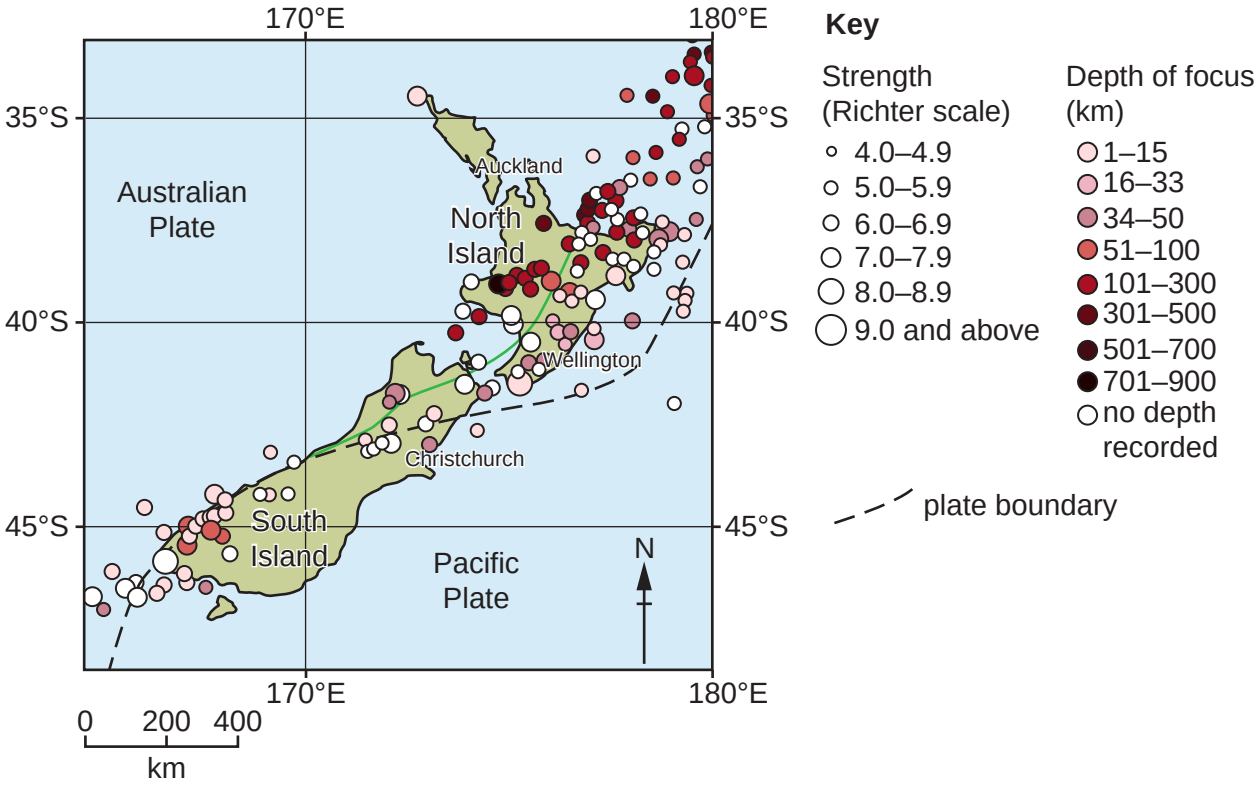

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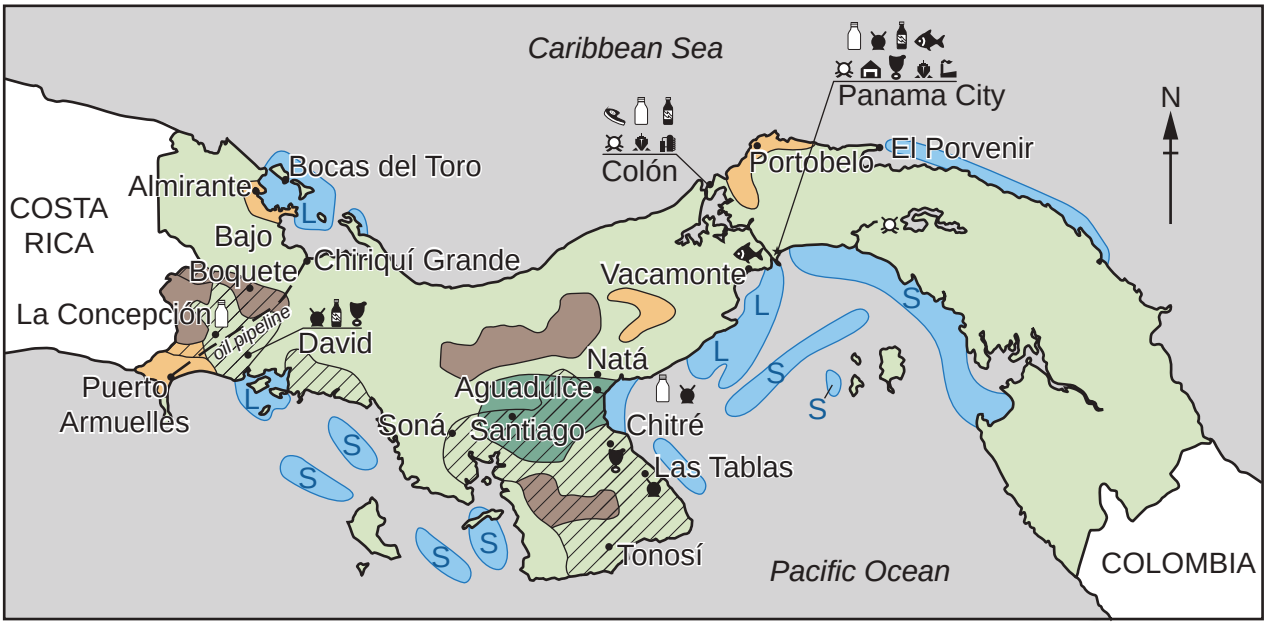

Key

Manufacturing

- meat processing
- milk processing
- sugar refining
- beverages
- shrimp processing
- power generating
- construction materials
- tanning (making leather)
- ship repairing
- oil refining
- steel rolling
- capital city
- city

0 50 100 km

Agriculture

- bananas
- coffee
- sugar cane
- cattle

Other

- fishing
- L lobster
- S shrimp

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GEOGRAPHY **0460/13**

Paper 1 **October/November 2017**

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GEOGRAPHY **0460/41**

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Fig. 1 for Question 1

Cross section at site 2

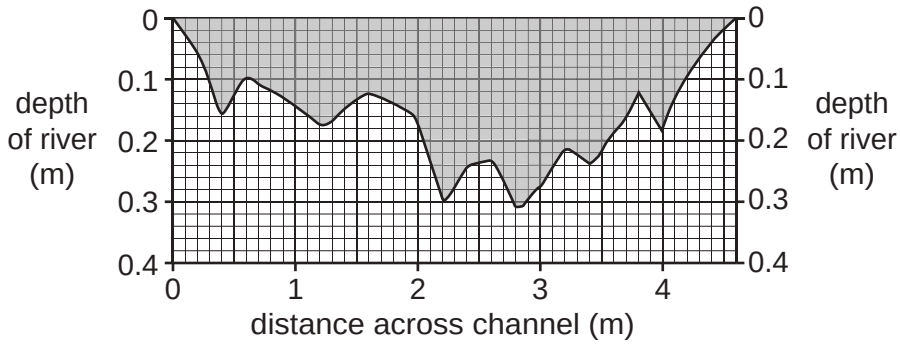

Table 1 for Question 1

Results of measurements of river depth at site 5

Distance across channel (m)	Depth of river (m)
0.0	0.00
0.2	0.03
0.4	0.12
0.6	0.16
0.8	0.13
1.0	0.18
1.2	0.23
1.4	0.31
1.6	0.26
1.8	0.29
2.0	0.32
2.2	0.35
2.4	0.33
2.6	0.34
2.8	0.39
3.0	0.42
3.2	0.40
3.4	0.44
3.6	0.47
3.8	0.43

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Table 1 for Question 1 (continued)

Distance across channel (m)	Depth of river (m)
4.0	0.45
4.2	0.51
4.4	0.58
4.6	0.54
4.8	0.58
5.0	0.56
5.2	0.52
5.4	0.56
5.6	**0.40**
5.8	**0.48**
6.0	**0.43**
6.2	0.39
6.4	0.34
6.6	0.33
6.8	0.35
7.0	0.30
7.2	0.32
7.4	0.27
7.6	0.22
7.8	0.18
8.0	0.14
8.2	0.09
8.4	0.00

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Fig. 3 for Question 1

Visual pollution survey sheet

Site 3

Evidence	0 points	1 point	2 points	3 points	4 points
Suspended solids	Very clear	Clear	Fairly clear	Slightly cloudy / murky	Cloudy / Murky
Colour	Very clear	Clear	Slightly brown	Dark brown	Black
Stones	Clean and bare	Clean	Lightly covered in brown deposits	Coated with brown deposits	Covered in brown and grey deposits
Water weed	None	A little in shallow water	Lots in shallow water	Lots throughout the river	River is full of weed
Grey sewage fungus	None	Very little	Little	Present in patches	Plenty
Scum / froth / oil	None	A few bubbles	Noticeable islands of foam	Large quantities	Covers whole river
Dumped rubbish	None	A few small items	A few large items	Large and small items	Many different large items

Total score	Description
0–3	very clean
4–9	clean
10–15	fairly clean
16–21	slightly polluted
more than 21	badly polluted

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Table 3 for Question 1

Results of fieldwork

Site	Distance downstream (km)	Total pollution score	Main land use
1	3	3	Fields for animal farming
2	**7**	**6**	Fields with crops growing in them
3	11	11	Shopping area and car park
4	15	17	Factory processing raw materials
5	23	9	Estate of modern houses
6	37	7	Countryside park attracting visitors

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Table 4 for Question 2

Shops and services in the CBD

Shops and services	Percentage
shop selling high-order goods	39
high-order service	27
shop selling low-order goods	**20**
low-order service	**14**

Table 5 for Question 2

Answers to Question 2:
Which settlement have you come from today?

Settlement	Number of people
Riograndina	17
Nova Friburgo	14
Bom Jardim	12
Sumidouro	**10**
Amparo	8
Boca do Mato	8
Campo do Coelho	6
Cordeiro	6
São Lourenço	6
Cachoeiras de Macacu	5
Santo André	3
São Jorge	**3**
Rio Bonito	2
Total	100

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Table 6 for Question 2

Answers to Question 3:
How did you travel to the CBD today?

Method of travel	Number of people
bus	47
car	**30**
walk	14
bicycle/motorbike	**9**

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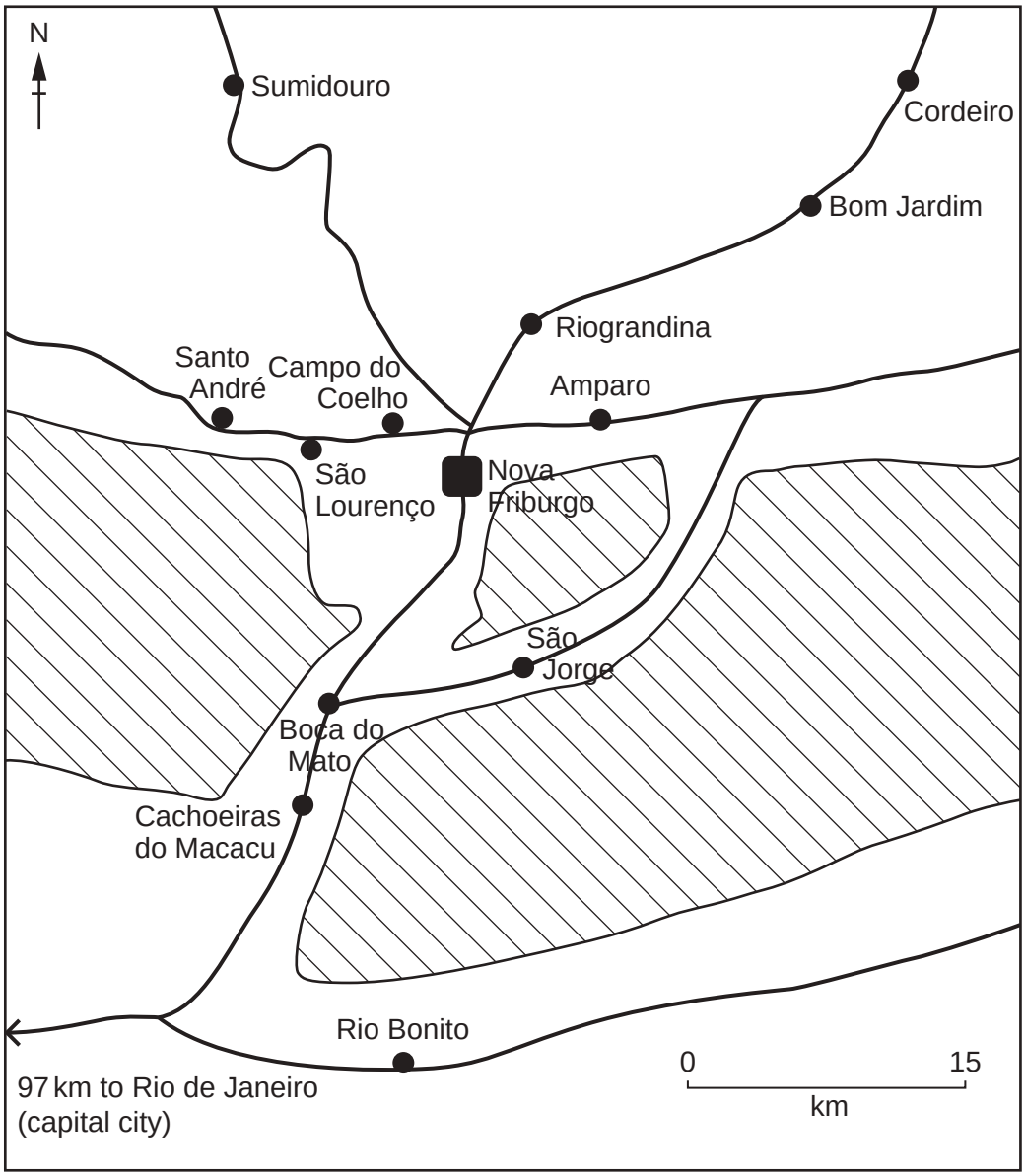
Fig. 10 for Question 2

Area around Nova Friburgo



Key

main roads

settlement

upland area

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2017**

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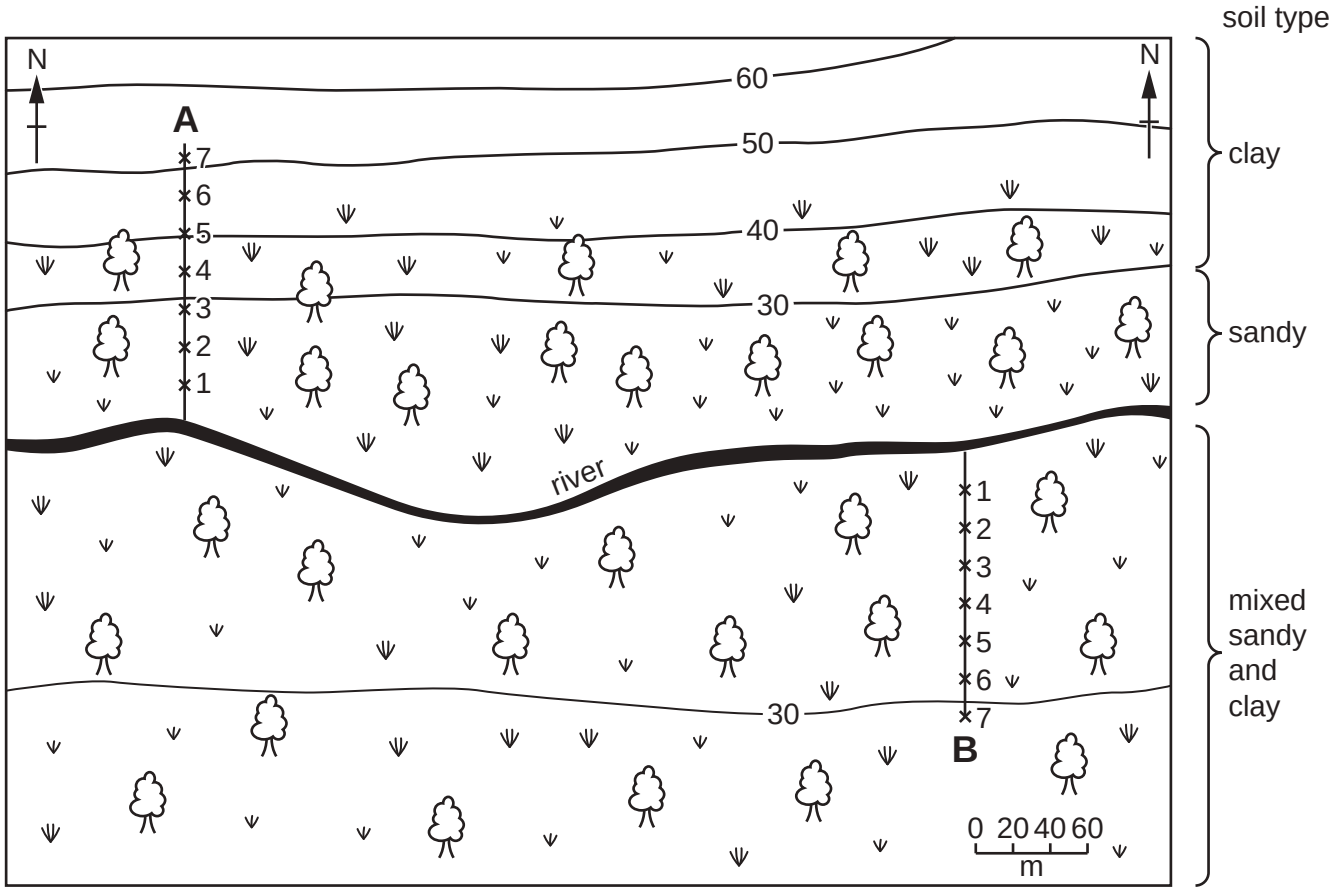
Fig. 1 for Question 1

Area where fieldwork was done



Key

1
2 fieldwork sites
3 along transect
4
5
6
7

30 contour line showing height in metres

mixed grassland and trees

bare or cleared ground

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Fig. 2 for Question 1

Method to measure infiltration rate

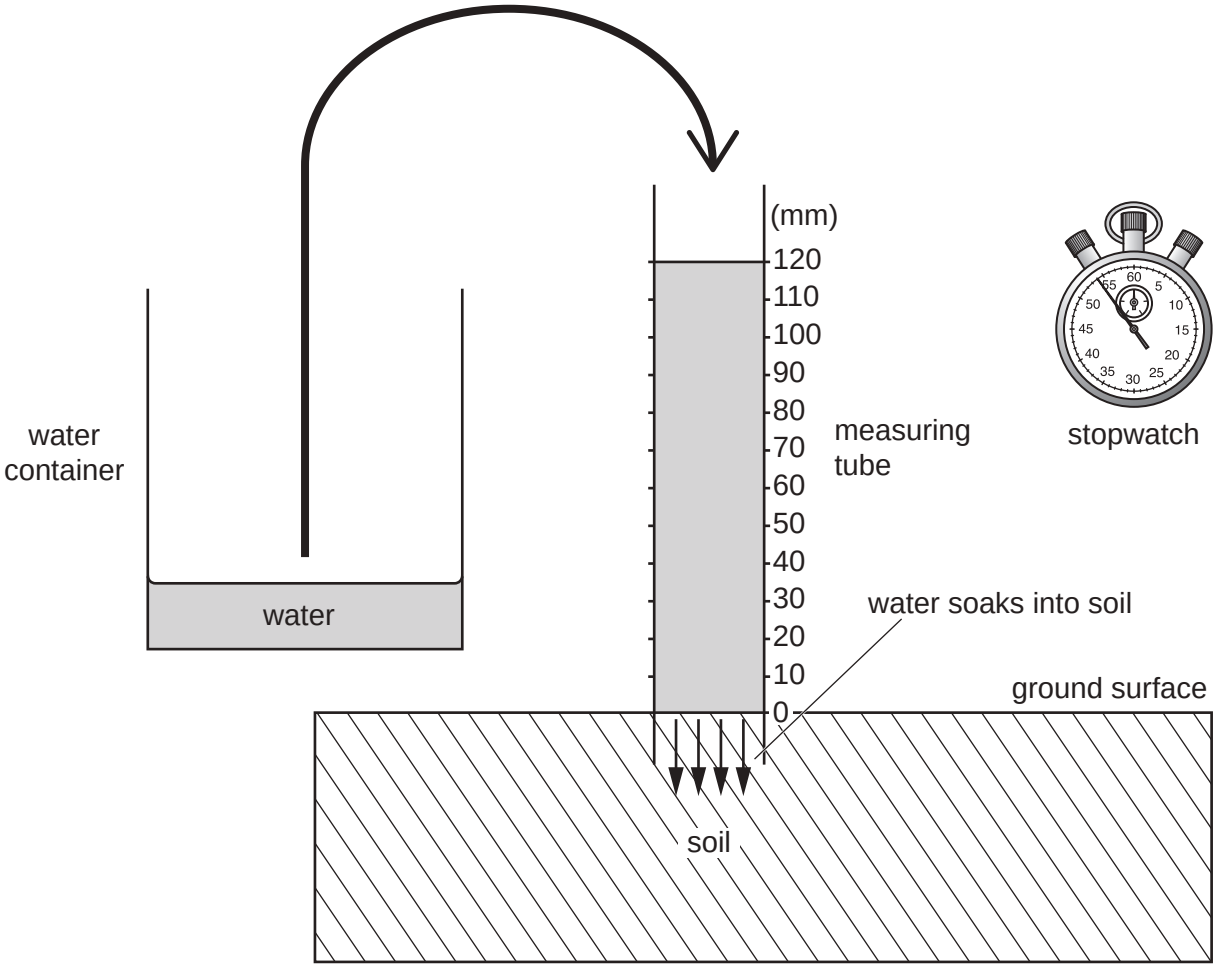

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Table 1 for Question 1

Results of measurements of water level at two sites

Site 4 on transect A

Time measurement (min)	Water level in tube (mm)	Fall in water level during the minute (mm)
0	120	0
1	115	5
2	109	6
3	100	9
4	95	5
5	84	11
6	76	8
7	63	13
8	**55**	8
9	**53**	2
10	**50**	3

Site 7 on transect A

Time measurement (min)	Water level in tube (mm)	Fall in water level during the minute (mm)
0	120	0
1	120	0
2	119	1
3	118	1
4	114	4
5	109	5
6	105	4
7	104	1
8	100	4
9	98	2
10	96	2

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Table 2 for Question 1

Results of measurements on transect A

Site number	Distance from the river (m)	Infiltration rate (mm per min)
1	20	15.0
2	40	13.3
3	60	11.8
4	80	7.0
5	100	6.1
6	120	5.1
7	**140**	**2.4**

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Fig. 6 for Question 1

How to measure soil moisture content

Method 1 used by students in group A on transect A

1. Take a sample of soil from each site along the transect.
2. Put the soil samples into separate plastic bags and label each bag with the site number.
3. Take the soil samples back to the fieldwork centre.
4. Put each soil sample into a small dish and weigh it to find out the weight of each sample.
5. Put the soil samples into an oven and heat at 250 °C for 30 minutes.
6. Take the soil samples from the oven and weigh them again.
7. Calculate the soil moisture percentage by using the following formula:

$$\frac{\text{Original weight when wet} - \text{Weight after being heated and dried}}{\text{Original weight when wet}} \times 100$$

Method 2 used by students in group B on transect B

1. Switch on the digital soil moisture meter.
2. Put the sensor probe into the soil to a depth of about 10 cm.
3. Read the percentage display on the meter.



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Table 3 for Question 1

Results of measurements of infiltration rate and soil moisture content

Results along transect A

Site number	Infiltration rate (mm per min)	Soil moisture content (%)
1	15.0	1.6
2	13.3	2.4
3	11.8	2.9
4	7.0	3.6
5	6.1	4.2
6	5.1	7.0
7	2.4	8.8

Results along transect B

Site number	Infiltration rate (mm per min)	Soil moisture content (%)
1	11.8	2.4
2	9.6	2.7
3	**13.2**	**4.3**
4	5.1	4.1
5	12.6	3.6
6	15.0	6.6
7	7.6	2.6

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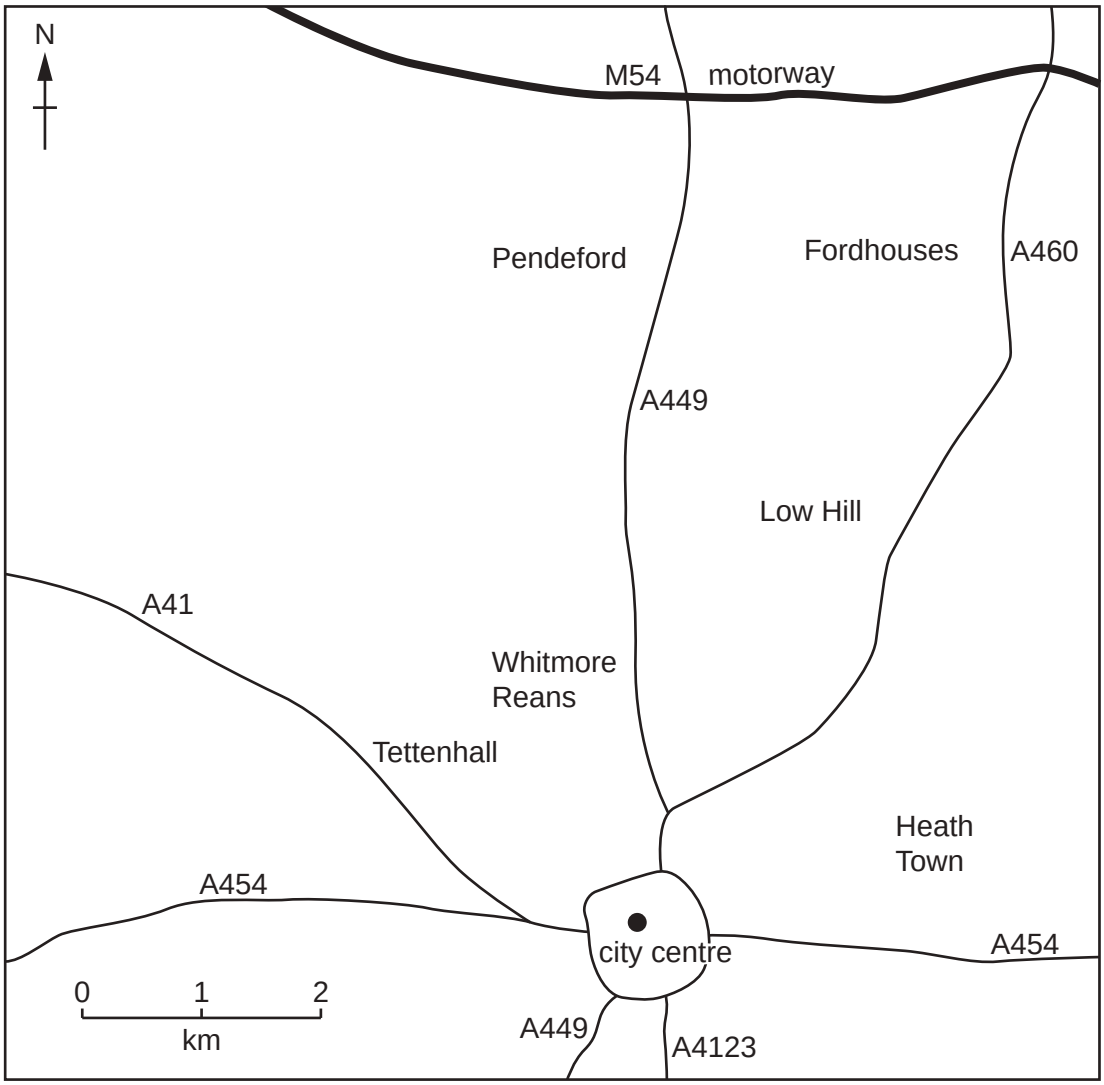
Fig. 8 for Question 2

Areas of the city where students did fieldwork



Key

A454 main road

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Fig. 9 for Question 2

Environmental quality recording sheet

Name of area surveyed:							
Feature	Negative description	–2	–1	0	+1	+2	Positive description
Condition of buildings	Poorly maintained						Well maintained
Public open land	No open land, unattractive						Plenty of open land, attractive
Litter	Much litter						No litter
Vandalism and damage	Widespread						None
Noise and air pollution	Noisy, high level of air pollution						Quiet, low level of air pollution
Roads and pavements	Poorly maintained						Well maintained

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Table 4 for Question 2

Results of environmental quality survey

Feature	Heath Town	Tettenhall	Whitmore Reans	Low Hill	Fordhouses	Pendeford
Condition of buildings	1	2	0	1	2	2
Public open land	–1	2	–2	1	2	1
Litter	–1	2	0	0	1	2
Vandalism and damage	–1	2	–1	1	2	1
Noise and air pollution	0	2	–2	**–1**	0	2
Roads and pavements	0	2	0	**1**	0	2
Total score	–2	12	**–5**	3	7	10

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Table 5 for Question 2

Results of percentage household convenience score calculation

Area of city	Percentage household convenience score
Pendeford	51
Fordhouses	**45**
Low Hill	75
Whitmore Reans	56
Tettenhall	31
Heath Town	91

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2017**

INSERT

1 hour 30 minutes

4574868004-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Figs. 1, 2 and 6 and Tables 2 and 3 for Question 1, and Fig. 7 and Tables 4, 5, 6 and 7 for Question 2.

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Fig. 1 for Question 1

Area of coastline

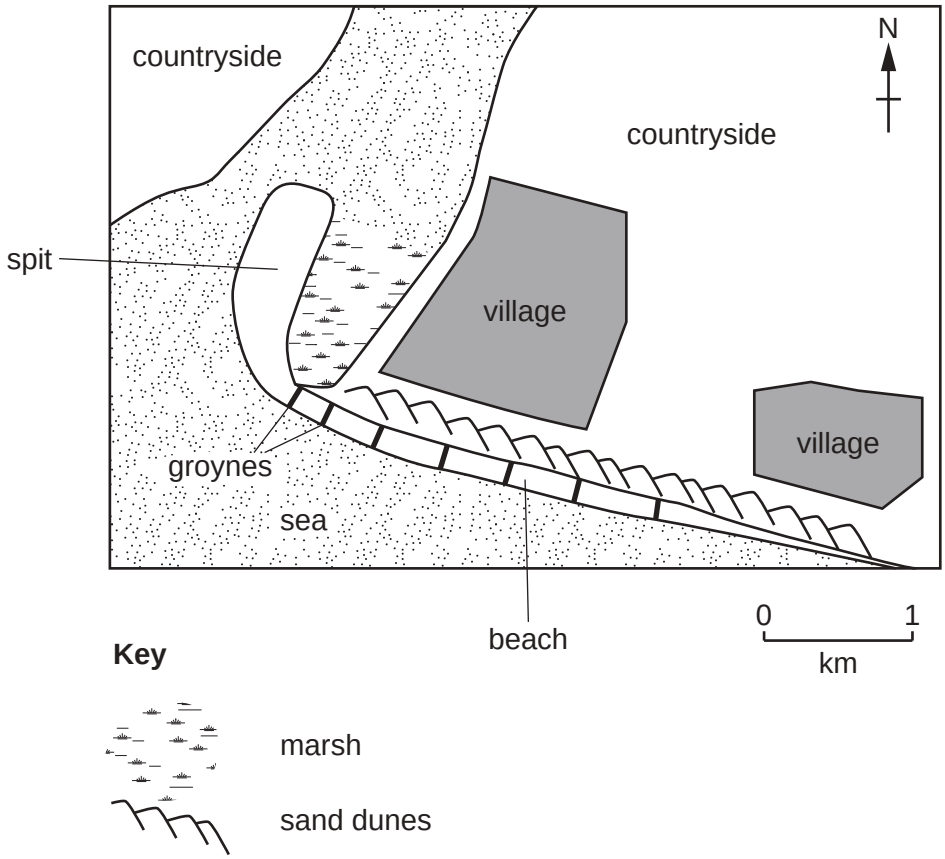

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Fig. 2 for Question 1

A student's fieldwork notes

How we investigated longshore drift

Method 1

We put a cork in the sea and marked the starting position on the beach. We then timed three minutes with the stopwatch and marked the cork's finishing position on the beach. We then measured the distance between the starting and finishing positions of the cork and made a note of the direction the cork had moved. We did the test three times and worked out the average distance the cork had moved.

Method 2

We used a ruler to measure the difference in height between the surface of the beach and the top of a groyne. We did this on both the west side and the east side of the groyne. We then repeated the task at another groyne on the beach.

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Table 2 for Question 1

Results of method 1

Test	Distance the cork moved along the beach (m)	Direction of movement along the beach
1	14.5	east to west
2	14.2	east to west
3	13.7	east to west
Average	**14.1**	

Table 3 for Question 1

Results of method 2

Height of the top of the groyne above the beach (m)				
Groyne A			Groyne B	
West side of the groyne	East side of the groyne		West side of the groyne	East side of the groyne
1.55	0.35		**1.45**	0.25

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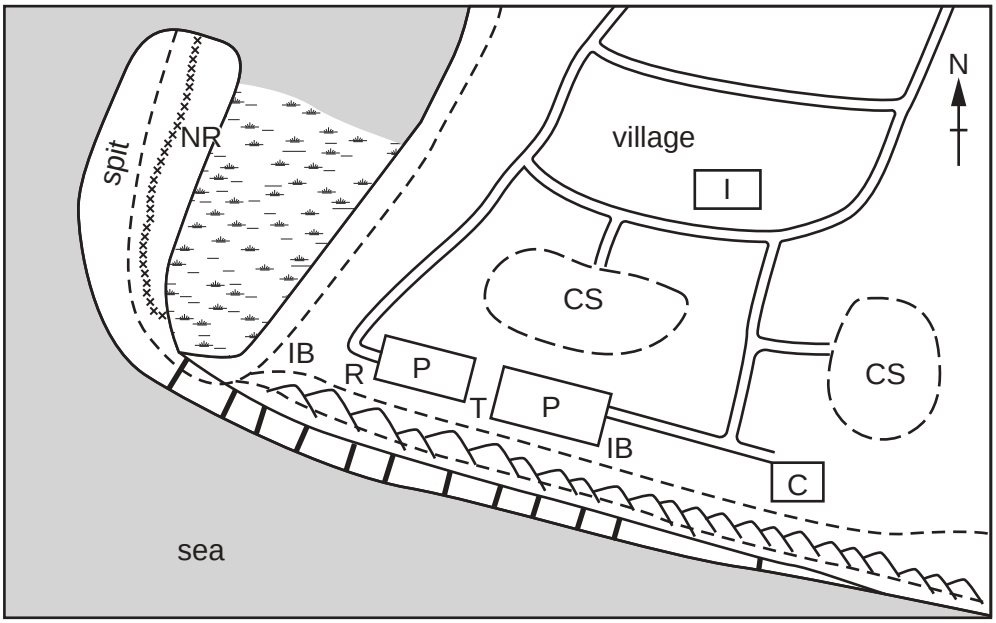
Fig. 6 for Question 1

Student's sketch map of the area



Key

groynes on the beach

marsh

sand dunes

footpath

fence

C	café
CS	campsite
P	car park
IB	information board
R	recycling point
T	toilets
I	tourist information centre
NR	nature reserve

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Fig. 7 for Question 2

Resident questionnaire

I am a student at the International Academy. Please answer the following questions to help me with my Geography coursework.

Question 1

Which state did you come from when you moved to Jaipur? .....

Question 2

Where do you get most of your water from?

☐ Public handpumps ☐ Public taps ☐ Public wells

☐ Nearby shops or houses ☐ Water tankers

Question 3

What is your main method of lighting?

☐ Battery lamps ☐ Gas lamps ☐ Kerosene (paraffin) lamps

☐ Street lights ☐ No lighting

Question 4

How do you dispose of your rubbish?

☐ Burn it ☐ Dump it on waste ground

☐ Leave it next to the shelter ☐ Throw it on the road

Question 5

What is the job of the main income earner in the family?

.....

Thank you for answering the questions.

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Table 4 for Question 2

Results of Question 1 in the questionnaire:

Which state did you come from when you moved to Jaipur?

State	Number of migrants
Rajasthan	162
Haryana	32
Uttar Pradesh	25
Madhya Pradesh	21
Gujarat	**16**
Punjab	15
Himachal Pradesh	11
Maharashtra	10
West Bengal	5
Bihar	2
Andhra Pradesh	1
Total	300

Table 5 for Question 2

Results of Question 2 in the questionnaire:

Where do you get most of your water from?

Main source of water	Number of residents	Percentage of residents (%)
Public taps	156	52
Nearby shops or houses	75	**25**
Public handpumps	33	**11**
Public wells	30	**10**
Water tankers	6	2
Total	300	100

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Table 6 for Question 2

Results of Question 4 in the questionnaire:

How do you dispose of your rubbish?

Method of rubbish disposal	Percentage of residents
Burn it	2
Dump it on waste ground	42
Leave it next to the shelter	43
Throw it on the road	**13**

Table 7 for Question 2

Results of Question 5 in the questionnaire:

What is the job of the main income earner in the family?

Job of main income earner	Number of residents employed	Percentage of residents
construction worker	72	**24**
making and selling home-made items	36	**12**
blacksmith	30	**10**
painting trucks and buses	24	8
pulling rickshaws	21	7
playing musical instruments on the street	21	7
making statuettes	15	5
collecting waste iron and rags	15	5
digging and selling sand	9	3
snake charmer	9	3
polishing shoes	6	2
other	42	14

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GEOGRAPHY **0460/11**

Paper 1 **October/November 2017**

MARK SCHEME

Maximum Mark: 75

Published

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Question	Answer	Marks
1(a)(i)	China…India…Pakistan Correct order needed for 1 mark	**1**
1(a)(ii)	Ideas such as: Distribution – Borneo is more even; Density – Sumatra is more densely populated/has more people living on the island/Borneo is more sparsely (less densely) populated Note: Answers must be comparative 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: – uneven distribution; – most people live/densely populated in the east/south east; – few people live/sparse population in west/north west/centre; – dense/more people live on the coast/near the sea; – dense/more people live in river valleys – few people live near international borders (or example) etc. 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: – it is landlocked/has no coastline/it is inland; – long distance from/no ports/trade (importing/exporting goods) would be difficult; – mountains/steep/high; – desert/arid area/lack of water; – cold/long winters; – few jobs; – lack of resources; – infertile soils/difficult to grow crops/produce food; – political instability etc. 4 @ 1 mark	**4**
1(b)(i)	Ideas such as: – there is a positive relationship between total population and population density/the cities with high density have a large total population; – however it is not perfect/there is an exception/except Manila; – 1 mark for using statistics for two cities to illustrate either of the above points. (i.e. 4 correct figures needed but units are not essential) 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as: Poor quality/not enough housing/living spaces/need to invest more on housing; increased pressure on hospitals/health services/need to invest more in health services; increased pressure on education/need to build more schools/colleges; traffic congestion/need to improve road network; unemployment/lack of work/need to create more work opportunities; specified crime (e.g. violence/robbery/theft)/need to maintain security/need to finance police force; lack of/need to provide clean/reliable water supply; lack of/need to provide good sanitation/sewage disposal; lack of/need to provide electricity; problems associated with waste disposal; need for more public transport; air pollution; water pollution; noise pollution etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why people have migrated from one country to another. Level 2 (4–6 marks) Uses named example. More developed statements which explain why people have migrated from one country to another. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Employment/wealth, Health care, Education, Drought, Food supplies, Natural disasters, To be near friends/family, Political issues, War etc. Note: No double credit for pulls and pushes. Development is of the explanation. Place specific reference is likely to consist of: Named parts of the chosen countries/locational detail, Population data etc.	**7**

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Question	Answer	Marks
2(a)(i)	Paris…Cairo…New York Correct order needed for 1 mark	**1**
2(a)(ii)	Completion of graph: London 0.8 Lagos 0.25 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as : High levels of/some people experience poverty/no money; high crime levels (or example); some people have poor housing conditions/homelessness; growth of squatter settlements/slums/shanty towns; some/many people cannot afford education for their children; some/many people cannot afford medical care; some/many people cannot afford clean/reliable water; some/many people do not have access to electricity; some/many homes lack hygiene/have poor sanitation; some/many people cannot afford food/balanced diet; social conflict etc. 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Lots of wealth created in the cities/big businesses/industrial (commercial centres); the highly paid jobs are in the cities/some people make lots of money; but many people do not have employment/lack jobs/are poorly paid; as they don't possess the skills/education; many work in the informal sector; there are no state benefits for those in poverty; there are so many poor people that it is impossible for charities to help them all; racism/discrimination; exploitation etc. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Uneven/clustered; close to/around/surrounding CBD/near the city centre/or accept correct distance; especially just to east/west of it; in the southern part of the city; close to the sea/around the harbour 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: it is unlikely that any of the ideas listed will end poverty by itself; improving security will mainly protect rich people and property; though some poor people may get jobs/e.g. as security guards; building housing will only help people who can afford houses; though some poor people may get jobs in construction; if houses are affordable it will benefit some people; the people experiencing poverty are unlikely to have the skills to work in high technology industry so that will not help much; but they will create some low skill jobs/such as cleaning; Free use of public transport may help by enabling people to attend interviews/travel to work/can spend money on other necessities; but many of the really poor will not have jobs anyway etc. Note: Be prepared to accept any valid ideas in addition to the above if the reasoning is good. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe strategies used to reduce traffic congestion. Level 2 (4–6 marks) Uses named example. More developed statements which describe strategies used to reduce traffic congestion. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, with some place specific reference. Content Guide: Answers are likely to refer to; Ring roads, Build /improve/repair roads By pass, Pedestrianization, Public transport, Cycle lanes/bike hire schemes, Park and ride; Congestion charges; Traffic lights; Speed bumps etc. Place specific reference is likely to consist of: Locational details/named places within the urban area, Specific details of schemes Named policies etc.	**7**

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Question	Answer	Marks
3(a)(i)	360 1 mark	**1**
3(a)(ii)	Ideas such as: – **mangroves** are in south/in river estuary/next to river; – **coral reefs** are on east/north of island/further out to sea/around islands/coral reefs are widespread/all around island etc. 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as mangroves: Grow between high and low water mark; Evergreen trees Salt tolerant/live in brackish water/salty water/live in sea water/are halophytes; Aerial roots; Salt filtering roots; Salt excreting leaves; Prop roots etc. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as: Warm <u>water</u>/temperatures between 18–27 degrees C (accept figure within range); Shallow water/not more than 60 metres deep; Water free from sediment/clear/clean/not polluted/sunlight able to penetrate the water; Plentiful supply of oxygen in water; Plentiful supply of plankton; In areas of gentle waves/currents/calm/slow moving water; Neutral/high pH/alkaline water; Salty water etc. 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: mangroves reduce wave heights; coral reefs absorb/reduce wave energy/power/act as a barrier; oyster reefs act as breakwaters/reduce power of waves 3 @ 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	Methods such as: Offshore breakwaters; Sea walls; Groynes; Beach replenishment/nourishment; Gabions; Revetments; Managed retreat; Rip raps; Insert drains in cliffs; Plant vegetation etc. Note: Accept names of methods or descriptions – or if both are provided accurate description can be credited as development. 5 @ 1 mark or development	**5**
3(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain how headlands and bays are formed. <u>Level 2</u> (4–6 marks) More developed statements which explain how headlands and bays are formed. <u>Level 3</u> (7 marks) Comprehensive and accurate statements which explain how headlands and bays are formed, including named process detail. <u>Content Guide:</u> Answers are likely to refer to: Hydraulic action; Abrasion/corrasion; Corrosion; Hard/soft rocks; Joints/bedding planes; Differential erosion etc. Note: Credit any descriptive detail or explanation on diagram but do not double credit with text.	**7**

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Question	Answer	Marks
4(a)(i)	26 °C and 2800 mm 1 mark	**1**
4(a)(ii)	Annual temperature range is small/2 °C; Average temperatures are high all year/temperatures above 25 °C all year/consistently high; There are no seasons/there is no winter; Annual rainfall is high; Every month has rainfall etc. 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: heating by sun/high temperatures/direct sunlight; high humidity/it is humid; evaporation/transpiration/evapotranspiration; ascending air/convection; cooling; condensation; cumulus or cumulonimbus clouds form; saturation/air mass cannot hold any more water; repeated each day etc.; 3 @ 1 mark	**3**
4(b)(i)	Ideas such as: loss of traditional culture; lack of fuelwood; lack of drinking water; floods; landslides; soil erosion; loss of species used for food etc. 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: reduction of interception; all the rainfall reaches the ground; no tree roots to slow water down/absorb water; soil soon becomes saturated; surface of soil becomes impermeable; large amount of surface run off occur/less infiltration occurs; soil erosion occurs/soil washed into rivers; river silts up/capacity reduced; water is displaced etc. 4 @ 1 mark	**4**

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Question	Answer	Marks
4(b)(iii)	Ideas such as: Governments prioritise economic development/to make money/to generate development; Allowing MNCs permission to exploit the rainforest: For logging/export of wood; Wood for furniture/paper making; For mining (or example); Road building; Building dams/generating HEP; Cattle ranching; Growing crops/agriculture; Housing/settlement 5 @ 1 mark or development	**5**
4(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain why a desert area is hot and/or dry. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain which explain why a desert area is hot and/or dry. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements which explain why a desert area is hot and dry, including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: high pressure descending air no cooling/condensation rain shadow cold currents inland location/long way from sea/not near any water bodies direct/overhead/high angle sun lack of clouds offshore winds few rivers/lakes/sources of water etc. <u>Place specific reference is likely to consist of:</u> Locational details including reference to tropics, Names of cold currents statistical details, distances etc.	**7**

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Question	Answer	Marks
5(a)(i)	A sunny climate 1 mark	**1**
5(a)(ii)	Types of scenery such as: Mountains/hills/uplands; Cliffs/arches/stacks/headlands/beaches/bays/sand dunes/coasts/caves; Rivers/valleys/gorges/waterfalls; Forests or specified vegetation type; Volcanic scenery/volcano/sill/dyke; Lakes etc. 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as cities have attractions such as: History/historical buildings/castles/museums/monuments/statues; religious buildings/cathedrals; famous buildings/landmarks/towers; culture/theatres/cinemas/galleries; restaurants/bars/nightlife; shopping centres etc. 3 @ 1 mark	**3**
5(b)(i)	Attractions such as: wildlife; valley; plateau/table land/rock outcrops/mountains/hills; market stalls/variety of fruits & vegetables to buy; resort/hotel/swimming pool; tropical vegetation/forest; cave/restaurant; lake/reservoir/dam/river etc. 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: Loss of natural vegetation/plants die/deforestation; Loss of habitats; Death/injury to/extinction of wildlife; Noise disturbs wildlife; Air pollution; Lowering of water table; Visual pollution/views spoilt; Water pollution etc. 4 @ 1 mark	**4**

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Question	Answer	Marks
5(b)(iii)	Ideas such as: Creation of National Parks; Limit numbers of tourists; Charge entrance fees; Which can be spent on conservation; Fence/limit access to sensitive areas/areas where there is lots of wildlife; Ban hunting; Only allow people access to an area with a guide; Educate people about caring for the environment; Develop ecotourism; Promote recycling/litter bins; Erect signs/notices/provide information about…; Build pathways/boardwalks; Use renewable energy or example (e.g. electric vehicles, solar power in hotels, encourage cycling) etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain how tourism has a positive and/or negative impact on local people. Level 2 (4–6 marks) Uses named example. More developed statements which explain how tourism has a positive and/or negative impact on local people. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements explain how tourism has a positive and negative impact on local people, including some place specific reference. Content Guide: Answers are likely to refer to: Employment Infrastructural development/water/electricity supplies improved Road/airport development Increased business opportunities Cultural exchange Noise Seasonal employment Loss of farmland Air pollution causes asthma/breathing difficulties Tourists given priority for water supplies Increase in prices/inflation Culture clashes etc. Place specific reference is likely to consist of: Locational details, Named areas Details of transport routes etc.	**7**

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Question	Answer	Marks
6(a)(i)	Agriculture 1 mark	**1**
6(a)(ii)	Reasoning as appropriate to economic activity chosen e.g. manufacturing: – wildlife poisoned/killed by fumes; – and by pollution of water courses; – forest/vegetation cut down/deforestation – loss of habitat – destruction of food chains etc. 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Fossil fuels/coal/oil/natural gas are burnt; Carbon dioxide/greenhouse gases/water vapour/oxides of sulphur & nitrogen build up in the atmosphere; heat is trapped/cannot escape/it acts like a greenhouse etc. 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as: melting of ice caps/glaciers; loss of natural habitat; rising sea/water levels; flooding of low lying islands/countries; loss of food sources for wildlife; loss of species/extinction/animals die (or example); breaking of food chains/threats to predators; diversion of cold ocean currents; warming of sea water can destroy/bleach coral; increasing aridity/drought/desertification; forest fires; vegetation loss/trees die etc. 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: Loss of land/farmland/grazing land; Loss of vegetation/trees; Soil is made bare; Gulleys/cliffs/steep slopes created in soil; Soil washed away etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Ideas such as: deforestation; grazing by animals; removes vegetation cover; especially if herds are too large; overcultivation; removes nutrients from soil; and destroys structure of soil; ploughing leaves soil bare; soil dried out in arid conditions/drought; so it can be blown away by wind; heavy rainfall/storms/floods washes soil away etc. 5 @ 1 mark or development	**5**
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the importance of different forms of energy supply. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe the importance of different forms of energy supply. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to the different forms of energy supply|: Wood/charcoal Fossil fuels Renewable forms of energy Nuclear power <u>Place specific reference is likely to consist of:</u> Locational details; Names of places/species within chosen country	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/12**

Paper 1 **October/November 2017**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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Thus it is the quality of the response that determines which level an answer is achieved rather than the quantity of statements contained within it. However, once assigned to a level the mark achieved within that level is determined by the number of points made.
Levels 1 and 2 are distinguished by whether statements are simple (level 1) or developed/elaborated (level 2). A candidate can immediately enter L2 by making developed points without making any L1 statements. In order to achieve L3 a candidate must have already reached the top end of L2 – in addition his/her answer should have a clear example and if the answer is place specific as well (7 marks). Highlight place specific detail.

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Summary:
Level 1 (1 to 3 marks):
1 simple statement (1 mark)
2 simple statements (2 marks)
3 simple statements (3 marks)

Level 2 (4 to 6 marks):
1 developed statement (4 marks)
2 developed statements (5 marks)
3 or more developed statements with e.g. (6 marks)

Level 3 (7 marks)
3 or more developed statements + named example with at least one piece of place specific detail.

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Question	Answer	Marks
1(a)(i)	Growth/change/increase in population as a result of difference in number of births and deaths/births minus deaths/where birth rate is higher than death rate;	**1**
1(a)(ii)	12.4 – 9.2 (per 1000) (1 mark) = 3.2 (per 1000) (2nd mark) 2 × 1 mark	**2**
1(a)(iii)	Ideas such as; • birth rates/fertility rates are low/decreasing/death rate higher than birth rate; • availability/affordability/use of contraception/family planning; • contraception/family planning – education about it; • modern attitudes to family size/people want small families/less children/expensive to have children; • women/people have careers/are career orientated/focus on careers rather than families; • emancipation of women; • impact of secular society; • low infant mortality rates; • abortions available/legal; • late(r) marriages/wait a long time to have children; • same sex partners; • outward migration/negative net migration; 3 × 1 mark	**3**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(b)(i)</td><td>Ideas such as:
Rates fall more rapidly in Bangladesh/fall less rapidly in Pakistan/Bangladesh has largest fall (entire period or any years);
Rates fall evenly in Pakistan, steeply in Bangladesh at first but levels off;
Rates are higher in Bangladesh up to 1990/1991/1992 and after that they become lower than Pakistan/rates lower in Pakistan;

RESERVE 1 mark MAX for stats – both countries needed plus statistics for <u>any</u> two years which illustrate change (either 4 figures or two years with total change calculated) Note: per 1000 not needed.

Example statistics, but note any two years showing change can be used:

<table>
<tr><td>(per 1000)</td><td>1980</td><td>2015</td><td>Difference</td></tr>
<tr><td>Bangladesh</td><td>130</td><td>34</td><td>–96</td></tr>
<tr><td>Pakistan</td><td>112</td><td>56</td><td>–56</td></tr>
</table>
Tolerance: ± 1

3 × 1 mark</td><td>3</td></tr>
<tr><td>1(b)(ii)</td><td>Ideas such as:
Poor health care/clinics/hospitals;
Lack of doctors/nurses;
Lack of vaccinations;
Lack of medicines/cure for diseases;
Lack of education about healthcare/sanitation/diet;
Poor food supply/malnourishment/starvation/no food/famine/deficiency disease/crops fail;
Water is not clean/water shortage/no water/drought;
Waterborne diseases/cholera/typhoid/malaria;
Sanitation/hygiene poor;
HIV/Aids;
War/conflict;
Cultural neglect of girls;

4 × 1 mark</td><td>4</td></tr>
</table>

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Question	Answer	Marks
1(b)(iii)	Ideas such as: People are likely to have many children/large families/want lots of children; As they think that many will not live long/hope some survive/to replace children who die/lots of babies die; They want children to help on the land/farming; They want children to help in the home/look after siblings; They want children to fetch water/collect wood; They want children to go out and earn money/to work/for labour; To look after them/take care of them in old age; As there are no pensions/state benefits for elderly (e.g. of development) 5 × 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe a population policy used to influence growth rate. e.g. One child Policy; Level 2 (4–6 marks) More developed statements which describe how a population policy is used to influence growth rate NOT the impacts. Note: Credit different approaches within a policy, so for example, when marking a China One Child Policy answer, ideas will often cover the following: Incentives; Penalties; Exceptions; Enforcement; Note: Credit only 1 L2 mark for each of these four ideas above, although credit should also be given for other ideas such as developing the idea such as applying to have a child/increasing the age of marriage which do not fit the four ideas above. e.g. one child policy and free education L2; one child policy and use of fines if more than one child L2; one child policy and parents not penalized if they have twins or a child is disabled L2 one child policy and Granny police check if couples are conforming to law L2 Note: If another country is given generally apply the same principle, but other ideas in the Content Guide will be relevant e.g. gender equality acts or educating women etc. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference which can be named parts of the chosen country, Population data, reference to a specific named policy/specific details about it etc. Content Guide: Answers can refer to anti-natal policy, pro-natal policy or migration programmes and could include ideas such as: e.g. China one child policy/limit number of babies/restrict number children make (free) contraceptives available examples of specific incentives (e.g. free education, free health care) examples of disincentives (e.g. if have a 2nd child e.g. fines, lose jobs reduce benefits for people having children e.g. reduced maternity leave/child benefit/child tax credits) forced sterilization	**7**

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Question	Answer	Marks
1(c)	free goods e.g. radios in India marriage regulations e.g. late marriage/seek permission <u>Other ideas:</u> educate people about contraception legalise abortion introduce pensions for elderly educate women to encourage them to take jobs or careers gender equality acts advertise the benefits of small families (The reverse ideas would apply to pro-natal policies) Note: Development should refer to the policy itself not reasons or explanations for it.	

Question	Answer	Marks
2(a)(i)	(A place where people live/residential area in the) countryside/away from the city/surrounded by farmland/open space around.	**1**
2(a)(ii)	Ideas such as houses are: • Scattered/separate from/close to each other; • Single storey/not very tall; • Made of breeze blocks/concrete blocks • Roofs are made of zinc/corrugated iron/metal; • Small/few rooms; • Small windows; • Rectangular/long and thin; 2 × 1 mark	**2**

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Question	Answer	Marks
2(a)(iii)	Ideas such as: They are at the base/bottom of pyramid/hierarchy; There are many/lots of them; They are close together; Low order settlements; 3 × 1 mark	**3**
2(a)(iv)	Ideas such as: To get a job/better wages/wealth/more money; Little/poor health care/doctors; To look for education for their children; Aridity/drought; Food supplies are difficult to grow/soils are not fertile; Political issues/civil wars/persecution; Water/electricity supplies may be unreliable/poor; Poor sanitation/hygiene; Bright lights/entertainment; Joining friends and family; Note: Accept pulls or pushes but do not double credit	**4**
2(b)(i)	A = linear/in a line B = dispersed/scattered/random C = nucleated/nuclear/clustered 3 × 1 mark	**3**
2(b)(ii)	<u>Influenced by:</u> Relief/gentle slope; Water supply/lake/river; Land use/areas of farmland/forest; Roads; Further marks available for reference to settlement pattern, e.g.: A linear settlement/Fig. A will ……..develop in a valley/along a road A dispersed settlement/Fig. B will….. have houses across farmland/throughout/spread across forest; A nucleated settlement/Fig.C will …develop around crossroads/bridging point/lake; 5 × 1 mark.	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which give reasons for growth of an urban settlement. Level 2 (4–6 marks) Uses named example. More developed statements which give reasons for growth of an urban settlement. E.g. migration into city due to employment L2 (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which give reasons for growth of an urban settlement. Including some place specific reference. Content Guide: Growth could relate to the growth of population/area/importance of the settlement. Candidates are likely to refer to; Employment Migration Transport and communications Relief Water supply Tourism Political factors etc. NOT birth rate ideas. Place specific reference is likely to consist of: Named parts of the chosen settlement/ detail of functions/statistics Etc. Examples can be MEDC/LEDC city/town in any country.	**7**

Question	Answer	Marks
3(a)(i)	The point beneath the earth's surface/underground/below the epicentre where rock breaks/the plates shift/the earthquake originates/takes place/starts/occurs. Note: link between both ideas needed.	**1**

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Question	Answer	Marks
3(a)(ii)	Focus = 34–50 Intensity = 6.0–6.9 2 × 1 mark	**2**
3(a)(iii)	Ideas such as: North Island has had more earthquakes/South Island has less; North Island earthquakes have deeper focus/use of data in key to show this; Earthquakes were mainly in east of/all over/ North Island but on west/coast of South Island/more even on North Island; Closer to plate boundaries on South Island/further away on North; Similar strength on both islands/ use of data in key to show this e.g. both mainly less than 7 or both 8–8.9; 3 × 1 mark	**3**
3(a)(iv)	Ideas such as: On/close to plate boundaries/lines of weakness/where plates meet; Where plates move (in relation to each other)/one under another/subduction/slide past; Friction/plates stick; Pressure build up/tension; Energy released/plates jerk apart etc. Note: Allow either destructive or conservative plate boundary. 4 × 1 mark	**4**
3(b)(i)	Ideas such as: It is true/partially true/true to some extent/there has been an increase over the time period; Fluctuating/the increase has not been consistent/have been increases and decreases/more in some years; The biggest increase is in earthquakes 6.0 to 6.9/earthquakes over 7.0 have not increased/have not increased as much; 1 mark MAX for use of relevant statistics to illustrate strength from two years to back up any of above (statistics must illustrate change). No reserve mark for statistics. 3 × 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	Ideas such as: Employment in tourist industry; e.g. tourist guides; Fertile soils; High yield/income from crops; Quarries/mines/minerals extracted; Such as sulphur deposits/gold/diamonds; They have lived there all their lives/birthplace//sentimental/tradition/religious ideas; Friends and family live in the areas; Geothermal power/renewable energy; Scenic beauty; To study the volcano; Pressure on land; Confidence in protection methods/prediction; Don't think it will happen; 5 × 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe either the natural hazard OR its impact on people/the natural environment. E.g. lava flows (L1) breathing difficulties/kills animals (L1) Level 2 (4–6 marks) Uses named example More developed statements which links the hazard with the impacts on people. E.g. lava flows kill people L2; Only credit one L2 for each hazard e.g. ash/lava etc. (Note: Max 5 if no named or inappropriate example. Credit country names to max.5) Level 3 (7 marks) Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Hazards such as: Lava (accept magma) Volcanic bombs Poisonous gases Mud flows/Lahars Pyroclastic flows Volcanic Blast Ash Impacts such as Deaths Injuries Destruction of homes Loss of workplaces Fires Damage to infrastructure Disruption of transport network, Loss to economy etc. Place specific reference is likely to consist of: Locational details/named areas within/around the volcano, Specific details of eruption/date/time/magnitude Statistical information e.g. number of deaths	**7**

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Question	Answer	Marks
4(a)(i)	22N 90E	**1**
4(a)(ii)	Ideas such as: In/on/near coast/next to Bay of Bengal/by the sea; In south/south west; Where rivers reach sea/around inlets/on delta; Stretches approx. 50 km (any figure 20–100 km inland; Between 21–23 N; Between 89–91 E; 2 × 1 mark	**2**
4(a)(iii)	Ideas such as mangroves: Grow between high and low water mark; Evergreen trees Salt tolerant/live in salty water/are halophytes; Aerial roots; Salt filtering roots; Salt excreting leaves; Prop roots; etc. 3 × 1 mark	**3**
4(a)(iv)	Ideas such as: Warm water/temperatures between 18–27degrees C (accept figure within range); Shallow water/not more than 60 metres deep; Water free from sediment/clear/clean/not polluted/sunlight able to penetrate the water; Plentiful supply of oxygen in water; Plentiful supply of plankton; In areas of gentle waves/currents/calm/slow moving water; Neutral/high pH/alkaline water; Salty water etc. 4 × 1	**4**
4(b)(i)	Ideas such as: Soft/unconsolidated rock/clay; Saturated rock/soil/clay/heavy rainfall weakens cliff/slumping; There are no protective measures for the cliffs/no groynes/lack of beach; Large/strong/destructive waves/storms; Long fetch Lack of vegetation; etc. 3 × 1 mark	**3**

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Question	Answer	Marks
4(b)(ii)	Candidates can choose any of the three methods and justify them. Marks to be awarded for reasons why they have chosen the method and/or why they have rejected the other two but NOT disadvantages of their chosen method. If no scheme chosen, no marks are awarded, unless the scheme is indicated in their answer. <u>E.g. Build an offshore breakwater</u> Quick; reduces wave strength; Reduces wave erosion (as waves break further out); Reduces longshore drift; Cheap; Tyres don`t need to be dumped elsewhere/burnt; Creates a new marine environment; Breakwaters/tyres may be removed by heavy storms; Technically difficult to install; Car tyres may pollute the sea; Visually unattractive etc. E.g. <u>Build groynes every 50 metres</u> Cheap; Ecofriendly; This will build up a larger beach; And also reduce the power of the waves; They will not put off tourists; Longshore drift will be prevented; Other areas further down coast will become more vulnerable May rot away; Cliffs will still be unprotected/likely to slump etc. <u>E.g. Build a long concrete sea wall</u> Harder to break/strong; Lasts long time/many years; Offers highest protection to property/farmland/roads; Reduces wave energy; High maintenance costs; Waves reflecting off the wall can scour the beach; A concrete sea wall would be very expensive; And destroy habitats; Such as nesting sites for sea birds etc. Works best ^ Stop erosion ^ Stop erosion more effectively than other methods ^ **Note: Do not double credit direct opposites.** If more than one scheme chosen, take the highest mark for one of them. 5 × 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain why people live along an area of coastline. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain why people live along an area of coastline. (Note: Max 5 if no named or inappropriate example. Example to be smaller in size than a country.) <u>Level 3</u> (7 marks) Comprehensive and accurate statements including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: Industry Ports Fishing Leisure activities/for surfers etc. Fresh air/sea breeze/specified climate points; Peaceful Retirement Tourism if linked with employment Scenic beauty Farming etc. <u>Place specific reference is likely to consist of:</u> Locational details, Named places along coast Specific details of employment opportunities Statistics etc.	**7**

Question	Answer	Marks
5(a)(i)	On graph Can be a cross or point, no need to label. Do no credit if more than one plot = 0.	**1**
5(a)(ii)	Primary industry in an LEDC = E Secondary industry in an MEDC = F Tertiary industry in an NIC = D 3 correct = 2 marks 1/2 correct = 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Ideas such as: More primary in LEDC or MEDC 10 and LEDC 80; More secondary in MEDC or MEDC 20 and LEDC 7/8/9; More tertiary in MEDC or MEDC 70 and LEDC 11/12/13; MEDC mainly tertiary and LEDC mainly primary; MEDC lowest in primary and LEDC lowest in secondary; Note: Answer needs to be comparative unless using correct. Statistics. Do not credit the word 'only' if the statistics are wrong 3 × 1 mark	**3**
5(a)(iv)	Ideas such as: Better education/more skills; Lack of investment; Availability/exhaustion of natural resources; More technology/mechanization; Demand for services; Many people in LEDCs are subsistence farmers/grow their own food; Export of RMs from LEDCs for processing in MEDC/Impact of colonialism on resource development; 4 × 1 mark	**4**
5(b)(i)	Ideas such as: It has links/factories/sales in many parts/all over the world/many countries involved/every continent/worldwide; Suppliers/raw materials/sugar/cocoa/palm oil are largely in LEDCs/S. America/Africa/Asia; Headquarters are in Europe/MEDC 3 × 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	Ideas such as: Make more profit/seek new markets/make more money; Improved/good transport/rapid growth in air-travel/easy movement of people and goods across the globe. Containerisation; Reduced the costs of transport; Making trade cheaper and more efficient; Improved communications/technology/easier to communicate and share information around the world/information spreads quickly; e.g. internet; Growth of multinational companies/TNCs; Growth of global trading blocks; Which have reduced national barriers; e.g. European Union, NAFTA, ASEAN; Reduced tariff barriers/free trade; Firms exploiting gains from economies of scale; To gain increased specialization; Growth of global media/social media; Improved mobility of capital; Increased mobility of labour; Cheaper labour in other countries/LEDCs; Going to places with higher skill levels e.g. IT skills; Government incentives/cheap taxes/free ports; 5 × 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the impacts of a transnational corporation on an LEDC. Level 2 (4–6 marks) Uses named example. More developed statements which describe the impacts of a transnational corporation on an LEDC. (**Note:** Max 5 if no named or inappropriate example – needs both the name of the TNC and the LEDC) Level 3 (7 marks) Comprehensive and accurate statements including some place specific reference. Content Guide: NOTE: Impact of the TNC rather than the product being produced. Answers are likely to refer to: Creation of jobs Wealth creation Infrastructural development Development of communications network Exploitation Low wages Specified pollution etc Place specific reference is likely to consist of: Specific details about TNC Named areas where TNC operates Statistical detail = 0 Global warming	**7**

Question	Answer	Marks
6(a)(i)	Manufacturing is the making of/producing of products/changing RMs to products/processing raw materials	**1**
6(a)(ii)	Food processing = meat/milk Crop = bananas 2 × 1 mark	**2**

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Question	Answer	Marks
6(a)(iii)	Ideas such as: Several manufacturing industries are located close to their raw materials; E.g. processing of shrimps near to shrimps/where shrimps are found; Tanning close to areas where there are cattle; Sugar refineries in/close to sugar cane areas; Milk processing/dairy close to cattle; Etc. 3 × 1 mark	**3**
6(a)(iv)	Factors such as: Road/rail transport; Ports/navigable river/canal; Airports; Markets; Labour supply; Cost/availability of land/flat land; Availability of energy/electricity/power/gas/coal; Government policies/incentives (or example) Water for cooling etc. 4 × 1 marks	**4**
6(b)(i)	Ideas such as: Raw materials/natural resources; Components/parts; Energy/fuel/power/electricity; Labour/management; Capital/money/investment; Machinery; Land; Etc. 3 × 1 mark	**3**
6(b)(ii)	Accept any secondary industry e.g. steel making, sugar manufacture, cars. Reserve 1 mark for example <u>and</u> main output (both required). Example can be type (e.g. car assembly) or the name of a firm (e.g. Volkswagen). If industry is not correct or not stated credit can still be given for valid manufacturing processes, but <u>no</u> credit for primary or tertiary industry. 4 marks for manufacturing processes relevant to chosen example with development as appropriate from when the product comes into the factory. Accept R&D and packaging but not e.g. marketing, designing, advertising, delivery. 5 × 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain how the land use is influenced by natural factors. E.g. fertile soil L1, flat land L1. Level 2 (4–6 marks) Uses named example. More developed statements which explain how the land use is influenced by natural factors. Note: Crops and animals must be named where a land use is mentioned and not e.g. arable for L2. E.g. fertile soil to grow cereal crops L2 Flat land allows mechanisation L2 (Note: Max 5 if no named or inappropriate example such as a country name) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: relief, precipitation temperatures sunshine soils Note: Crops or animals must be specified for L2. Do not credit negative impacts of natural hazards on farming e.g. drought, but only credit positive responses e.g. using drought resistant crops etc. Place specific reference is likely to consist of: Locational details; Names of places within chosen area Specific details/statistics of soil/climate Statistics.	**7**

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/13**

Paper 1 **October/November 2017**

MARK SCHEME

Maximum Mark: 75

Published

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Summary:

Level 1 (1 to 3 marks):
1 simple statement (1 mark)
2 simple statements (2 marks)
3 simple statements (3 marks)

Level 2 (4 to 6 marks):
1 developed statement (4 marks)
2 developed statements (5 marks)
3 or more developed statements with e.g. (6 marks)

Level 3 (7 marks)
3 or more developed statements + named example with at least one piece of place specific detail.

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Question	Answer	Marks
1(a)(i)	2.5 million Can be indicated in any way. More than one answer indicated = 0	**1**
1(a)(ii)	Similarities such as: (Both) have large numbers of old dependents/80+/65+; (Both) have large numbers of economically active/economically active is biggest/both have more/most economically active; (Both) have low number of young dependents; (Both) have more women than men at 80+; (Both) have a gender balance overall; The lowest sector is old dependents in both countries; Differences such as: Canada has more 80+ than Australia/more old dependents; 45–49 is largest age group in Canada but 35–39 in Australia; Canada has more economically active; Canada has more young dependents; Note: Assume Australia first if countries not named. Differences must compare. 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: use of/availability/affordability of contraception/family planning; contraception/family planning – education about it; modern attitudes to family size/children are expensive/people don't want a lot of children; people have careers/careers are more important; education of women; emancipation of women; impact of secular society/religion less important; low infant mortality rates; government support for old age; same gender marriages; later marriages/people opt to have children at a later age; legalised abortion/abortion available etc. 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as LEDCs are likely to have: more/higher percentage of young dependents; less/lower percentage of old dependents/less old people; less/lower percentage of economically active; less people/lower percentage at 80+; lower average age Note: The answer must compare MEDC and LEDC not within the LEDCs. (e.g. there are more young dependents than old dependents = 0 but there are more young dependents in LEDCs than MEDCs =1) Do not allow references to shape. Not birth and death rates. Assume LEDCs first – can do other way around but must specify if they do. Do not credit reference to single age group with exception of 80+ or reasons. 4 @ 1 mark	**4**

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Question	Answer	Marks
1(b)(i)	**Ideas such as:** 0–14 = decrease/20 or 21% to 15% or by 6/7% 65 and over = large/rapid increase/12% to 25% or by 13% 80 and over = small/slow/steady increase/1% to 4% or by 3% Note: If neither increase is qualified, award one mark overall for increase idea.3	**3**
1(b)(ii)	**Ideas such as:** problems of providing pensions/they need pensions; increased pressure on hospitals/health services; need to invest more in health/welfare services; increased dependency ratio; lower earnings through taxation/need to increase taxes; increased need for old peoples' homes; difficulty of recruitment for armed forces/difficult to defend country; less innovative workforce; closure of schools; strain on economically active; economic decline/GDP falls/country goes into debt; difficulty of finding workers/smaller working population/less workers in future; increase retirement age; less money to spend on development of other services/infrastructure; have to increase immigration etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	**Levels marking:** Level 1 1–3 marks Statements including limited detail which describe the consequences of over-population. Level 2 4–6 marks Uses named example. More developed statements which describe the consequences of over-population. (Note: Max 5 if no named or inappropriate example) Level 3 7 marks Uses named example Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: poverty; people do not have enough resources; pressure on energy supplies (or example)/strain on utilities e.g. gas or electricity; lack of work; inadequate food supplies/malnourished/starvation; poor access to education/government spend more on education; poor access to health care/government spend more on healthcare; overcrowded housing/homeless/shanty towns develop; inadequate water supply/sanitation/government spend more on water supply or sanitation; overuse of agricultural land/overgrazing; deforestation/loss of natural vegetation/habitats; increase in specified pollution type (MAX 1) etc. Place specific reference is likely to consist of: Named parts of the chosen country, Population data etc. Note: Development is of the consequence. Max 1 × L2 for development of consequences of One Child Policy idea but do not credit strategies to enforce policy.	**7**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(a)(i)</td><td>Nairobi</td><td>1</td></tr>
<tr><td>2(a)(ii)</td><td>Brazil
Angola 2 @ 1 mark</td><td>2</td></tr>
<tr><td>2(a)(iii)</td><td>Ideas such as:
They have high order/specialist services;
They sell comparison goods;
They have a high density of population;
They are well served by/have good communications/roads/rail;
Government buildings/administrative buildings are there;
Headquarters of large companies are there;
Large sphere of influence;
Large population;
Fewer in number/far apart/more spread out etc.
3 @ 1 mark</td><td>3</td></tr>
<tr><td>2(a)(iv)</td><td>Ideas such as:
availability of work in urban areas/to get a job/better wages/better pay/can make money easily;
more hospitals/better health care/doctors/clinics in urban areas;
more access to education in urban areas/more schools;
more entertainment/bright lights syndrome;
more secure food supply in cities than rural areas/infertile soils/poor harvest;
access to water/water is polluted/water not available;
access to electricity network;
natural hazards e.g. drought/flooding;
to join family and friends;
to escape persecution;
better sanitation/hygiene etc.

(Note: Candidates can refer to rural pushes but no double credit. No need to specify context) 4 @ 1 mark</td><td>4</td></tr>
<tr><td>2(b)(i)</td><td><table><tr><td></td><td>Photograph A</td><td>Photograph B</td></tr><tr><td>Order of Service</td><td>Low</td><td>High</td></tr><tr><td>Sphere of Influence</td><td>Small</td><td>Large</td></tr><tr><td>Threshold population</td><td>Small</td><td>Large</td></tr></table>Note: <u>Comparison needed for each mark.</u> 3 @ 1 mark</td><td>3</td></tr>
</table>

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Question	Answer	Marks
2(b)(ii)	Ideas such as: travel a long way for higher order services/order of services high order services are less available/availability of services people travel a long way so they have a better choice/a wider variety of services/choice and variety travel further for a better quality product/quality of product; travel a long way if shop/service not used often/frequency of use; travel a long way for specialised service/specialism; travel a long way for expensive goods/services/expense of goods etc.; Note: Accept answers that refer to high order goods, low order goods or generic ideas. No need to compare. For example, the same idea could be expressed as: *People will travel a long way for high or goods/services* *People will travel less distance for low order goods/services* *It depends on whether a good/service is high or low order* 5 @ 1 mark or development	**5**
2(c)	Levels marking <u>Level 1</u> 1–3 marks Statements including limited detail which describe the hierarchy of settlement and/or service provision. <u>Level 2</u> 4–6 marks Uses named example. More developed statements which describe the hierarchy of settlement and/or service provision. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> 7 marks Uses named example. Comprehensive and accurate statements, with some place specific reference which describe the hierarchy of settlement and service provision. <u>Content Guide:</u> Low to high order examples Reference to quantity/spacing of each More small settlements than large Greater distance between large settlements than small etc. <u>Place specific reference is likely to consist of:</u> named settlements/areas within country etc. Note: If just one settlement is named then MAX 1 × L2 – 4 marks.	**7**

Question	Answer	Marks
3(a)(i)	Area drained by a river (and its tributaries)/the catchment of a river/area of land where water flows into the river	**1**

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Question	Answer	Marks
3(a)(ii)	X = watershed Y = confluence	**2**
3(a)(iii)	Ideas such as: The Rio Puerco drains a much larger area; The Rio Puerco has more tributaries; The Rio Puerco is further downstream; The Rio Puerco is more likely to have a flood plain/flat land by the river etc.; Note: Needs to compare. Accept vice versa answers. 3 @ 1 mark	**3**
3(a)(iv)	Strategies such as: dams/reservoirs; build/strengthen/raise levees or banks; dredging/deepen the channel/remove debris; overflow channels/flood relief channels; afforestation/reduce deforestation; avoid building on flood plains; widen the river; straighten the river; allow river to flood meadow areas; tidal barrier line with concrete etc. 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: the valley is V shaped/sides are steep/it is steep; the river has a small discharge; the river is shallow; the river is narrow; the river has stones/boulders/rocks in it 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: long profile/it will become less steep/gradient becomes gentler; long profile/it will become smoother/less irregular; cross section of valley/it will be wider/wider valley/more open valley; flood plain/flat land alongside river as it gets closer to sea/it gets flatter by the river; and levees; valley cross section/valley sides will become more gently sloping etc.; Note: Do not accept answers relating to the river channel. The focus is on the long profile and valley cross section 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 1–3 marks Statements including limited detail which describe the main natural features of a delta and/or explain how it is formed. Level 2 4–6 marks More developed statements which describe the main natural features of a delta and/or explain how it is formed. Level 3 7 marks Comprehensive and accurate statements which, which describe the main natural features of a delta **and** explain how it is formed. **Content Guide:** Answers are likely to: shape; location; distributaries; deposition; flocculation; colonisation by vegetation etc. Note: Credit any descriptive detail or explanation on diagram but do not double credit with text. Need explanation and description for L3 but description can be at L1.	**7**

Question	Answer	Marks
4(a)(i)	265 mm (Accept 261 mm to 269 mm)	**1**
4(a)(ii)	1 °C (1 mark) 27–26 °C (2nd mark) 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Difference between highest and lowest is small; They are located on or close to Equator/at low latitudes; Sun is overhead/at high angle all year/direct exposure to the sun; Typical daily weather is similar throughout the year etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(a)(iv)	Ideas such as; heating by sun/high temperatures/direct sunlight; high humidity/it is humid; evaporation/transpiration/evapotranspiration; ascending air/convection; cooling; condensation; cumulus or cumulonimbus clouds form; saturation/air mass cannot hold any more water; repeated each day etc; 3 @ 1 mark	**4**
4(b)(i)	Ideas such as: There will be less plants/loss of habitat; So less food/loss of food source for amphibians/reptiles/insects/mammals/ birds; So numbers will reduce/animals will die; Damage to food chains; Less plants to be decomposed/less decomposition; So nutrient supply is reduced; Rainforest will not regrow/vicious circle idea etc. 3 @ 1 mark	**3**
4(b)(ii)	**Ideas such as:** Governments prioritise economic development/to make money/to generate development; Allowing MNCs permission to exploit the rainforest: For logging/export of wood; Wood for furniture/paper making; For mining (or example); Road building; Building dams/generating HEP; Cattle ranching; Growing crops/agriculture; Housing/settlement 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking <u>Level 1</u> 1–3 marks Statements including limited detail which describe and/or explain the characteristics of the desert ecosystem. <u>Level 2</u> 4–6 marks Uses named example. More developed statements which describe and/or explain the characteristics of the desert ecosystem. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> 7 marks Comprehensive and accurate statements which describe **and** explain the characteristics of the desert ecosystem including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: Plants Wildlife Adaptations of plants/wildlife Root systems Stems Humps Climate soils etc. <u>Place specific reference is likely to consist of:</u> Locational details, Named parts of the desert named types of plants/animals. Accept xerophytes. Note: Allow MAX 2 × L2 for each element – climate; soils, vegetation; wildlife, soil i.e. we are looking for at least two elements of the ecosystem referred to in the answer to move beyond 5 marks. Fine to link simple description and explanation for L2 for this question. MAX 1 × L2 for a statistic which develops a description.	**7**

Question	Answer	Marks
5(a)(i)	52–53%	**1**
5(a)(ii)	• South Africa/Mexico/China/Brazil/Bolivia • Brazil/China/Mexico 2 @ 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Ideas such as: Build dams/reservoirs; Build wells/pump or obtain water from aquifer/groundwater; Improve design of wells/concrete lining/covers; Desalinisation; Water treatment/purification of waste/filtration/water purification tablets; Water transfer from wet to dry areas; Building of piped water infrastructure/provide more pipes Import water/provide bottled water; Rainwater harvesting/collecting rainwater in roof tanks; Cloud seeding; 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Water is essential for survival/prevents dehydration/water is a basic need; Health of population will be improved/reduce disease or named example of a waterborne disease; Life expectancy will increase/death rate reduce/IMR reduced/less people die; Less money will need to be spent treating disease; People will be able to improve hygiene; People will be stronger/able to work more/earn money; Children can go to school; Reduce time collecting water; Water can be used for cooking and washing food etc. 4 @ 1 mark	**4**
5(b)(i)	Ideas such as: Egypt uses more for agriculture (85 or 86% v 20%); Germany uses more for industry (68% v 6% or 7%); Germany uses more in households (12% v 8% or 9%) or countries use a similar amount of water in households; Egypt uses most for agriculture where as Germany uses most for industry; Germany uses least for households and Egypt uses least for industry etc.: Note: Accept 'only' as comparative even if statistic is wrong. 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: Egypt has a greater percentage of the population relying on agriculture than Germany; and is more arid/greater need for irrigation; Germany has more manufacturing/factories than Egypt; more water will be used for cooling/processes in Germany; more will be required to generate electricity to use in factories in Germany; more homes in Germany will have piped water so more water is used domestically; more of population have home appliances/dishwashers/washing machines; more people can afford water in Germany in the home etc. Note: Accept reverse ideas. No need to compare. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking <u>Level 1</u> 1–3 marks Statements including limited detail which explain how its energy is supplied. <u>Level 2</u> 4–6 marks Uses named example. More developed statements which explain how its energy is supplied. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> 7 marks Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to the different forms of energy supply|: Wood/charcoal Fossil fuels Renewable forms of energy Nuclear power <u>Place specific reference is likely to consist of:</u> Locational details; Names of places/species within chosen country Statistics Note: Development is of the 'how'. Statistics are OK for development to a MAX 1 × L2 and can also be used for place specific detail.	**7**

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Question	Answer	Marks
6(a)(i)	air	**1**
6(a)(ii)	Ideas such as; Melting or purifying gold dust; Dipping in acid/using acid; Units have increased in number; Buildings do not have ventilation systems or purifiers/too old for purifiers; Wind carries fumes into houses; 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Difficulty breathing; Asthma/bronchitis/coughs; Skin problems; High blood pressure; Air smells of acid etc. 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as: Industrial solutions/it may be too expensive to solve the problem/it would need complete redevelopment of the gold industry in Mumbai; Legislation would be too complex; Government are more concerned about development than the people; Government do not want to risk businesses moving out/closing down; corruption is likely/people in authority may be receiving bribes; treating people would be too expensive; it could cause unemployment/the industry makes money/profit/taxes; negative multiplier effect etc. 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: carbon dioxide (and other greenhouse gases or example) are given off; by burning fossil fuels; in industry/power stations/transport; from pastoral/rice farming; deforestation it builds up in the atmosphere; heat is trapped/cannot escape/acts like a greenhouse etc 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Ideas such as: melting of ice caps/glaciers; loss of natural habitat; rising sea/water levels; flooding of low lying islands/countries; loss of food sources for wildlife; loss of species/extinction/animals die; breaking of food chains; threats to consumers; diversion of cold ocean currents; warming of sea water can destroy/bleach coral; increasing aridity/drought; forest fires; vegetation loss/trees die etc. Note: Example of a species is fine for development e.g. polar bear 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 1–3 marks Statements including limited detail which describe how threats to the natural environment from chosen economic activity are being managed. Level 2 4–6 marks Uses named example. More developed statements which describe how threats to the natural environment from chosen economic activity are being managed. (Note: Max 5 if no named or inappropriate example) Level 3 7 marks Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers should refer to appropriate forms of management of the activity chosen, ranging from small scale (e.g. fencing of vulnerable areas of sand dunes to protect them from trampling) to large scale (e.g. creation of National Parks). Answers can relate to any activity such as: Agriculture Tourism Manufacturing industry Generation of energy Tourism Quarrying Fishing etc. Place specific reference is likely to consist of: Locational details; Names of places/species within chosen area Specific details of management of area affected Note: Area should be smaller than a country but accept Amazon.	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/21**

Paper 2 **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	power line,	**1**
1(a)(ii)	road,	**1**
1(a)(iii)	hotel/lodging,	**1**
1(a)(iv)	625 m,	**1**
1(a)(v)	cultural monument,	**1**
1(a)(vi)	Dyrvo,	**1**
1(a)(vii)	delta/distributaries,	**1**
1(b)	1800 m	**1**
1(c)	on south side of lake, bridge over lake, on north side of lake, (allow side of lake once if south/north not stated) tunnel, keeps low/flat/avoids high/avoids steep,	**2**
1(d)	high/mountainous, steep, 1103 m, lowest 680–700 m, valley (in east), V shape, spur/ridge (in west), gentler summit, double summit/two high points, convex,	**5**
1(e)	Cultivation low(er), gentle(r), near lake, in valley, below 400 m, (allow any height lower than 400 m) more in south east/south, Forest high/higher than the cultivation, avoids highest land/summits, steep(er), below 600/800 m, Reserve 1 for each.	**5**

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Question	Answer	Marks
2(a)(i)	500 thousand,	**1**
2(a)(ii)	4 million,	**1**
2(b)(i)	Angola more/Japan less,	**1**
2(b)(ii)	Japan more/Angola less,	**1**
2(c)(i)	ageing population/more old/old dependents/more >80, decreased numbers of young/middle age/working age,	**2**
2(c)(ii)	increased of care costs, increased medical costs, increased pension costs, greater financial burden on young, lack of workforce, decrease in tax income, difficult to staff armed forces, less innovation,	**2**

Question	Answer	Marks
3(a)(i)	1,	**1**
3(a)(ii)	5,	**1**
3(a)(iii)	4,	**1**
3(a)(iv)	3,	**1**
3(b)	*compulsory point: plates collide/converge/destructive margin, stress/pressure/compression, friction, fracturing/faulting,	**2**
3(c)	great(est) close to epicentre/less further away, high around Kathmandu may relate to buildings type/density, possible effects of geology, possible effects of relief,	**2**

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Question	Answer	Marks
4(a)(i)	Stevenson screen,	**1**
4(a)(ii)	thermometer, hygrometer, barometer,	**1**
4(a)(iii)	rainfall/precipitation,	**1**
4(a)(iv)	anemometer,	**1**
4(a)(v)	wind speed/force/strength,	**1**
4(b)(i)	remotely/no need for visit to station/automatically, signal sent (wireless or wire), receiver/recorder (in building/house/elsewhere), use of computer,	**2**
4(b)(ii)	tree/house may cause shade/shelter/damage,	**1**

Question	Answer	Marks
5(a)	mining, manufacturing, transport, designing, All correct = 3 2/3 correct = 2 1 correct = 1	**3**
5(b)	primary decreases tertiary increases, secondary increases then decreases,	**3**
5(c)	2, 1,	**2**

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Question	Answer	Marks
6(a)(i)	number reduced, by 209 million, except in Africa, bigger decrease in LEDCs/most of decrease in LEDCs, 204 million in LEDCs and 5 million in MEDCs,	**2**
6(a)(ii)	less in MEDCs/more in LEDCs, more/most in Asia, Asia/Latin America improving/decreasing, Africa getting worse/increasing,	**2**
6(b)(i)	arable, intensive,	**2**
6(b)(ii)	extend cultivation/farming area (to hills), (extend) irrigation, clear woodland, diversify crops, add pastoral, increase intensity, use more fertiliser, mechanisation, increase labour force, new crop varieties/GM, pesticides/herbicides, Reserve one mark for the first list, directly from the photograph.	**2**

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GEOGRAPHY **0460/22**

Paper 2 **October/November 2017**

MARK SCHEME

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)(i)</td><td>(marked) footpath,</td><td>1</td></tr>
<tr><td>1(a)(ii)</td><td>Tomasgrovi,</td><td>1</td></tr>
<tr><td>1(a)(iii)</td><td>916 (m),</td><td>1</td></tr>
<tr><td>1(a)(iv)</td><td>600 (m),</td><td>1</td></tr>
<tr><td>1(b)</td><td>
<table>
<tr><th></th><th>Square 6 316 at Færes-fjellet</th><th>Square 6 416 at Grønahorgi</th><th>Both these areas</th><th>Neither of these areas</th></tr>
<tr><td>lakes</td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>forest</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>marsh</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>glaciers</td><td></td><td></td><td></td><td>✓</td></tr>
<tr><td>land over 1 100 m above sea level</td><td></td><td>✓</td><td></td><td></td></tr>
</table>
More than 1 tick per row = 0, except for the first row where ticks in <u>both</u> the first two boxes and <u>all</u> of the first three boxes is allowed.
</td><td>5</td></tr>
<tr><td>1(c)(i)</td><td>Roesgrovi,</td><td>1</td></tr>
<tr><td>1(c)(ii)</td><td>road,</td><td>1</td></tr>
<tr><td>1(c)(iii)</td><td>cultivation,</td><td>1</td></tr>
<tr><td>1(c)(iv)</td><td>valley completed clearly steeper than rest of slopes but not dropping below 200 m, (use the ruler device along the 200 m line)</td><td>1</td></tr>
<tr><td>1(d)(i)</td><td>south east/east south east,</td><td>1</td></tr>
<tr><td>1(d)(ii)</td><td>1 550–1 750 <u>m</u>/1.55–1.75 <u>km</u>,</td><td>1</td></tr>
<tr><td>1(d)(iii)</td><td>568 m,</td><td>1</td></tr>
<tr><td>1(d)(e)</td><td>on/near cultivated land,
along/near roads,
in valley(s)/on valley side(s),
west facing slope,
on gentle(r)/avoids steep(er), (on flat = 0, but allow flat qualified)
on low(er)/avoids high(er)/200–500 <u>m</u>,
linear/dispersed/scattered/sparsely distributed, (nucleated spoils)
none/few in forest,
(more) in north,
in centre/none in east/west, (also allow SE, NE, SW and NW)</td><td>4</td></tr>
</table>

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Question	Answer	Marks
2(a)(i)	Denver,	**1**
2(a)(ii)	New York,	**1**
2(a)(iii)	New York,	**1**
2(a)(iv)	Denver,	**1**
2(b)	east lost population/–ve migration/people moved out/allow emigration, west gained population/+ve migration/people moved in/allow immigration, more migration in east/less migration in west, –534 737 in east and 110 408 in west, Allow Chicago and New York for east and Denver and San Francisco for west.	**2**
2(c)(i)	internal, emigration,	**1**
2(c)(ii)	natural increase/birth rate more than death rate/high birth rate/increased birth rate, international migration/migration from other countries/immigration, (not just people moving in)	**1**

Question	Answer	Marks
3	steep, V-shaped, narrow/gorge, no floor/flood plain, steep long profile/steep gradient, irregular long profile, many valleys/dissected, small valleys, tributary valleys/confluence of valleys, meandering/winding/zigzag valleys, (not river) spur(s), ridge(s), interlocking spurs = 2, dendritic pattern, cliffs, grass/trees/bushes/scrub, upper course/close to source (allow if referring to river), bare rock (in background)/rocks (in foreground, not channel), Contradictions spoil, e.g. gentle spoils steep.	**8**

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Question	Answer	Marks
4(a)(i)	13 °C,	**1**
4(a)(ii)	23 °C,	**1**
4(b)	17 mm,	**1**
4(c)	X,	**1**
4(d)	high(er) angle of the sun (in summer)/sun overhead in summer, rays more concentrated/rays pass through less atmosphere, longer days, little/less cloud cover,	**2**
4(e)	high pressure, descending air, warming prevents condensation, (development) stable air, offshore winds, cold ocean current, distance from the sea, rainshadow,	**2**

Question	Answer	Marks
5(a)(i)	area drained by a river/catchment area of river, divide between two drainage basins/boundary of a drainage basin, Allow if expressed as an area or highland.	**2**
5(a)(ii)	Ural, Syrdarya, Ili,	**2**
5(a)(iii)	Nura,	**1**
5(a)(b)	large(st) discharge, large(st) discharge in dry years, less dependent on other countries/lower flow from other countries/large(st) discharge excluding flow from other countries, large catchment/drainage basin, reservoir/dam/lake for storage,	**3**

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Question	Answer	Marks
6(a)	high(er)(est) in NW/WNW/W, low(er)(est) in E/ESE/SE, least/lower along coast/highest/higher inland (comparative needed), use of a figure to support any of the above statements max 1 (e.g. 1 700 kWh/(m^2) in SE),	**3**
6(b)	Germany lower, highest in Germany lower than highest in South Africa, lowest in Germany lower than lowest in South Africa, all of Germany lower than lowest in South Africa, Germany smaller differences/range of values, Germany increases to south + South Africa increases to NW/WNW/W, Or emphasis on South Africa.	**2**
6(c)	(For) SA has high solar radiation values, SA has higher solar radiation then Germany, area with cities/population has high solar radiation/1 650–2 100 kWh/(m^2) /more than Germany, (e.g. Johannesburg area) large area to generate solar power, (Against) area with few cities/population has high(est) solar radiation/over 2 100 kWh/(m^2), (north west) area with cities/population has low(est) solar radiation, (coast) (Either) discussion of transmission costs/distances,	**3**

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GEOGRAPHY **0460/23**

Paper 2 **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	(marked) footpath,	**1**
1(a)(ii)	ski lift,	**1**
1(a)(iii)	626 m,	**1**
1(a)(iv)	forest,	**1**
1(a)(v)	cultivation,	**1**
1(a)(vi)	trigonometric point,	**1**
1(b)	grocery, hotel/lodging, swimming, illuminated ski trail, church, nursing home, electricity/power line, council offices,	**3**
1(c)	M has built-up area N has not/M more built up, M has no/few cabins/N has some/many, M has farms N none, M houses N none, M dominant buildings N none, M smaller area N larger area, M is a town N is a resort, M on lower ground/N higher, M higher density/N lower density	**3**
1(d)(i)	hill/high/mountain, ridge/elongated/oval shape, 995 m, concave slope, steep(er) to north/south, gentle(r) to east,	**3**
1(e)(i)	6800–7200 (metres),	**1**
1(e)(ii)	111–114 (degrees),	**1**
1(f)(i)	south,	**1**
1(f)(ii)	lake Kroksjøen higher/Sjusjøen lower/882–879 m and 810–806 m, 907/905/899 m–835 m, contour shape, angle of tributaries,	**2**

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Question	Answer	Marks
2(a)	Photograph A scenery/view qualified, mountains, train/tram/railway, footpath/trail, snow, Photograph B architecture/monument/church/old buildings, old/attractive bridge, boats/boating, waterside walk, outside seating, stalls/market/canopies/shade, Max 4 on either photograph.	**6**
2(b)	skiing/sledging/other snow-related activity, climbing/walking, bird/wildlife watching, photography/painting, kite flying, train ride, sight-seeing, paragliding etc.,	**2**

Question	Answer	Marks
3(a)(i)	M parasitic cone, N crater, O vent, P magma chamber,	**4**
3(a)(ii)	shield gentler/stratovolcano steeper, shield straight/convex + stratovolcano is concave OR shield steepens towards the base + stratovolcano steepens towards the summit,	**2**
3(b)(i)	23–30 (degrees),	**1**
3(b)(ii)	layers, it rises from the sea bed/high above sea level,	**1**

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Question	Answer	Marks
4(a)(i)	smaller segment 107–109°, completion of a key with immigrants the larger segment,	**2**
4(a)(ii)	line at 94%, completion of key with immigrants the larger portion, completion of scale at minimum 20% intervals,	**3**
4(b)	many males/few females/mainly males/more males than females, middle aged/working age/independent age group, mainly 20–54 years old, no/few/young, no/few/old,	**3**

Question	Answer	Marks
5(a)(i)	area above 1016 mb shaded/labelled “high”,	**1**
5(a)(ii)	4 (oktas), NE/ENE, 8 to 12 (knots),	**3**
5(a)(iii)	hot/high temperature/25°C, no cloud/clear, calm/no wind,	**3**
5(b)	sun at a high angle all year, (almost) constant length of day and night,	**1**

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Question	Answer	Marks
6(a)(i)	too poor to purchase land/land expensive, (too little land because of) increasing population, (too little land because of) land used for housing/other developments, poor quality land/ infertile land (left), land degradation/soil erosion, land used for cash crops/commercial agriculture, they live in urban areas, forced migration/land taken away,	**2**
6(a)(ii)	surplus is not where need is/uneven distribution of food/food controlled by a few people, poor transport/inaccessibility, poor organisation, food prices too high/too poor to buy food, food not sufficiently nutritious,	**3**
6(b)	drought, floods, tropical storms/high winds, hail, pests, diseases, soil erosion, soil exhaustion/infertility, volcanic deposits on farmland/lava/ash cover, mudflows/landslides, earthquakes <u>disrupt transport</u>, tsunami, Maximum 2 if no explanation of the points.	**3**

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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)</td><td>Accessibility (from road / school)
(Safety) – strength of current / speed of flow
Depth / sharp rocks / width / stability of banks / specified dangerous animals
(Equal) distance from other investigation sites / spread out / upstream and downstream / upper-middle-lower course
Away from human impact / weir / artificial levees / dam
Away from waterfalls / rapids 3 @ 1</td><td>3</td></tr>
<tr><td>1(b)(i)</td><td>Ranging poles
Tape measure 1 + 1</td><td>2</td></tr>
<tr><td>1(b)(ii)</td><td>Put ranging poles / students stand on opposite banks / sides of river
Measure across river / from bank to bank / between ranging poles
Keep tape measure taut / horizontal / stretched / tight / at same level
Measure perpendicular / at right angles to banks / straight across / directly opposite</td><td>2</td></tr>
<tr><td>1(c)(i)</td><td>Plotting points on cross-section 2 marks:
<table>
<tr><th>Distance across channel (m)</th><th>Depth (m)</th><th></th></tr>
<tr><td>5.6</td><td>0.40</td><td>✓</td></tr>
<tr><td>5.8</td><td>0.48</td><td>✓</td></tr>
<tr><td>6.0</td><td>0.43</td><td></td></tr>
</table>
shade in cross-sectional area 1 mark</td><td>3</td></tr>
<tr><td>1(c)(ii)</td><td>At site 2 / Fig. 1
Cross-section is narrower / less distance across
Cross-section is shallower
Cross-section is more irregular
Cross-section is smaller / smaller channel area

Accept ‘only’ with stats
Answers must be comparative 2 @ 1</td><td>2</td></tr>
<tr><td>1(d)(i)</td><td>Width x mean (average) depth</td><td>1</td></tr>
<tr><td>1(d)(ii)</td><td>Hypothesis is correct / true – 1 mark reserve

paired data from any two sites 1 mark
e.g. Site 1 / 3 km / first site – area = 0.32 (sq m) and site 6 / 37 km / last site – area = 9.44 (sq m)

No credit for Hypothesis is false / incorrect
If no hypothesis conclusion credit evidence</td><td>2</td></tr>
</table>

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Question	Answer	Marks
1(e)(i)	The students agree an average score / most popular score OR Do a practice survey / pilot study OR One student surveys at all six sites Do the survey at all six sites on the same day / at same time OR Repeat the survey in different seasons / months / weeks / several times during year Do a practice survey / pilot study OR Complete the first survey under teacher guidance / teacher shows how to use sheet / ask for help from teacher 3 @ 1	**3**
1(e)(ii)	Plotting site 2: 7 km downstream, pollution score = 6	**1**
1(e)(iii)	Hypothesis is **false** / **incorrect** / **partly correct** 1 mark reserve Water quality decreases / pollution score increases to from site 1 / 3 km to site 4 / 15 km AND Water quality increases / pollution score decreases from site 4 to site 6 / at sites 5 and 6 OR Water quality is worst / pollution is highest at site 4 / halfway down the river / factory site Paired data to show changes (site / distance downstream / land use and pollution score) 2 marks e.g. Site 1 / 3 km downstream / animal farming = score of 3 and site 4 / 15 km downstream / factory = score of 17 Site 4 / 15 km = 17 and site 6 / 37 km = 7 No credit for Hypothesis is true / correct If no hypothesis conclusion credit evidence	**4**
1(e)(iv)	Land use varies / depends on different types of land use / any 3 land uses from table Comparison of pollution level in two different land uses – e.g. less pollution in agriculture than industry Pesticide / fertiliser run-off in arable farming area Slurry run-off in animal farming area Rubbish from shopping area Factory waste Water is cleaned to attract visitors / to protect wildlife in countryside park Pollution is dispersed / diluted as river flows downstream from factory / more tributaries join river	**2**

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Question	Answer	Marks
1(e)(v)	Use a Biotic Index / identify indicator species Look at how many / count number species / creatures / animals / wildlife found in different sections of the river Measure PH (using a meter) Measure level of oxygen in the water Do a foam test Count number of dead fish Filter water sample and weigh solids Evaporate water sample and weigh solids	**1**
1(f)	Measure a fixed distance / 10 m along river (5 or more metres) Put float in river at start of measured distance / first pole Start stopwatch when float is put in river Measure time it takes to travel the measured distance / stop stopwatch when float reaches end of measured distance OR use a flow meter in the river Put underneath the river surface Stand upstream of flow meter Read off measurement on digital display labelled diagram 1 mark	**4**

Question	Answer	Marks
2(a)(i)	The minimum number of people needed to support a service	**1**
2(a)(ii)	The area served by a settlement / service / where people live who go to the settlement / area people come from to use the service	**1**
2(a)(iii)	High order goods and services: Located in larger settlements / there are less shops selling high order goods / shops selling low order goods are more common / high order in CBD and low order everywhere More expensive / luxury Bought less frequently / not needed every day Serve a larger sphere of influence Need larger threshold population People willing to travel further for High order are comparison / specialist goods and low order are convenience goods Ideas must be comparative	**3**
2(b)(i)	Hairdresser: low order service Furniture shop; shop selling high order goods 2 @ 1	**2**
2(b)(ii)	Completion of pie graph – shop selling low order goods = 20% and low order service = 14% 1 mark for dividing line 1 mark for shading	**2**

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Question	Answer	Marks
2(b)(iii)	Hypothesis is **true** / **correct** 1 mark reserve paired data to compare shops and services: 2 marks High order goods = 39% and low order goods = 20% High order services = 27% and low order services = 14% High order goods and services = 66% and low order goods and services = 34% No credit for Hypothesis is false / incorrect If no hypothesis conclusion credit evidence	**3**
2(b)(iv)	Many / some shops / services are middle order / would be wrong to classify middle order as high or low order / some shops cannot be classified as low or high order Including middle order would make study more realistic / valid / fair / accurate / reliable 2 @ 1	**2**
2(c)(i)	0–19 / under 20 / 19 and under and 40–59 Both age groups needed	**1**
2(c)(ii)	Stratified / quota: Find out gender / age balance of shoppers Ask a balanced number / proportionate number of people of different age group / gender OR Get people of different ages / gender / male and female 1 mark Systematic: Choose people at regular intervals Every tenth person who passes them (accept 2nd, 5th etc.) Random: Use random number tables to generate order to ask people Choose people who fit the sequence identified OR Ask anybody / next person / no pattern 1 mark	**3**
2(c)(iii)	Work in pairs / small groups / not alone / don't work in large groups Don't block pavement / entrance to shops Be polite / kind / respectful to interviewees / say thank you / do not ask age or gender / estimate age or gender Accept that people won't want to answer questions / too busy / in a hurry / don't force to answer Choose a time when there are plenty of people shopping Ask people leaving different shops / spread out evenly Avoid 'dangerous' people / 'dangerous places' 2 @ 1	**2**
2(d)(i)	Completion of flow lines – Sumidouro = 10 and Sao Jorge = 3 2 @ 1	**2**

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Question	Answer	Marks
2(d)(ii)	Sphere of influence extends mainly / further to north / north east OR most people come from north / north east Sphere of influence also extends to south / south west OR some / least people come from south / south west Sphere of influence does not extend to east / does extend to west OR few come from east / some come from west / more come from west than east Credit supporting data 1 mark maximum e.g. Cordeira is 30 km from Nova Friburgo and Santo Andre is 12 km Settlement data must be comparative and from different directions OR People come from 30 km from north, 30 km from south, 11 km from west, 8 km from east (any 2)	**3**
2(d)(iii)	Completion of bars – car = 30, bicycle = 9 2 @ 1	**2**
2(d)(iv)	Most settlements are in north / uneven distribution of settlements No settlements in the uplands / settlements in lowlands / uplands are unevenly distributed / relief varies/ no uplands in north / uplands in south / east Access to roads varies / easier access from north / more roads from north / roads are unevenly distributed / 4 roads from north and 1 road from south / more accessible by road Rio de Janeiro will restrict sphere of influence (to the south)	**3**

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	Rope	**1**
1(b)(i)	Tube / measuring tube pushed/knocked/placed/inserted <u>into</u> soil/ground (1) Fixed/measured/some water in container (1) Pour amount/120 mm into measuring tube (1) Measure height of water in tube every minute (1) Use a stopwatch/timer (1) (1+1+1) = 3	**3**
1(b)(ii)	Plot minutes 8/55, 9/53 and 10/50 for site 4 on Fig. 3. 1 or 2 correct = 1; 3 correct = 2. (1 + 1) = 2	**2**
1(b)(iii)	$\frac{24}{10}$ or $\frac{120-96}{10}$ Allow 24 above dotted line and 10 underneath it.	**1**
1(b)(iv)	Plot infiltration rate of 2.4 at site 7/140 m.	**1**
1(b)(v)	1 mark reserve for correct hypothesis decision (1) <u>Evidence</u> Infiltration rate decreases <u>at each site</u> further away from the river (1) Credit paired data for site/distance and infiltration rate of two sites e.g. At Site 1/20 m from river rate is 15 mm per min but at Site 7/140 metres from river to 2.4 mm per min. (1 MAX) (1HA + 1 + 1) = 3	**3**
1(c)(i)	<u>Negative relationship</u> between distance from the river and infiltration rate along Transect A/Fig 4 OR constant/regular/certain trend (1) <u>No relationship</u>/pattern/trend between distance from the river and infiltration rate along Transect B/Fig 5 OR the relationship is random/fluctuates/scattered/not constant/irregular (1) Allow 1 max if use opposite e.g. constant/not constant; scattered/not scattered.. (1 + 1) = 2	**2**

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Question	Answer	Marks
1(c)(ii)	Examples: Need to compare two Transects land-uses. On transect A steeper slope/slope increases away from river but on transect B gentler slope (1) Infiltration rate decreases on Transect A as slope becomes steeper (1) On transect A soil changes from sand to clay away from river but on transect B soil does not change/mixed sand and clay (1) Infiltration rate is quicker on sandy soil in Transect A (1) On transect A the ground is cleared / bare ground away from river but on transect B grass/trees don't change (1) OR more vegetation in B (1) Infiltration rate is quicker on Transect B in area with vegetation away from the river (1) (1 + 1 + 1 + 1) = 4	**4**
1(d)(i)	Examples: Credit advantages of method 2. No need for comparison. Quick/easy/simple method/easy to do/easy to use/easy to read (1) No need to do calculation/gives instant/direct result/does not need formula (1) Less student error/exact/precise/accurate/reliable (1) Several readings can be taken at once and an average worked out (1) Portable/can be used on site/small amount of equipment (1) Can measure equal/10 cm/even depths (1) (1 + 1 + 1) = 3	**3**
1(d)(ii)	Plot soil moisture content (4.3%) and infiltration rate (13.2) at site 3. (Credit IR plot on the line; not close to it.) (1 + 1) = 2	**2**
1(d)(iii)	Group A on Transect A – 1 mark reserve (1) Evidence all from Transect A Transect A – infiltration rate decreases as soil moisture content increases from site 1 to site 7 / at all sites /each point /every point as you move away from the river (1) Credit paired data from 2 sites e.g. at Site 1/at start rate is 15 mm per min and 1.6% and at Site 7/finish to 2.4 mm per min but soil moisture content to 8.8% (1) (1HA + 1 + 1) = 3	**3**
1(e)	How: infiltration rate would be lower /decrease/ slower (1) Why**:** soil is saturated/soil moisture content is higher (1) (1 + 1) = 2	**2**

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Question	Answer	Marks
1(f)	Examples People compress/compact the ground/ground hardens/denser (1) Water cannot soak into the ground as quickly/less gaps in soil (1) Lowers infiltration rate/slows down infiltration/harder to infiltrate (1) Impermeable footpaths may be built for tourists reducing infiltration (1) (1 + 1 + 1) = 3	**3**

Question	Answer	Marks
2(a)(i)	Used a bi-polar analysis (1) Write name of area on sheet (1) Observe/look at/see features (1) Make a decision about/rate/judge/give a score (1) Put a tick/fill in the appropriate column/record on sheet (1) (1 + 1) = 2	**2**
2(a)(ii)	Decide whether to survey individually or in a group /pairs (1) Agree where each group goes/decide which sites to go to (1) Agree on what descriptions mean/do a pilot or practice survey (1) Decide when would be best day/part of day to do survey/do it same day (1) Agree on time of survey/all surveys done at same time (1) Decide whether to calculate an average score from several students results/one student decides on the group's scores (1) Decide whether to repeat on different times/days (1) (1 + 1 + 1 +1) = 4	**4**

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Question	Answer	Marks
2(b)(i)	Credit what the scores mean in terms of quality of the urban environment as in the question. Better/worse/poorer only accepted in certain features – see below. **Tettenhall and Pendeford:** Examples: (1 MAX) More open land in T/less open land in P (1) More attractive land in T/less attractive land in P (1) Less vandalism and damage in T/more or worse vandalism in P (1) More attractive overall in T than P (1) **Whitmore Reans and Low Hill:** Examples: (1 MAX) Less maintained/poorer/worse building condition in W/more maintained or better building condition in L (1) Less open land in W/more open land in L (1) Less attractive land in W/more attractive land in L(1) More/worse vandalism in W/less vandalism in L (1) More/worse noise OR air pollution/noisier in W/less noise OR air pollution in L (1) Less maintained/poorer/worse roads and pavements in W / more maintained or better roads and pavements in L (1) Less attractive overall in W than L (1) (1 + 1) = 2	**2**
2(b)(ii)	Completion of bi-polar graph; need both plots and joined accurately for the mark. Noise and air pollution (–1) and roads and pavements (+1).	**1**
2(b)(iii)	Plotting bar for Whitmore Reans (–5) on Fig. 11.	**1**
2(b)(iv)	Hypothesis is **PARTLY TRUE** – 1 mark reserve for correct decision. (1) Evidence Minus/negative or low scores nearer to centre/positive or high away from centre (1) e.g. Any two sites that agree: Heath Town close with score of –2 and Pendeford further away with higher score of 10 (1) NOTE: 1 Reserve/max mark for anomaly statement or stats. Anomaly of Tettenhall – higher score nearer centre than areas further from centre (1) e.g. Tettenhall close with 12 and Fordhouses further away with lower score of 7 (1). (Could also use Low Hill 3 or Pendeford 10) (1HA + 1 + 1 + 1R) = 4	**4**

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Question	Answer	Marks
2(c)	**Description:** Use random number generator to decide who they ask/ask next person they meet/put numbers in a bag and draw out to decide who they ask. (1 MAX). **Advantage:** random numbers avoids bias/equal chance of being selected/reliable/quicker (1 MAX) (1 + 1) = 2	**2**
2(d)(i)	Completion of Fig. 12. **Park**: between 5 and 15 (7 minutes) **Secondary school**: more than 30 (40 minutes) (1 + 1) = 2	**2**
2(d)(ii)	Examples: People may not walk / may go by car / bus / mobility scooter / other transport (1) People may not go to the nearest service / more than one service to go to (1) People walk at different speeds / people walk faster on one day than another (1) People walk by different routes (1) Estimated times may be inaccurate / vague / people don't know / guess (1) Take them longer when it's busy (1) Don't use specific services (1) (1 + 1) = 2	**2**
2(d)(iii)	**Local store** = 4 (1) **Total** = 24 (1) Award total mark if local store is wrong but total correct to avoid ECF. (Likely to be combinations of NR/20; 0/20; 1/21; 2/22; 3/23 – give X =0 for 1st incorrect figure but TICK = 1 if total is right using the incorrect figure) (1 + 1) = 2	**2**
2(e)(i)	Completion of pie graph for Fordhouses (45%) or 162° clockwise. Allow tolerance of 1% each way i.e. 158–166°. Plot and shading must be correct for the mark.	**1**
2(e)(ii)	Hypothesis is **FALSE** – 1 mark reserve for correct decision. (1) Evidence: Highest scores increase towards city centre OR access near centre is better nearer to centre (1) e.g. Heath Town near with 91 and Pendeford further/far away with 51 (1) (Any two examples that work). (1HA + 1 + 1) = 3	**3**

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Question	Answer	Marks
2(f)	Examples Decide on groups/pairs or individual research (1) Divide jobs between students/1 counts other records (1) Decide on appropriate sites/roads (1) Decide when to do the traffic counts/time (1) Decide which days to do it (1) Decide duration of traffic counts (1) Go to 2 sites on each road/opposite sides of road/specific sites (1) Use stopwatch/watch for timing (1) Count traffic/vehicles/types of vehicles/all transport types (1) Use counter/clicker/tally method (1) Synchronise timing/start and finish at same time (1) Record on sheet/table/chart (1) (1 + 1 + 1 +1) = 4	**4**

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2017**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	A ridge of sand or shingle attached to the land at one end	**1**
1(b)	Check tide times before setting off / do fieldwork at low tide Avoid slippery rocks / coral Measure waves frequency from safe position, not in sea / do not go too far / deep into sea / face the sea Wear suitable / waterproof clothes / shoes / gloves Check weather conditions / for stormy weather / avoid big waves / avoid strong current Work in pairs / groups / not alone / not out of sight of others / Take mobile / cell phone Sunblock / first aid kit 3 @ 1	**3**
1(c)(i)	Count number of waves breaking / going up beach / hitting object or person Use a stopwatch / clicker / timer Do a number of counts **and** calculate the average	**3**
1(c)(ii)	7.4	**1**
1(d)(i)	Waves approach the coastline at an angle	**1**
1(d)(ii)	Corks are blown by wind Corks float away from beach / out to sea **so** difficult to see where they finish / get lost / difficult to measure Only measures rate of longshore drift for the cork Only measures longshore drift on day of fieldwork	**1**
1(d)(iii)	Take more than one measurement **at each side of at the groyne** Take measurements at places **along the groyne** More students measure **and** calculate average Another student **checks** the measurement made / measures again	**1**
1(d)(iv)	Plot average distance = 14.1 m	**1**
1(d)(v)	Plot west side of groyne B = 1.45 m and correct shading	**1**

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Question	Answer	Marks
1(d)(vi)	Hypothesis 1 is **correct** / **true** – 1 mark reserve Corks / beach material / waves / longshore drift moved from east to west along coast Beach is higher on east side of groynes / gap between top of groyne & beach is less on east side / height of top of groyne above beach is less on east side / more sand or beach material on east side of groyne (credit opposite answers for west side of groyne) Credit data for 2 marks maximum e.g. Wave frequency is less than 10 / average of 7.4 per minute Corks moved between 13.7 and 14.5 m / average 14.1 m At groyne A beach is 1.55 m below top of groyne on west side and 0.35 m below top on east side / 1.2 m lower on west side OR At groyne B beach is 1.45 m below top of groyne on west side and 0.25 m below top on east side / 1.2 m lower on west side Credit figures for top of groyne above beach (same figures as above) No credit for Hypothesis is false / incorrect / partially correct If no hypothesis conclusion in response credit evidence	**4**
1(d)(vii)	To protect the villages / houses / buildings / sand dunes To protect the beach / stop beach being eroded / keep material on beach To encourage tourism (by building up the beach) To slow down / reduce / stop / prevent longshore drift / stop sediment accumulating at one end of beach To stop the spit growing To reduce the power of waves	**2**
1(e)(i)	Complete tally and number counted (8)	**1**
1(e)(ii)	Footpaths go along / are along the **coast** / shore go through / is in / either side / behind the **sand dunes** go behind / next to the **beach** go alongside the **car park / information board / toilets / café / recycling point** go along is on the **spit** / by or around the **nature reserve** Credit 1 mark maximum for ‘from … to …’ answer, e.g. from the café to the spit	**2**

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Question	Answer	Marks
1(e)(iii)	Hypothesis is **true** – 1 mark reserve (Sustainable because) it attracts tourists / persuades tourists to visit / keeps visitors coming Protects environment / doesn't destroy the environment / prevents damage to vegetation / (bins) stops tourists from littering / (fence) guards nature reserve Credit example of encouraging features or management for 1 mark Features encouraging tourists to visit: cafe, campsite, car park, tourist information centre, nature reserve, **protected** beach, **protected** dunes Management: board-walk, fence, footpath, information board, litter bin, recycling point, toilets, groynes, nature reserve (no double credit) No credit for saying Hypothesis is false If no hypothesis conclusion in response credit evidence	**4**
1(f)	Put tape measure out along transect line / to create a transect line Measure distance between ranging poles Put poles at equal distance / 5–10 m / put ranging poles at breaks of slope Ensure poles are vertical Rest poles on surface / equal depth into sand Student holds clinometer next to top / at agreed height on ranging pole / at eye level Sight other ranging pole at top / same height Read angle / measure angle / record angle	**4**

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Question	Answer	Marks
2(a)(i)	Systematic sampling Ask every tenth person/ go to every tenth house / regular pattern to identify people Avoid bias / fair test / quick method / reliable OR Random sampling Use random numbers to identify people / ask next person they meet Random numbers avoids bias / fair test / quick method / reliable OR Stratified / quota Ask appropriate age / gender balance / get representative sample of population (can be describe or explain) Avoids bias / fair test / reliable	**3**
2(a)(ii)	10% is enough for) a reliable / representative sample / fewer will not be reliable Enough responses to reach a conclusion about the hypotheses Larger sample will take too long / too much time (to complete / to do) Too many responses will be time-consuming **to** compute / process / total up / plot on graphs / produce too much data to analyse	**2**
2(b)(i)	Shading 11–20 category in Gujarat	**1**
2(b)(ii)	Flow lines / **located** bar graphs	**1**
2(b)(iii)	Hypothesis is **correct** / **true** – 1 mark reserve Most migrants come from Rajasthan OR More from Rajasthan / Madhya Pradesh / Uttar Pradesh / Haryana than another named state e.g. more from Madhya Pradesh than West Bengal Credit comparative data to 1 mark maximum e.g. 21–50 from Madhya Pradesh and 0 from Tamil Nadu More than 100 from Rajasthan and 1–10 from Bihar Credit 'only' with statistics as comparison statement, and credit statistics (so 2 marks) No credit if response says Hypothesis is false / partly true If no hypothesis conclusion in response credit evidence	**3**
2(b)(iv)	Less **distance** / closer to / less time to travel from neighbouring / nearby states **Cheaper** to travel from neighbouring / nearby states / cannot afford to travel long distance More **transport** links / easier access from neighbouring / nearby states Migrants have more **knowledge** / know people / have relatives / speak local language of Jaipur in neighbouring states There will be other large **cities** to attract migrants in other states Can credit 'opposite' ideas from distant states	**2**
2(c)(i)	Completion of pie graph – shops = 25%, handpumps = 11%, wells = 10% 2 marks for dividing lines at 77 and 88, 1 mark for shading	**3**
2(c)(ii)	13%–15%	**1**

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Question	Answer	Marks
2(c)(iii)	Plot bar 'Throw it on the road' = 13%	**1**
2(c)(iv)	1 mark for each: water / lighting / rubbish No mains water supply Most / over half / main source of water from public taps Water comes from public sources / do not have their own water / piped water / do not have water in their house Water must be collected which takes time Water sources spread disease / contaminated water No electric lighting / no electricity Lighting is unreliable 45% / nearly half have no light of their own Main source of light is kerosene lamps No rubbish collection / waste management / rubbish disposal / no hygienic way of waste disposal Rubbish near to settlement Rubbish will attract vermin / spread disease Settlement is unclean / unhygienic Main method of rubbish disposal is to leave it next to shelter Credit 1 marks maximum for data (1% tolerance on stats) e.g. 52% depend on public taps 42–43% depend on kerosene lamps 42% dump rubbish on waste ground	**4**
2(d)(i)	Divided bar graph completion – construction worker = 24%, making & selling items = 12%, blacksmith = 10% 2 marks for plotting dividing lines, 1 mark for correct labelling of sections 2 marks maximum if measured from 46% down	**3**
2(d)(ii)	Jobs will be poorly paid / low wages Informal / unskilled jobs / need no education / qualifications Unreliable wages Hard / manual labour / dirty job	**2**

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Question	Answer	Marks
2(e)	Solution A Will improve housing / services / create living spaces / provide a house / provide a shelter Create good standard of living / good quality of life / provide basic needs People can afford decent house / services Reduce disease / hygienic / clean environment / healthy environment / improve health Safe – if developed e.g. from robbery Solution B Will force people out of their accommodation / force them to move away / nowhere to live Will just transfer the squatter settlement residents elsewhere May lead to conflict with authorities / violence People end up where they started / end up back on pavement / not a permanent solution Answer does not need to be comparative Accept answers for A which are a reversal of B, e.g. Solution A will not force people to move out of their houses Credit if the answer says 'it' rather than solution A	**4**

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/11**

Paper 1 **October/November 2017**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 1 for Question 1, Photographs A, B, C and D for Question 5, and Photograph E for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **29** printed pages, **3** blank pages and **1** Insert.

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Section A

Answer **one** question from this section.

QUESTION 1

1 (a) Study Fig. 1 (Insert), which is a map showing population distribution in part of Asia.

(i) **Complete the table below** by inserting the names of the following three countries. The countries should be arranged in rank order of their total population size.

Pakistan India China

largest total population	
smallest total population	

[1]

(ii) Using evidence from Fig. 1 **only**, describe **one** difference in population density and **one** difference in population distribution between the islands of Sumatra and Borneo.

Population distribution .....

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Population density .....

.....[2]

(iii) Describe the population distribution in China.

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(iv) Suggest reasons for the low population density in Mongolia.

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(b) Study Fig. 2, which shows the total population and population density of five of the largest urban areas in Asia.

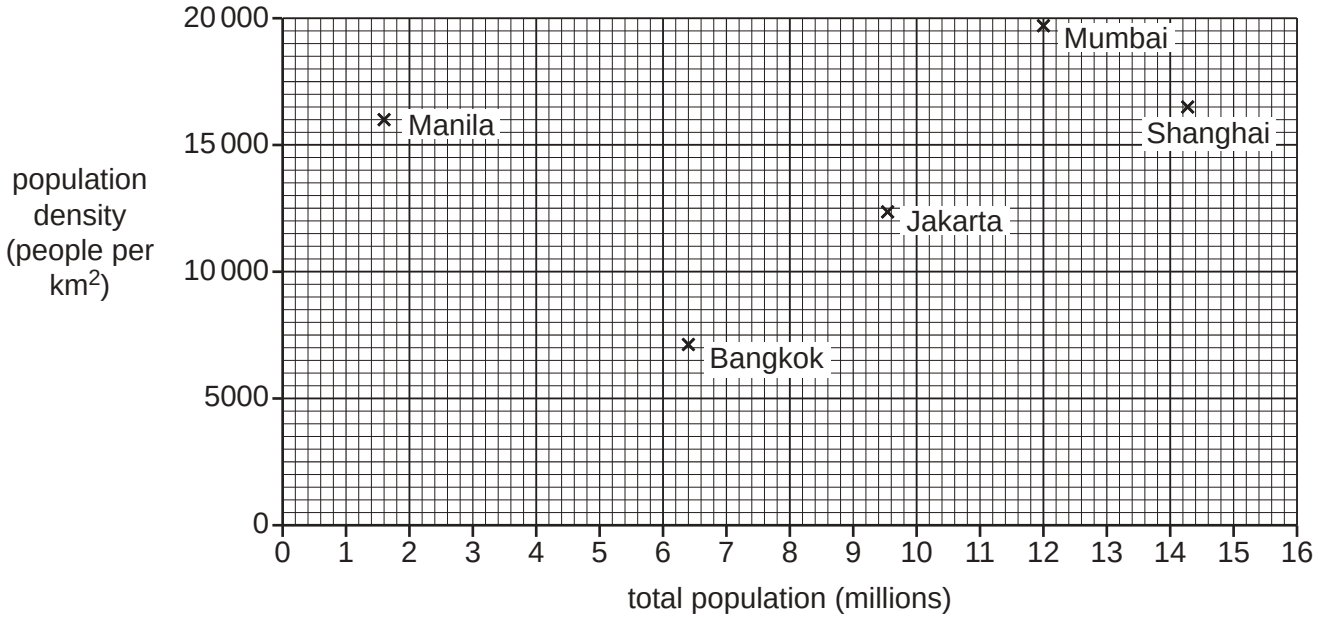

Fig. 2

(i) To what extent is there a relationship between the total population and the population density of the five urban areas?
You should include data from Fig. 2 in your answer.

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(ii) Suggest the likely difficulties which planners and city authorities face in urban areas with very high population densities.

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(c) Name a country you have studied and give reasons why people have migrated from it to another named country.

International migration from ..... to .....

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[Total: 25 marks]

END OF QUESTION 1

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QUESTION 2

2 (a) Study Fig. 3, which is a graph showing an index of inequality in some large urban areas in different countries.

Inequality means differences in wealth, level of poverty and access to things such as jobs, housing and education.

A higher index value means less inequality and a lower index value means more inequality.

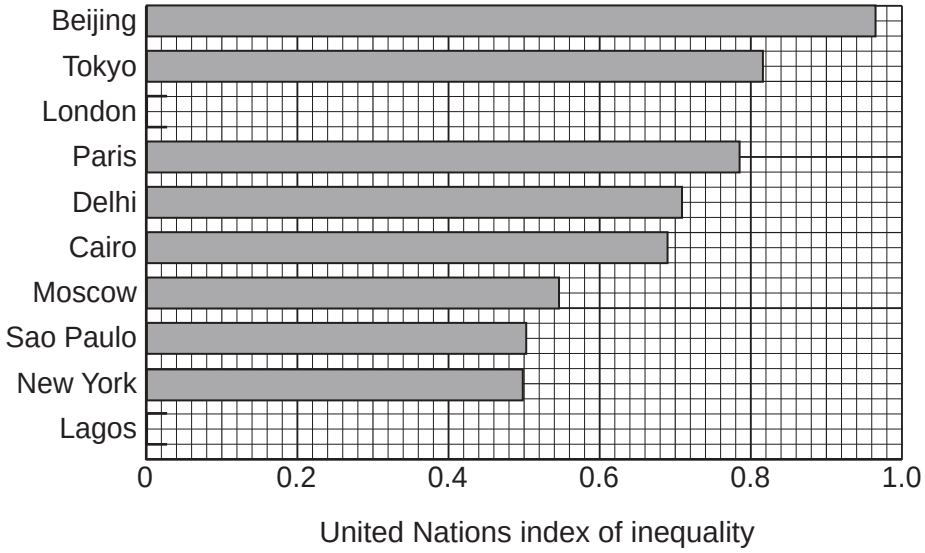
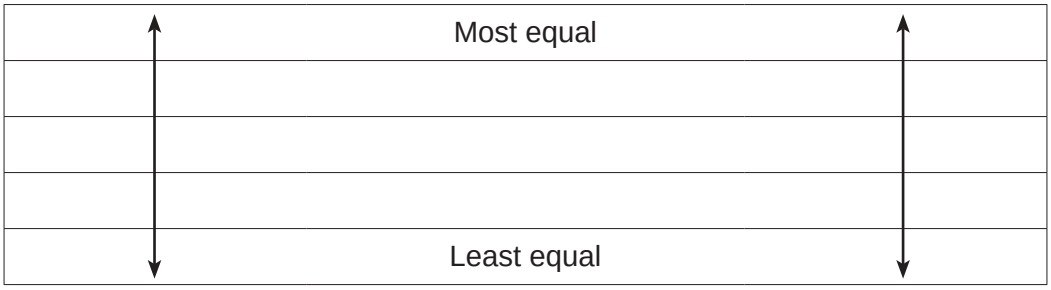


Fig. 3

(i) **Complete the table below** by inserting the names of the following three cities.
The cities should be arranged in rank order of their United Nations index of inequality.

Cairo New York Paris



[1]

(ii) **Complete Fig. 3** by plotting the following information:

– The UN index for London is 0.8.

– The UN index for Lagos is 0.25. [2]

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(iii) Lagos is the urban area with the highest level of inequality.

Suggest **three** likely problems this will cause.

1 .....

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2 .....

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3 .....

.....[3]

(iv) Explain why, in many cities, there is a high level of inequality.

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(b) Study Fig. 4, which shows information about poverty in Baltimore, an urban area in the USA (an MEDC).

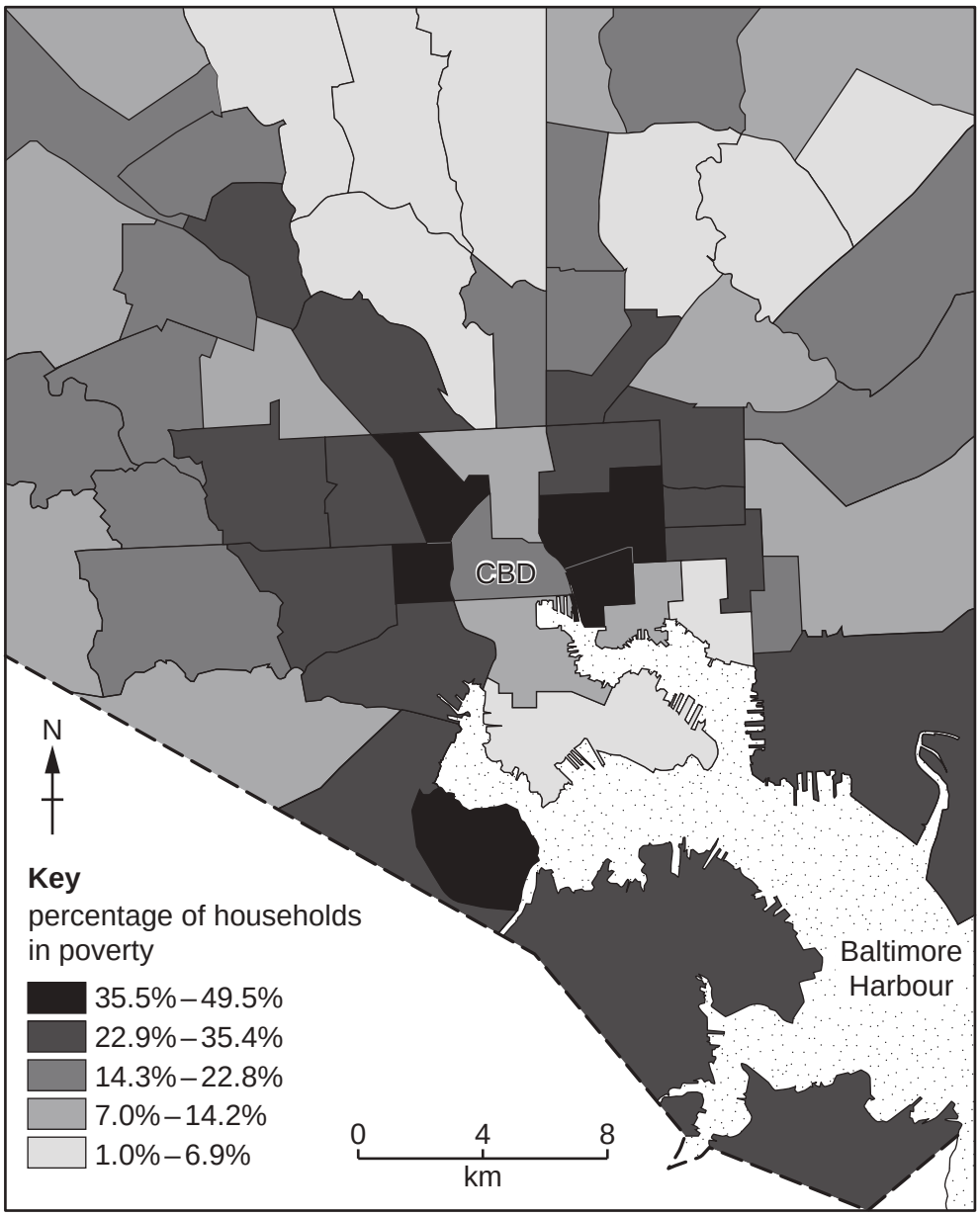

Fig. 4

(i) Describe the distribution of areas where 22.9% or more of households are in poverty.

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(ii) The following ideas to reduce inequality are being considered in Baltimore:

A Improve security by employing more police.

B Demolish derelict factories and build new housing on the land.

C Offer low-cost loans to owners of high technology industries to set up in Baltimore.

D Allow people on low incomes free use of public transport.

Do you think any of the ideas above are likely to reduce inequality in Baltimore?
Give reasons for your answer.

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(c) Most urban areas experience traffic problems.

For an urban area you have studied, describe the strategies which have been used to reduce traffic congestion.

Name of urban area .....

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[Total: 25 marks]

END OF QUESTION 2

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Section B

Answer **one** question from this section.

QUESTION 3

3 **(a)** Study Fig. 5, which shows Redang Island in Malaysia.

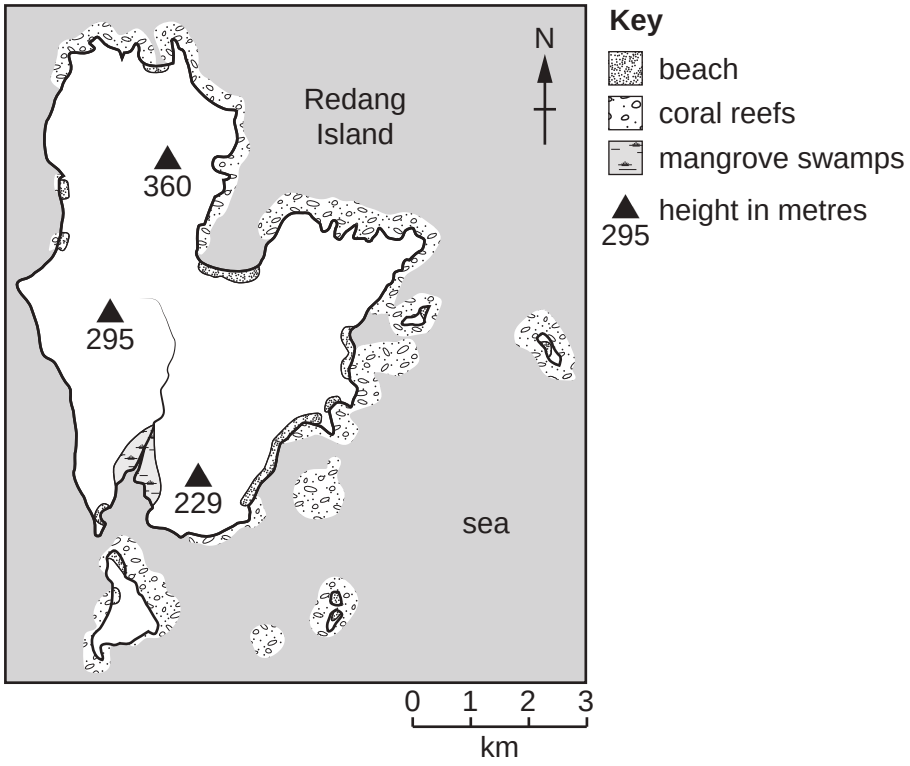

Fig. 5

(i) How high is the land at the highest point on Redang Island?

.....metres [1]

(ii) Compare the distribution of coral reefs and mangrove swamps.

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.....[2]

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(iii) Describe the main characteristics of mangrove swamps.

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(iv) Describe the conditions required for coral reefs to develop.

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(b) Study Fig. 6, which shows information about coastal protection.

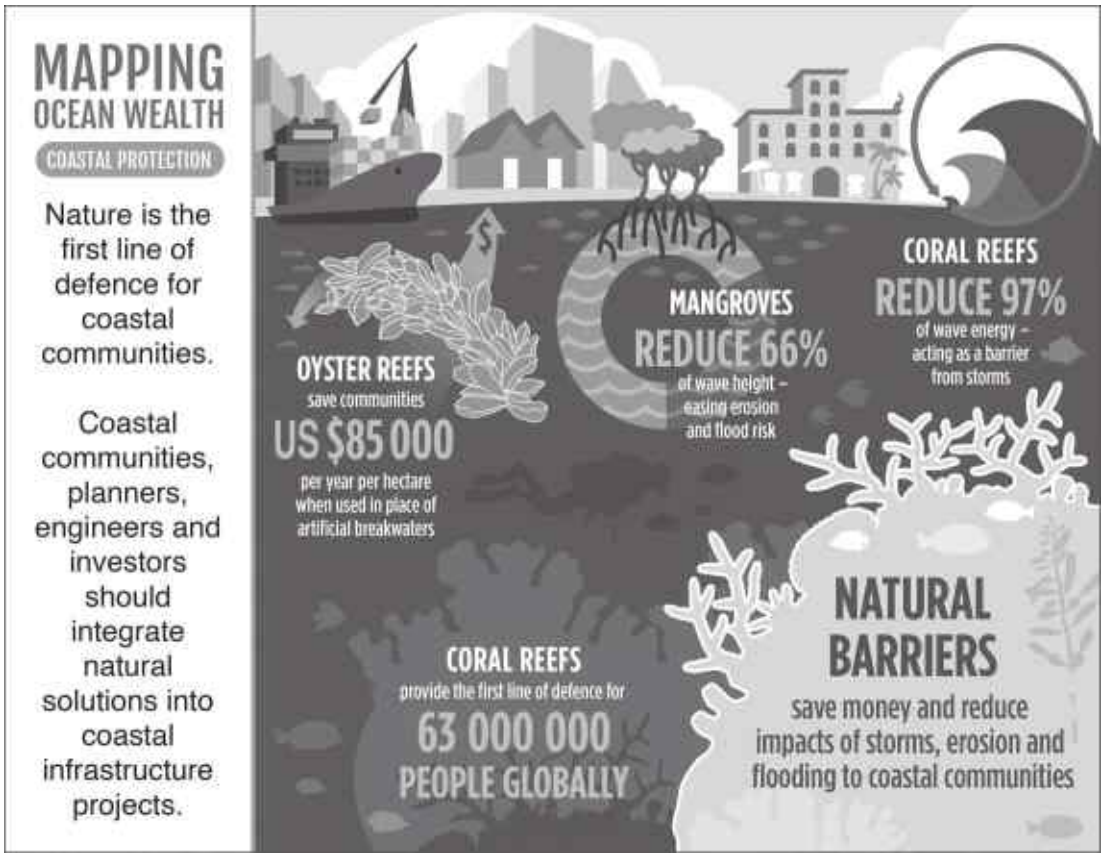

Fig. 6

(i) Using information from Fig. 6 **only**, explain how natural features can help to protect coasts.

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(ii) Describe other methods which can be used to manage coastal erosion.

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(c) Explain how bays and headlands are formed on a coast.
You may use a labelled diagram or diagrams.

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[Total: 25 marks]

END OF QUESTION 3

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QUESTION 4

4 (a) Study Fig. 7, which shows the climate of Iquitos, in the Amazon region of Peru.

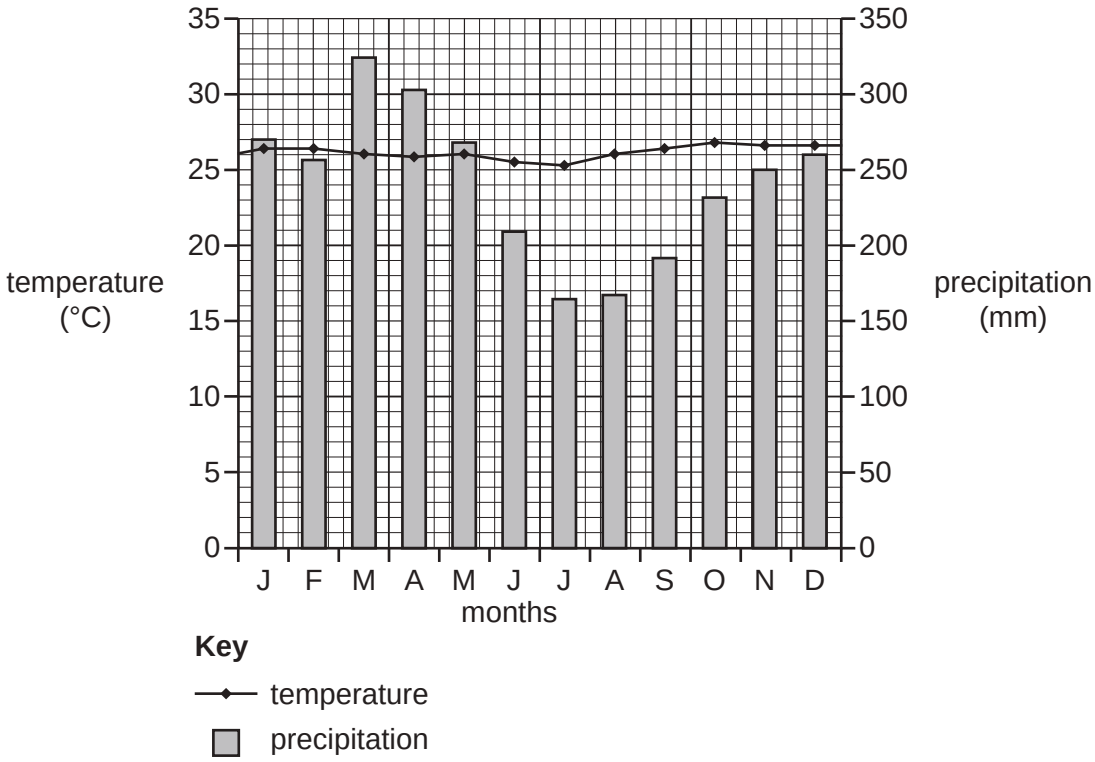

Fig. 7

(i) Tick the correct pair of figures in the table below to show the annual average temperature and rainfall.

annual average temperature	annual average rainfall	Tick (✓)
24 °C	1700 mm	
26 °C	2800 mm	
28 °C	2200 mm	

[1]

(ii) Describe **two** ways in which the climate of the area shown in Fig. 7 is typical of an equatorial climate.

1 .....

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2 .....

.....[2]

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(iii) Explain why convectional rainfall occurs in an area of equatorial climate.

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(b) Study Fig. 8, which shows information about deforestation of the tropical rainforest.

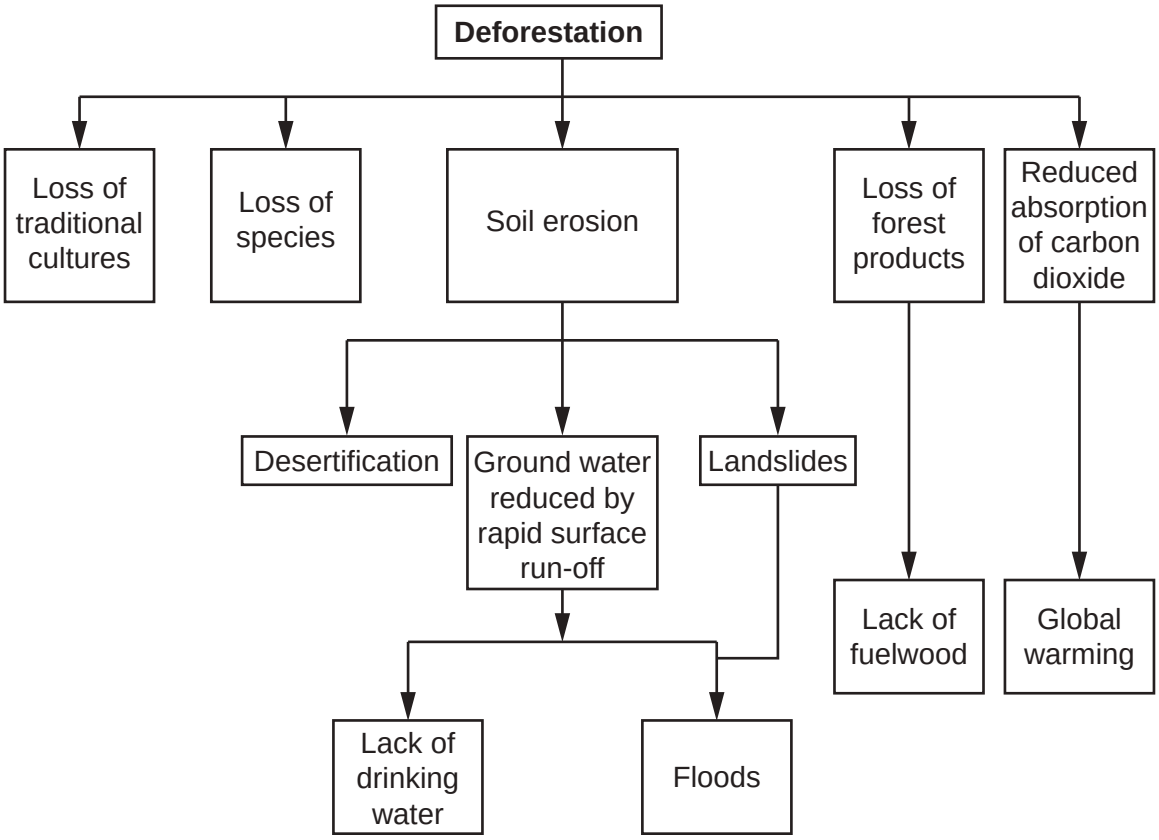

Fig. 8

(i) Using Fig. 8 **only**, identify **three** impacts of deforestation on people who live in the tropical rainforest.

1 .....

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2 .....

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(ii) Using Fig. 8 and your own knowledge, explain how deforestation leads to flooding of local rivers in areas of tropical rainforest.

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(iii) Explain why large amounts of deforestation are taking place in the tropical rainforest.

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(c) For a named area of **desert** you have studied, explain why the climate is hot and dry.

Name of desert .....

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Section C

Answer **one** question from this section.

QUESTION 5

5 **(a)** Study Fig. 9, which shows information about some types of attraction which have led to the growth of tourism in many areas.

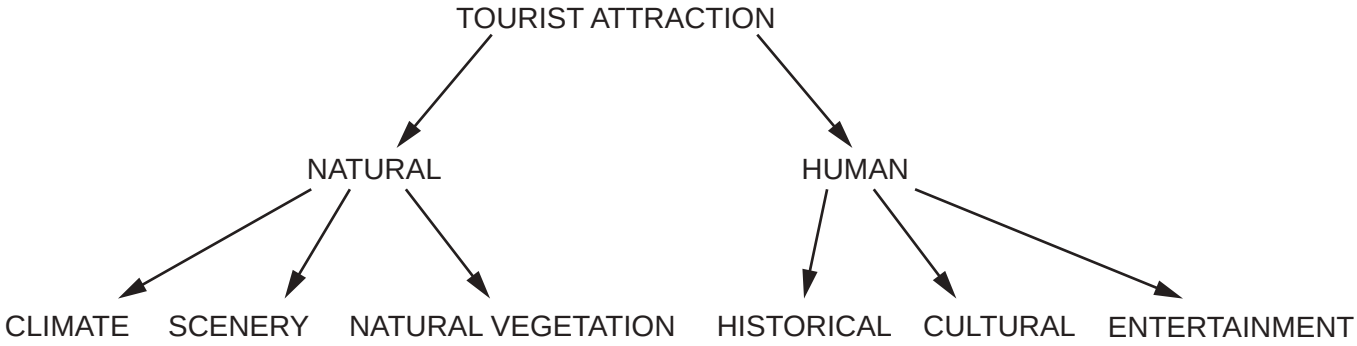

Fig. 9

(i) Which **one** of the following is a natural tourist attraction?

Tick the correct answer in the table below.

	Tick (✓)
hotel	
lighthouse	
sunny climate	
theme park	

[1]

(ii) State **two** different types of scenery which can attract tourists.

1 .....

2 .....[2]

(iii) Explain why many cities have become tourist attractions.

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(b) Study Photographs A, B, C and D (Insert) which were taken in Panchgani, an area in India (an LEDC) where tourism is important.

(i) Using Photographs A, B, C and D **only**, identify **three** attractions of Panchgani for tourists.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Suggest ways in which tourism may damage the natural environment in Panchgani.

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(iii) Explain how tourism can be managed so that the natural environment is not destroyed.

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(c) For a named area you have studied where tourism is important, explain how it has both positive and negative impacts on **local people**.

Name of area .....

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[Total: 25 marks]

END OF QUESTION 5

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QUESTION 6

6 **(a)** Study Fig. 10, which shows environmental risks associated with different economic activities.

Economic activity	Desertification	Global warming	Loss of biodiversity
Agriculture	✓	✓	✓
Energy generation		✓	✓
Fishing			✓
Manufacturing industry		✓	✓

Fig. 10

(i) Using Fig. 10, identify the economic activity shown which is a cause of desertification.

..... [1]

(ii) Choose **one** economic activity from Fig. 10 and suggest why it leads to a loss of biodiversity.

Economic activity .....

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.....[2]

(iii) Explain how energy generation may lead to global warming.

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.....[3]

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(iv) Explain why global warming is a threat to the natural environment.

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(b) Study Photograph E (Insert), which shows an area of soil erosion in Swaziland (an LEDC in Africa).

(i) Using evidence from Photograph E **only**, describe the impacts of soil erosion.

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(ii) Suggest ways in which both economic activities and natural processes may have caused soil erosion in the area shown in Photograph E.

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(c) For a named country you have studied, describe the importance of different types of energy.

Name of country .....

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2224413153

GEOGRAPHY **0460/12**

Paper 1 **October/November 2017**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

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Answer **three** questions, **one** from each section.

The Insert contains Photograph A and Figs. 3A, 3B and 3C for Question 2, Fig. 4 for Question 3, Photographs B and C for Question 4, Photographs D, E and F for Question 5, and Fig. 9 for Question 6.
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Section A

Answer **one** question from this section.

QUESTION 1

1 (a) Study Fig. 1, which shows information about population growth in three countries.

Country	Birth rate (per 1000)	Death rate (per 1000)	Natural population growth (per 1000)
Chile	13.8	6.0	7.8
France	12.4	9.2	
Hungary	9.3	12.7	–3.4

Fig. 1

(i) Define the term *natural population growth*.

.....

.....[1]

(ii) Calculate the natural population growth of France. You should show your calculations in the box below.

..... per 1000

[2]

(iii) Suggest reasons why the population is declining in countries such as Hungary.

.....

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.....[3]

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(b) Study Fig. 2, which shows information about the infant mortality rate in Bangladesh and Pakistan (LEDCs in Asia) between 1980 and 2015.

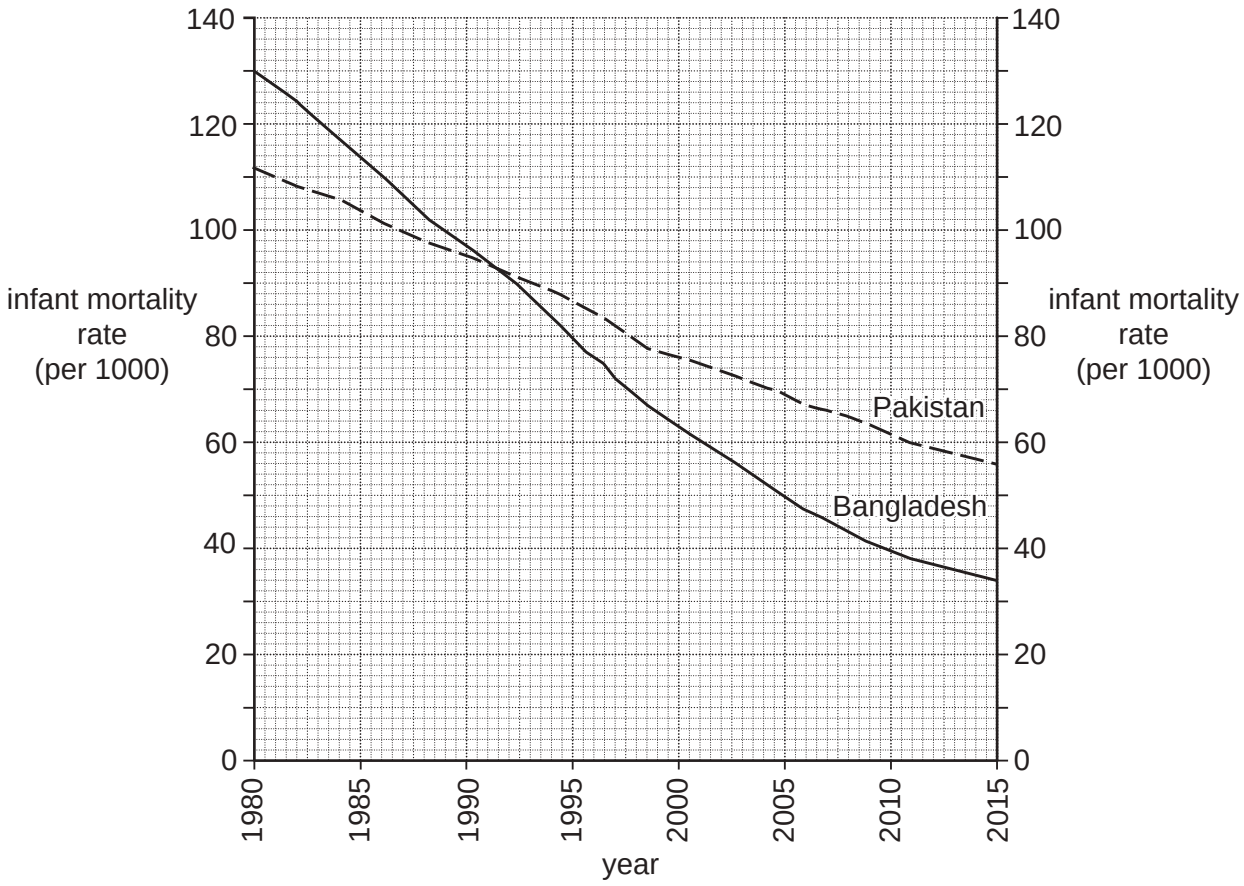

Fig. 2

(i) Compare the changes in the infant mortality rates of Bangladesh and Pakistan between 1980 and 2015. You should use statistics in your answer.

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.....[3]

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(ii) Suggest reasons why infant mortality is high in many LEDCs.

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.....[4]

(iii) Explain why countries with high infant mortality are likely to have high birth rates.

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.....[5]

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(c) For a named country you have studied, describe a population policy or policies which has been used to influence its growth rate.

Name of country .....

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[Total: 25 marks]

END OF QUESTION 1

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QUESTION 2

2 **(a)** Study Photograph A (Insert), which shows a rural settlement in Lesotho (an LEDC in Africa).

(i) What is meant by a *rural* settlement?

.....

.....[1]

(ii) Using evidence from Photograph A **only**, describe **two** characteristics of the houses in the settlement shown.

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.....[2]

(iii) Explain how rural settlements, such as the one shown in Photograph A, fit into the hierarchy of settlement in a country.

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.....[3]

(iv) Explain why many people have migrated away from rural settlements, such as the one shown in Photograph A.

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.....[4]

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(b) Study Figs. 3A, 3B and 3C (Insert), which show maps of three rural settlements in the Czech Republic (an MEDC in Europe).

(i) Identify the settlement patterns shown by each of the three maps.

Fig. 3A .....

Fig. 3B .....

Fig. 3C ..... [3]

(ii) Suggest reasons why different settlement patterns have developed in the areas shown in Figs. 3A, 3B and 3C.

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(c) Give reasons for the growth of a named urban settlement (town or city).

Name of town or city .....

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[Total: 25 marks]

END OF QUESTION 2

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Section B

Answer **one** question from this section.

QUESTION 3

3 **(a)** Study Fig. 4 (Insert), a map showing the location of recorded earthquakes which have occurred in New Zealand.

(i) What is meant by the *focus* of an earthquake?

.....

.....[1]

(ii) Identify the depth of the focus and the strength (on the Richter scale) of the earthquake which occurred at 40 °S 178 °E.

Depth of focus ..... km

Strength ..... [2]

(iii) Using Fig. 4 **only**, compare the similarities and differences of the earthquakes which have occurred on North Island and South Island of New Zealand.

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.....[3]

(iv) Using Fig. 4, explain why New Zealand experiences earthquakes.

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(b) Study Fig. 5, which shows information about major earthquakes which have occurred in the world between 1970 and 2014.

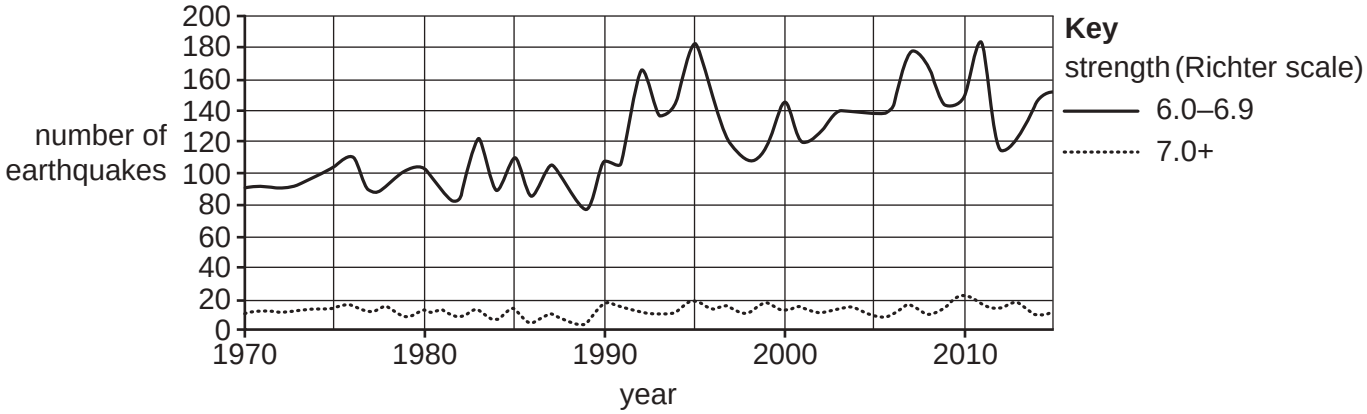

Fig. 5

(i) Many people think that the number of earthquakes is increasing.

To what extent is this true? Use evidence from Fig. 5 to support your answer.

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.....[3]

(ii) Suggest why people live in areas which experience earthquakes and volcanoes.

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.....[5]

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(c) Describe the hazards created by a named **volcanic eruption** you have studied.

Name of volcano .....

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[Total: 25 marks]

END OF QUESTION 3

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QUESTION 4

4 **(a)** Study Fig. 6, which shows three areas of natural vegetation in Bangladesh (an LEDC in Asia).

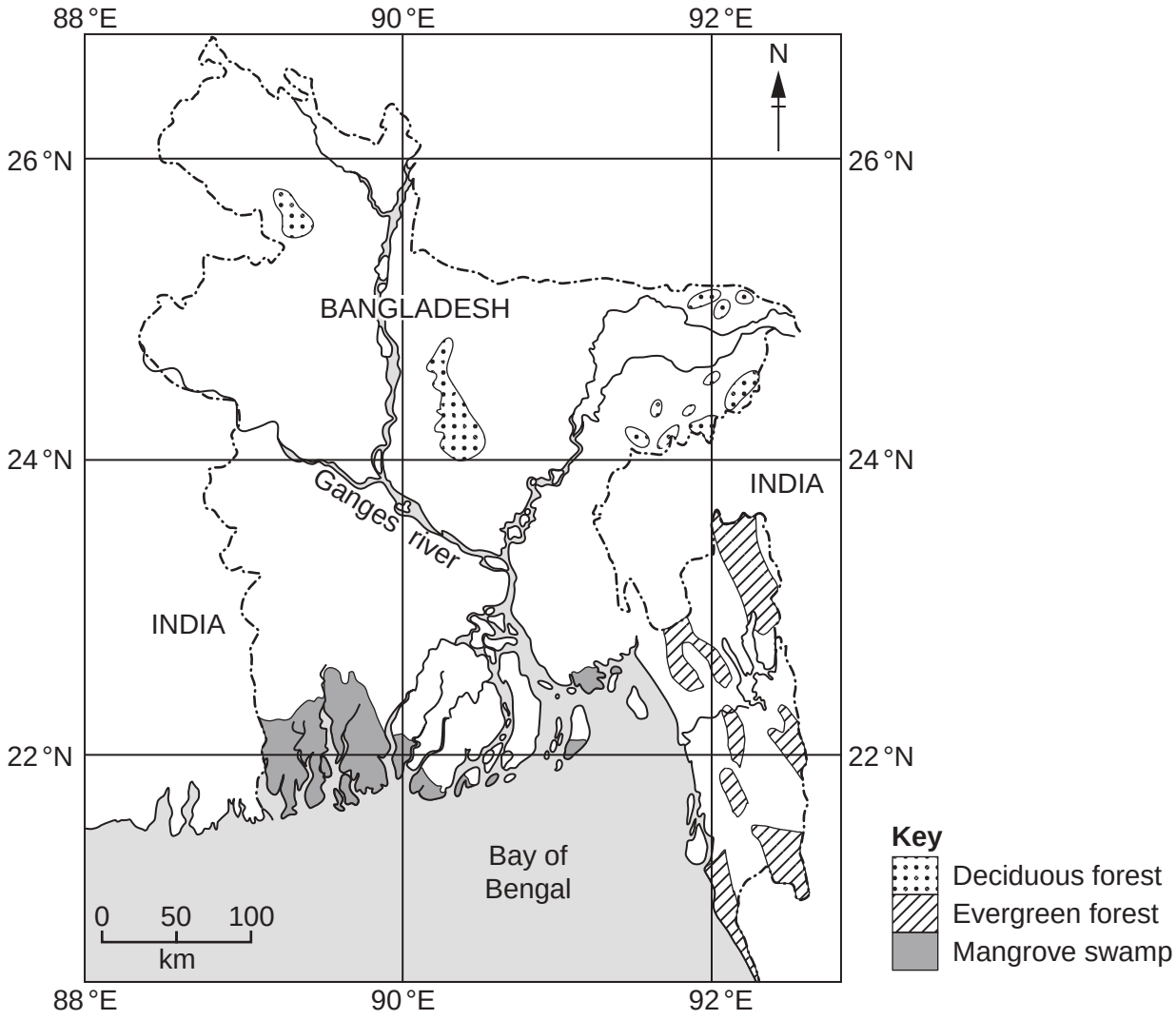

Fig. 6

(i) Tick the **one** latitude and longitude in the table below which shows the location of an area of mangrove swamp.

	Tick (✓)
21 °N 89 °E	
22 °N 90 °E	
23 °N 91 °E	

[1]

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(ii) Using Fig. 6 **only**, describe the distribution of the areas of mangrove swamp.

.....

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.....[2]

(iii) Describe the main features of a mangrove swamp.

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.....[3]

(iv) Coral reefs are located along many coastlines in tropical areas.

Describe **four** conditions which are needed for the development of a coral reef.

1 .....

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2 .....

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3 .....

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4 .....

.....[4]

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(b) Study Photographs B and C (Insert), which were taken on a stretch of coastline in the UK.

(i) Suggest **three** reasons why the cliffs shown in Photographs B and C are eroding rapidly.

1 .....

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2 .....

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3 .....

.....[3]

(ii) The following methods are being considered to manage the coastal erosion shown in the area where the photographs were taken.

A	Build an offshore breakwater 100 metres out to sea using old car tyres.
B	Build groynes every 50 metres along the beach.
C	Build a long concrete sea wall along the most rapidly eroding parts of the coastline.

Which method do you think should be used to manage the erosion on this coastline? Give reasons why you have chosen this method.

Method chosen .....

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.....[5]

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(c) Explain why people live along a named area of coastline you have studied.

Name of area of coastline .....

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[Total: 25 marks]

END OF QUESTION 4

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Section C

Answer **one** question from this section.

QUESTION 5

5 **(a)** Study Fig. 7, which is a graph showing information about the average employment structure of LEDCs and MEDCs, along with Photographs D, E and F (Insert).

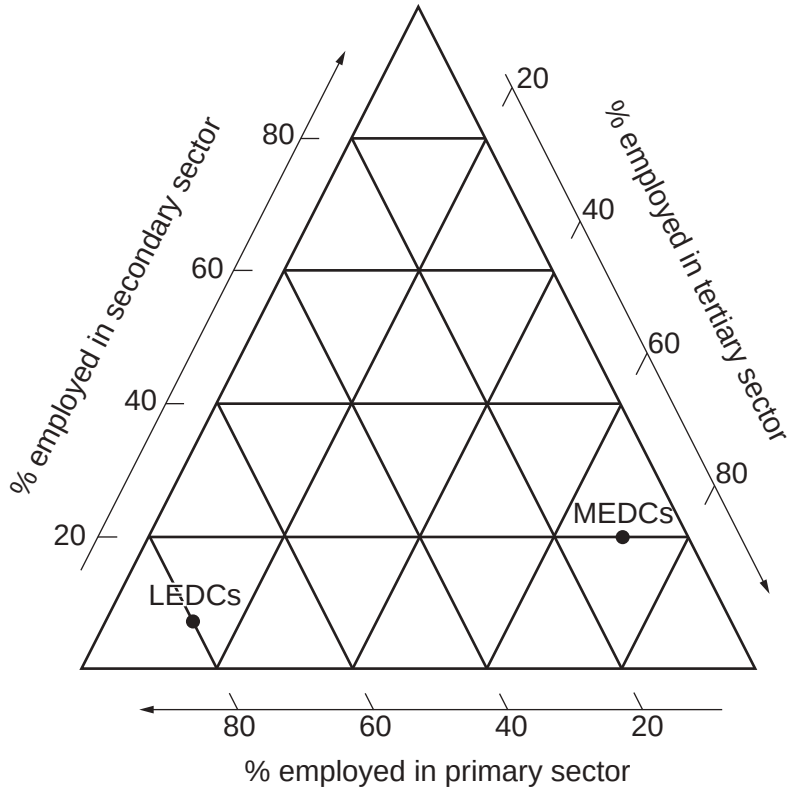

Fig. 7

(i) **Plot a cross on Fig. 7** to show the following information about the average employment structure of NICs:

Primary 20%;
Secondary 30%;
Tertiary 50%. [1]

(ii) Match Photographs D, E and F (Insert) with the descriptions in the table below. Write the letter of a photograph alongside the correct description.

	Letter (D, E or F)
Primary industry in an LEDC	
Secondary industry in an MEDC	
Tertiary industry in an NIC	

[2]

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(iii) Using information from Fig. 7 **only**, compare the average employment structure of an LEDC and MEDC.

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.....[3]

(iv) Suggest reasons for the difference in employment structure between LEDCs and MEDCs.

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.....[4]

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(b) Study Fig. 8, which is a map showing information about Ferrero, a transnational corporation (TNC) which produces Nutella chocolate spread.

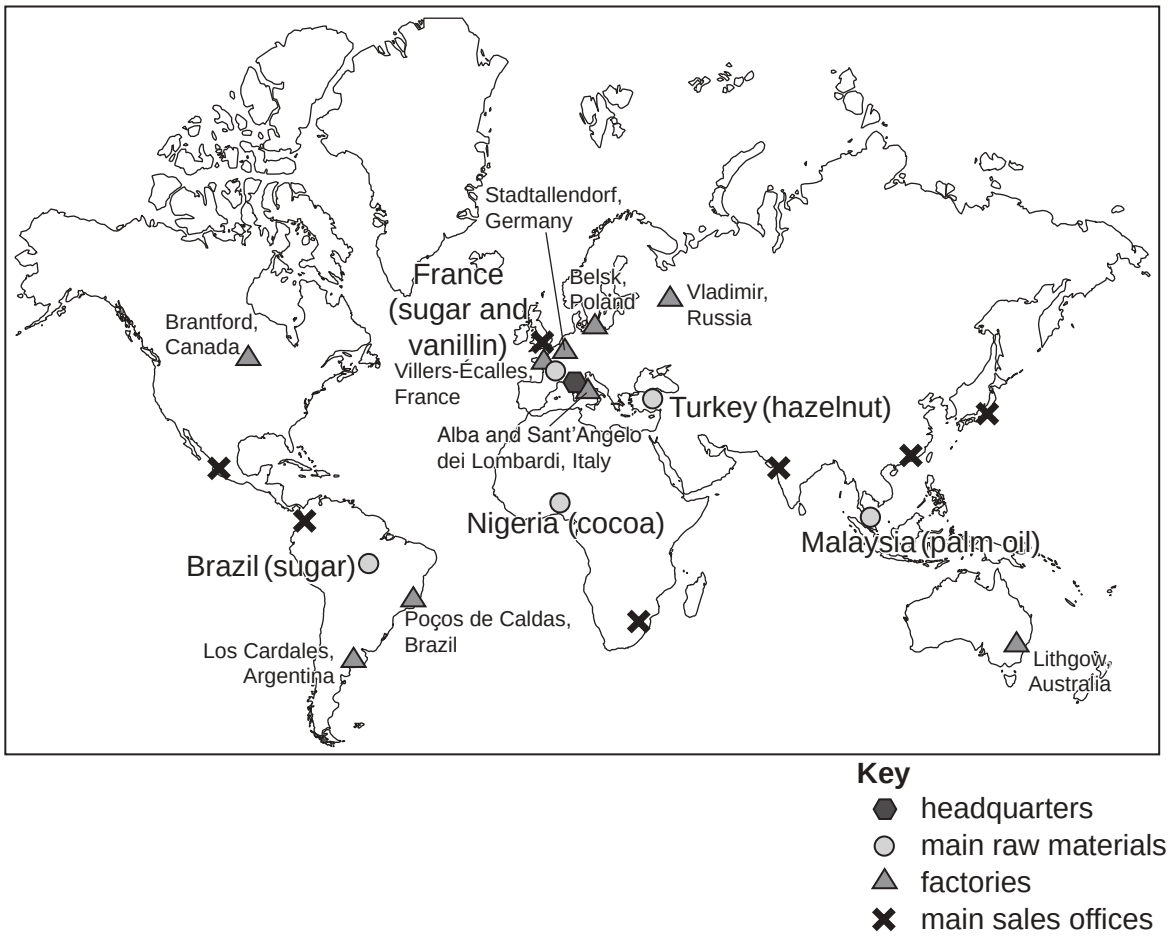

Fig. 8

(i) Using information from Fig. 8 **only**, explain how the TNC (Ferrero) shows evidence of globalisation.

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.....[3]

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(ii) Explain why globalisation has occurred.

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(c) For a named example you have studied, describe the impacts of a transnational corporation (TNC) on an LEDC.

Name of transnational corporation (TNC) .....

Name of LEDC .....

.....

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QUESTION 6

6 **(a)** Study Fig. 9 (Insert), which is a map showing information about industry in Panama (an LEDC in Central America).

(i) What is meant by *manufacturing*?

.....

.....[1]

(ii) Identify the following from Fig. 9:

- A food processing industry in Colón; .....
- A crop grown around Puerto Armuelles. ..... [2]

(iii) What evidence on Fig. 9 suggests that raw materials influence the location of manufacturing industry in Panama?

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.....[3]

(iv) Suggest other factors which may have influenced the location of manufacturing industry in Panama.

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(b) Study Fig. 10, which shows information about industry.

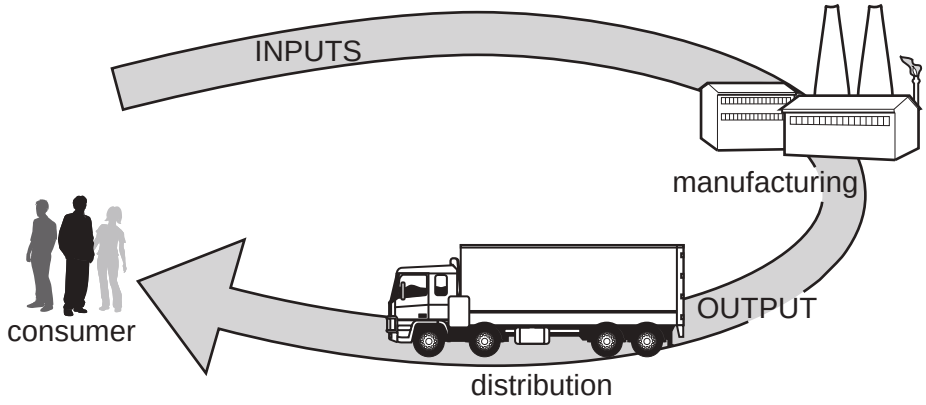

Fig. 10

(i) State **three** different types of input of a manufacturing industry.

1 .....

2 .....

3 .....[3]

(ii) Name a type of manufacturing industry. Identify the main output and describe the processes which take place in the industry.

Type of manufacturing industry .....

Main output .....

.....

.....

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.....[5]

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(c) For a farm or agricultural system in a named area you have studied, explain how the land use is influenced by **natural** factors.

Name of area .....

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[Total: 25 marks]

END OF QUESTION 6

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/13**

Paper 1 **October/November 2017**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided. If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Photographs A and B for Question 2, and Photograph C for Question 3.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **31** printed pages, **1** blank page and **1** Insert.

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Section A

Answer **one** question from this section.

QUESTION 1

1 (a) Study Fig. 1, which shows population pyramids for Australia and Canada (MEDCs).

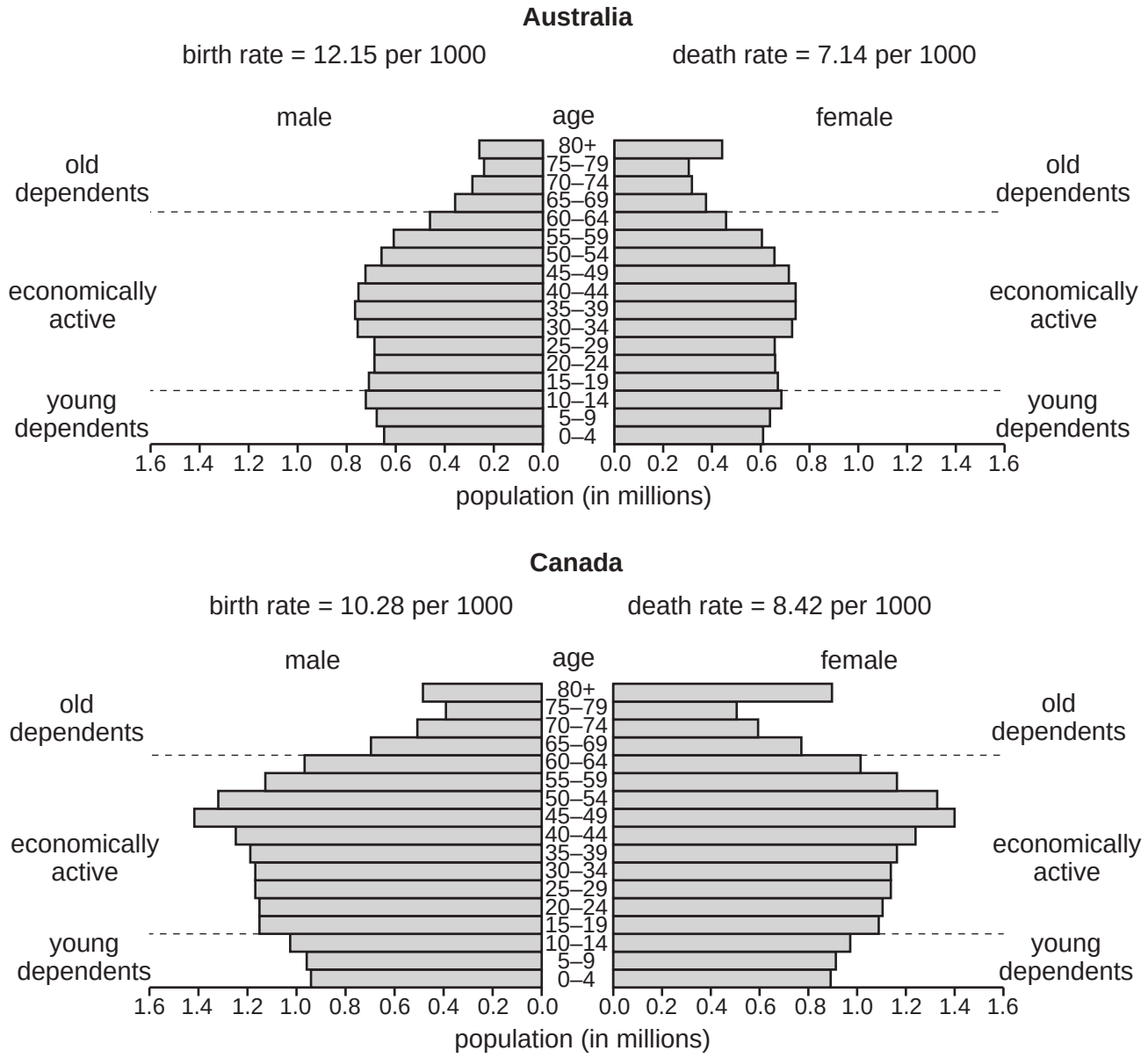

Fig. 1

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(i) Estimate the number of old dependents in Australia.

Choose from the list below and circle your answer.

1.4 million 2.5 million 3.5 million 6 million [1]

(ii) Using Fig. 1 **only**, describe **one** similarity and **one** difference between the population structure of Australia and Canada.

Similarity .....

.....

Difference .....

.....[2]

(iii) Give **three** reasons why the birth rates of MEDCs, such as Australia and Canada, are low.

1 .....

.....

2 .....

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3 .....

.....[3]

(iv) Describe how the population structure of an LEDC is likely to be different from the population structure of MEDCs such as Australia and Canada.

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.....[4]

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(b) Study Fig. 2, which shows information about changes in the percentage of the world population of different ages between 2000 and 2040 (estimated).

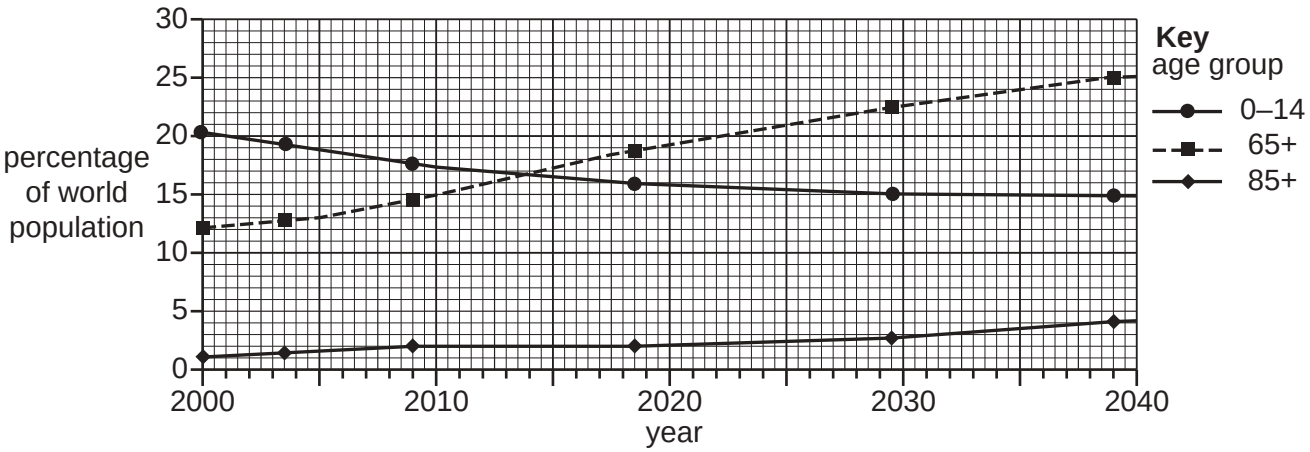

Fig. 2

(i) Using Fig. 2 **only**, describe the changes in the percentage of dependents:

aged from 0 to 14; .....

.....

aged 65 and over; .....

.....

aged 85 and over. .....

.....[3]

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(ii) Suggest how the changes in the percentage of young and old dependents shown in Fig. 2 could cause problems in MEDCs such as Australia and Canada.

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.....[5]

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(c) Describe the consequences of over-population for a named country you have studied.

Name of country .....

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QUESTION 2

2 (a) Study Fig. 3, which shows information about the population of five LEDCs.

Country	Total population (millions)	Urban population (percentage)	Largest city	Population of largest city (millions)
Angola	19.1	59	Luanda	4.5
Brazil	202.7	87	São Paulo	20.0
Indonesia	253.6	44	Jakarta	9.1
Kenya	45.0	22	Nairobi	3.4
Mexico	120.3	78	Mexico City	19.3

Fig. 3

(i) Name the city with the largest population in Kenya.

..... [1]

(ii) Using Fig. 3 **only**, identify the country which has the largest percentage of:

- the total population of the country living in towns and cities;

  .....

- the total population of the country living in its largest city.

  ..... [2]

(iii) The largest cities named in Fig. 3 are examples of high-order settlements.
Give **three** characteristics of high order settlements.

1 .....

.....

2 .....

.....

3 .....

.....[3]

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(iv) Explain why many people migrate from rural areas to cities in LEDCs.

.....

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.....[4]

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(b) Study Photographs A and B (Insert), which show different types of services in an urban settlement.

(i) Compare the services shown in Photographs A and B by completing the table below. You should circle one word in each of the six boxes.

	Photograph A	Photograph B
order of service	low medium high	low medium high
size of sphere of influence	small medium large	small medium large
size of threshold population	small medium large	small medium large

[3]

(ii) Suggest reasons why people travel different distances to use the services shown in Photographs A and B.

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.....[5]

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(c) For an area or country you have studied, describe the hierarchy of settlement and service provision.

Name of area or country .....

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[Total: 25 marks]

END OF QUESTION 2

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Section B

Answer **one** question from this section.

QUESTION 3

3 **(a)** Study Fig. 4, a map of the Rio Puerco drainage basin in the USA.

Major streams of the Rio Puerco drainage basin

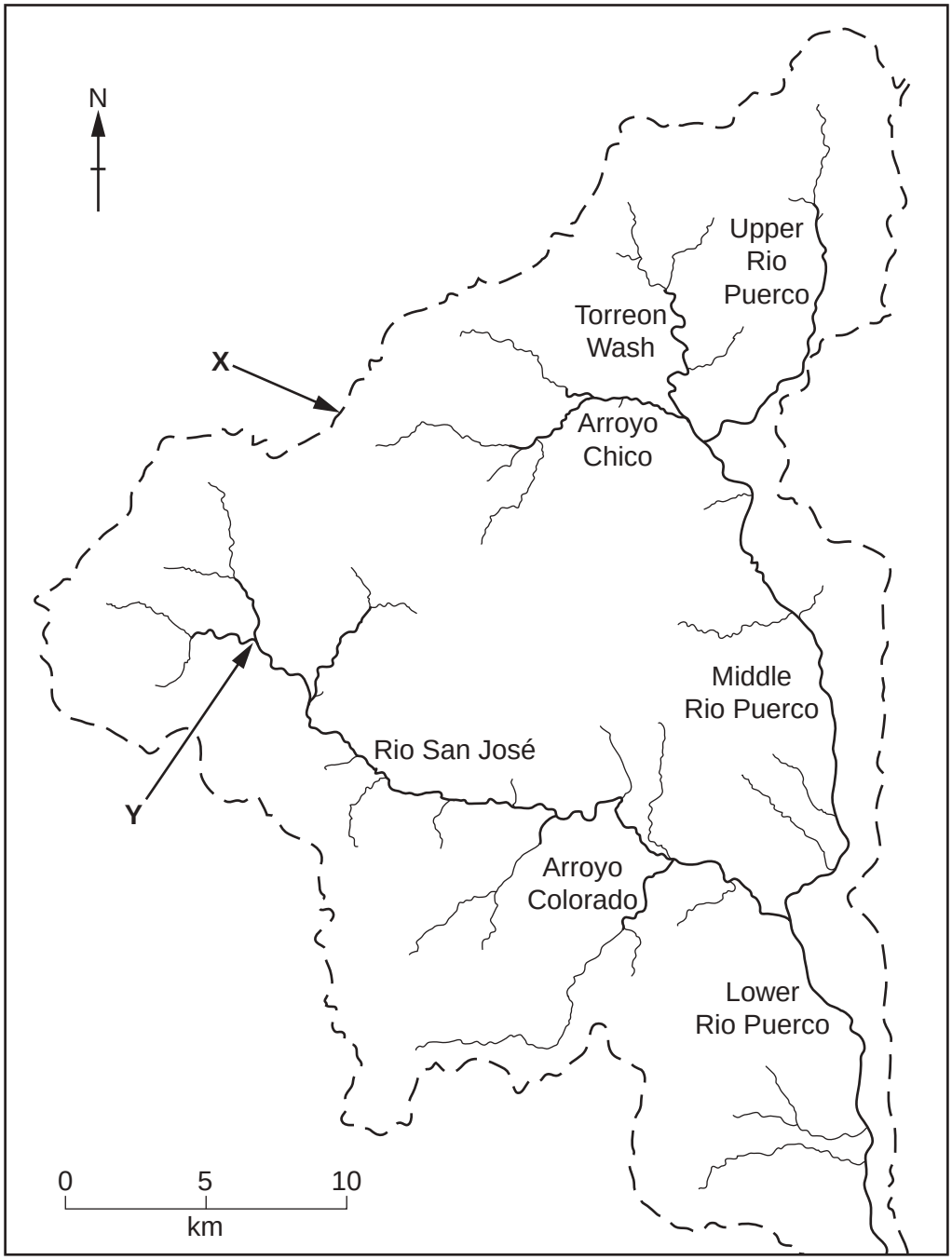

Fig. 4

(i) What is meant by the term *drainage basin*?

.....

.....[1]

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(ii) Identify the features labelled **X** and **Y** on Fig. 4.

X .....

Y ..... [2]

(iii) Using evidence from Fig. 4, suggest why flooding is more likely in the Lower Rio Puerco than in the Torreon Wash.

.....

.....

.....

.....

.....

.....[3]

(iv) Describe **four** different strategies which can be used to reduce river flooding.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

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(b) Study Photograph C (Insert), which shows a river close to its source.

(i) Identify **three** ways in which the river shown in Photograph C is typical of a river close to its source.

1 .....

.....

2 .....

.....

3 .....

.....[3]

(ii) Explain how the long profile and cross section of the valley of the river shown in Photograph C will change as the river flows towards the sea.

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.....[5]

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[Turn over

(c) Describe the main natural features of a delta and explain how it is formed.
You may use a labelled diagram or diagrams.

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[7]

[Total: 25 marks]

END OF QUESTION 3

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QUESTION 4

4 **(a)** Study Fig. 5, which shows the climate of Balikpapan, an area of equatorial climate in Borneo in south east Asia.

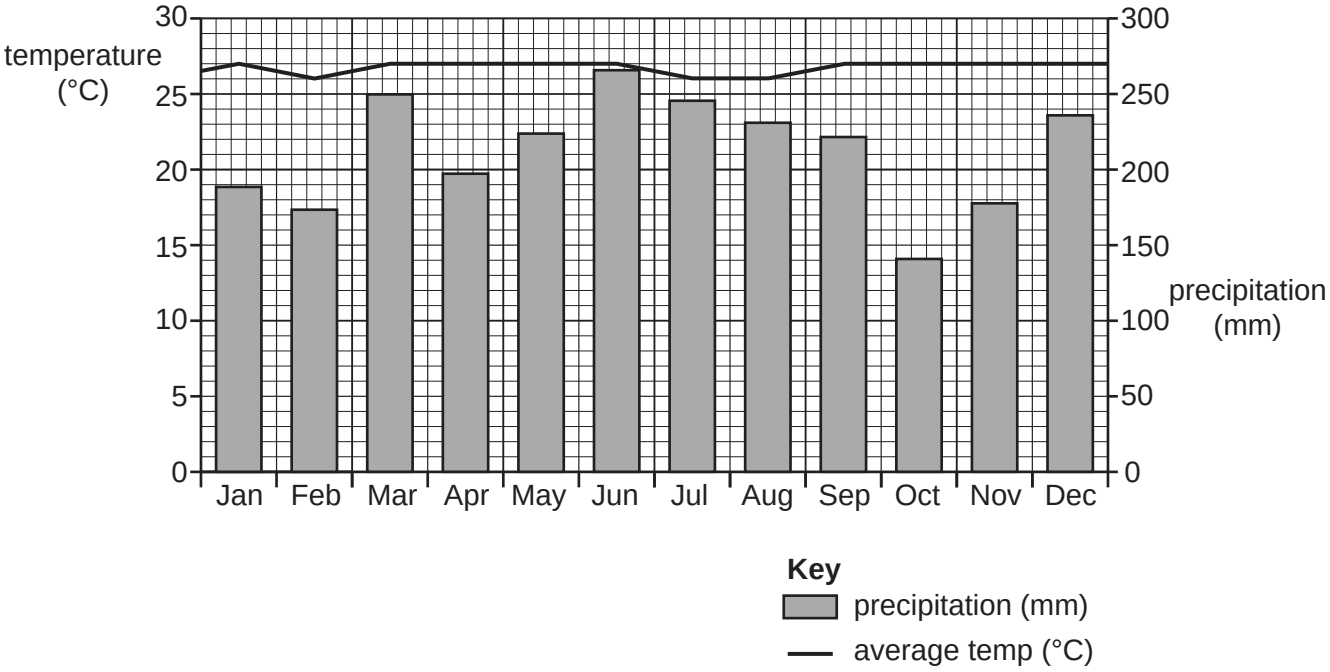

Fig. 5

(i) What is the precipitation at Balikpapan during the wettest month?

..... mm [1]

(ii) Calculate the annual temperature range at Balikpapan. You should show your calculations in the box below.

..... °C

[2]

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(iii) Explain why equatorial climates have a low temperature range.

.....

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.....[3]

(iv) Explain why equatorial climates have large amounts of rainfall.

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.....[4]

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(b) Study Fig. 6, which shows information about the tropical rainforest ecosystem.

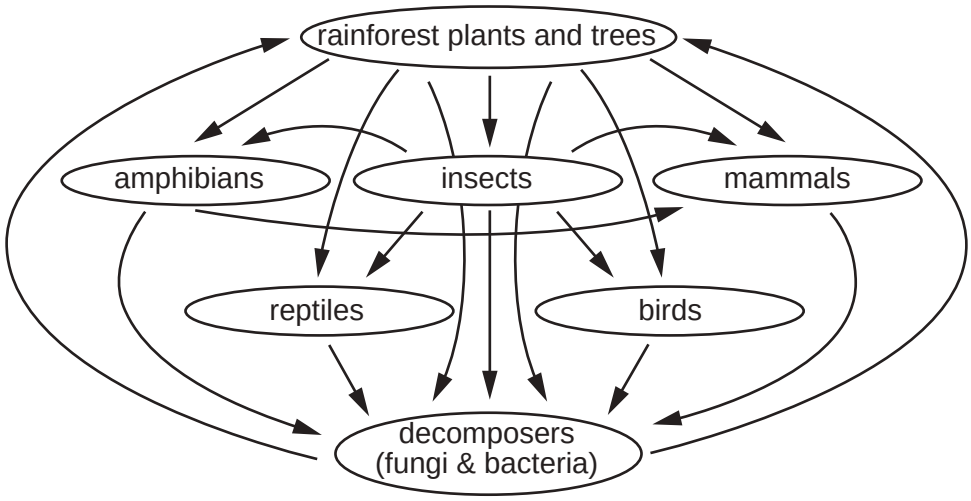

Fig. 6

(i) Using Fig. 6 **only**, suggest **three** impacts of deforestation on the tropical rainforest ecosystem.

1 .....

.....

2 .....

.....

3 .....

.....[3]

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(ii) Explain why large amounts of deforestation are taking place in the tropical rainforest.

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.....[5]

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(c) For a named area of **hot desert** you have studied, describe and explain the characteristics of the ecosystem.

Name of desert .....

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[Total: 25 marks]

END OF QUESTION 4

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Section C

Answer **one** question from this section.

QUESTION 5

5 (a) Study Fig. 7, which shows information about access to clean drinking water sources in rural and urban areas in eight countries in 1990 and 2014.

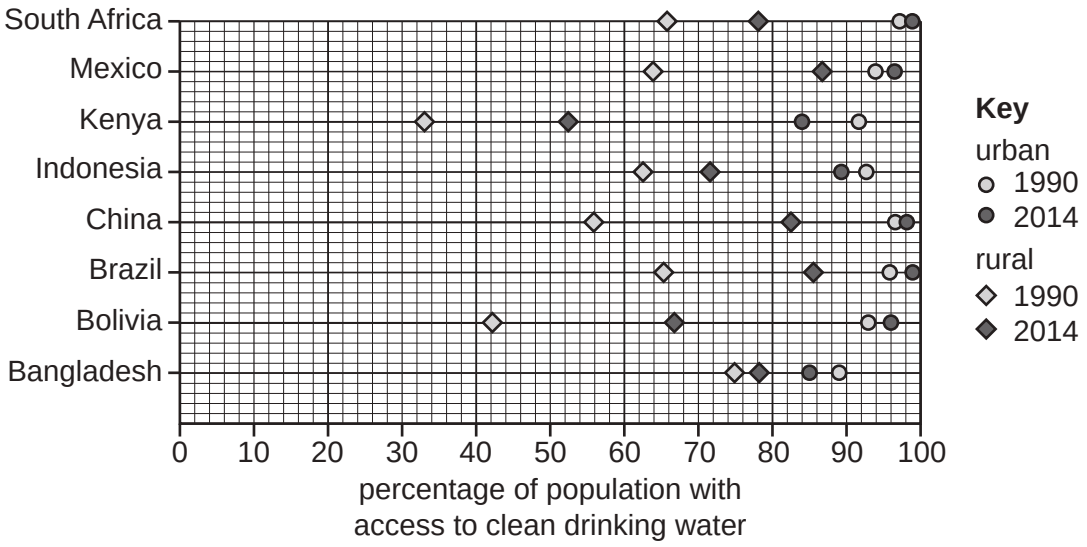

Fig. 7

(i) What percentage of the rural population in Kenya had access to clean drinking water supplies in 2014?

…..... % [1]

(ii) Using Fig. 7, identify a country:

- where access to clean drinking water for people in both rural and urban areas improved between 1990 and 2014;

  .....

- where over 80% of people had access to clean drinking water in 2014 in both rural and urban areas.

  ……..... [2]

(iii) Describe **three** methods of increasing supplies of clean drinking water.

1 .....

.....

2 .....

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3 .....

.....[3]

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(iv) Explain why it is important to increase clean drinking water supplies in LEDCs.

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(b) Study Fig. 8, which shows information about the use of water in Germany (an MEDC) and Egypt (an LEDC).

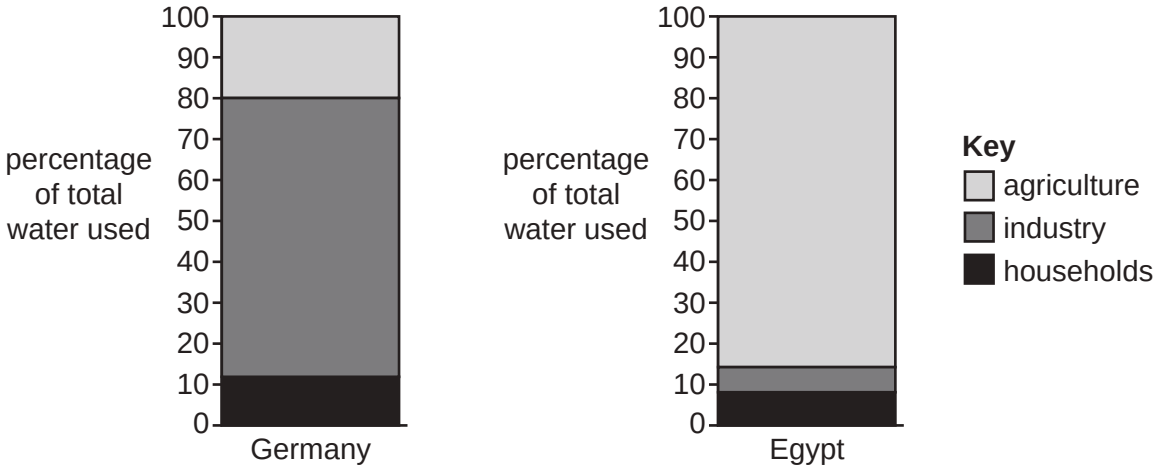

Fig. 8

(i) Using Fig. 8 **only**, compare the percentage of water used for different purposes in Germany and Egypt.

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(ii) Suggest reasons for the differences in the percentage of water used for different purposes in Germany and Egypt.

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(c) For a named country you have studied, explain how its **energy** is supplied.

Name of country .....

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[Total: 25 marks]

END OF QUESTION 5

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QUESTION 6

6 **(a)** Study Fig. 9, which shows information about the gold industry in Mumbai, India (an LEDC).

Toxic fumes in Mumbai are giving residents deadly diseases

Residents of two congested streets in part of Mumbai are inhaling fumes from gold dust purifying units. Local residents have suffered from bronchitis, asthma, high blood pressure and breathing problems.

There are 40 units which recover gold by melting dust collected from jewellery shops. Some of the units were established around 40 years ago, but their numbers have risen.

The dust is dipped in acid to separate the gold, which is what gives off dangerous fumes. These units are important for jewellers as they help recover gold which would otherwise have been lost in the dust.

The fumes are damaging the health of residents. One resident said, "The air we breathe smells of acid. The wind carries the fumes into our homes."

Another nearby resident has developed severe breathing problems. He said, "We cannot breathe in our homes. It's like I am dying a slow death." Showing skin peeling off her hands, his wife said, "We've lived here for decades but this never happened before the units increased in number."

People say that if the units are health hazards then they should either be moved or fitted with a proper ventilation system and air purifier. The problem is that the buildings are so old that air purifiers cannot be installed in them.

Fig. 9

(i) What type of pollution is described in Fig. 9?

Choose from the words below and circle your answer.

air noise visual water [1]

(ii) Explain why the pollution described in Fig. 9 is occurring.

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.....[2]

(iii) Using Fig. 9 **only**, describe the impacts of the pollution on local people.

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(iv) Suggest reasons why the authorities may not want to solve the problems caused by the gold industry in Mumbai.

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(b) Study Fig. 10, which shows information about the greenhouse effect and global warming.

The Greenhouse Effect

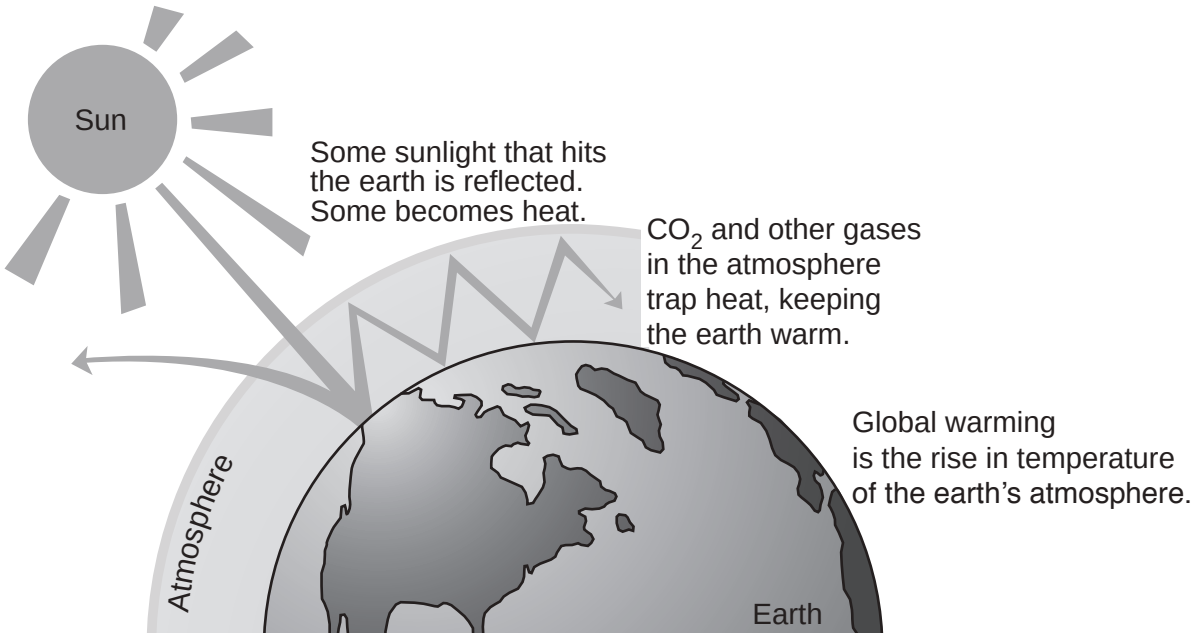

Fig. 10

(i) Explain how economic activities are causing global warming.

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(ii) Explain why global warming is a threat to the natural environment.

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.....[5]

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(c) Name an area which you have studied and state an economic activity which is causing the environment to be at risk.

Explain how it is being managed so that it is more sustainable.

Name of area .....

Economic activity .....

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[Total: 25 marks]

END OF QUESTION 6

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/21**

Paper 2 **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:25 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Photographs A and B for Question 4, and Photograph C for Question 6.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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This document consists of **17** printed pages, **3** blank pages and **1** Insert.

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1 Study the map extract for Vangsvatnet, Norway. The scale is 1:25 000.

Fig. 1 shows some of the features around the lake of Vangsvatnet. Study Fig. 1 and the map extract, and answer the questions on the opposite page.

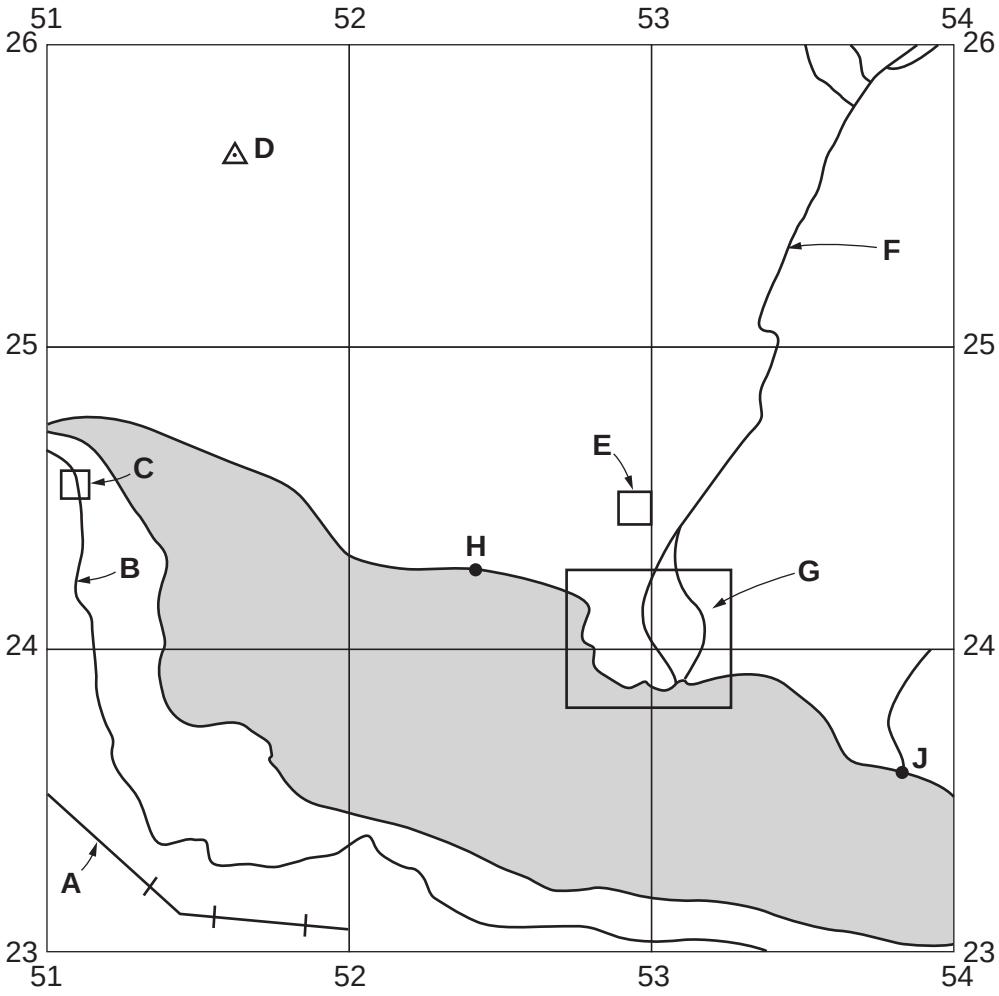

Fig. 1

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(a) Using the map extract, identify the following features shown in Fig. 1:

(i) feature **A**;

.....[1]

(ii) feature **B**;

.....[1]

(iii) feature **C**;

.....[1]

(iv) the height above sea level at trigonometric point **D**;

.....[1]

(v) feature **E**;

.....[1]

(vi) the name of river **F**;

.....[1]

(vii) the feature of the river in area **G**.

.....[1]

(b) A person walks along the edge of the lake from **H** to **J**. How far does the person walk? Circle **one** correct answer below.

1500 m 1800 m 2100 m 2400 m [1]

(c) Describe the route of the railway from the western edge of the map to the settlement at Bulken.

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.....[2]

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(d) Fig. 2 shows an area in the north west of the map extract. Describe the relief of this area.

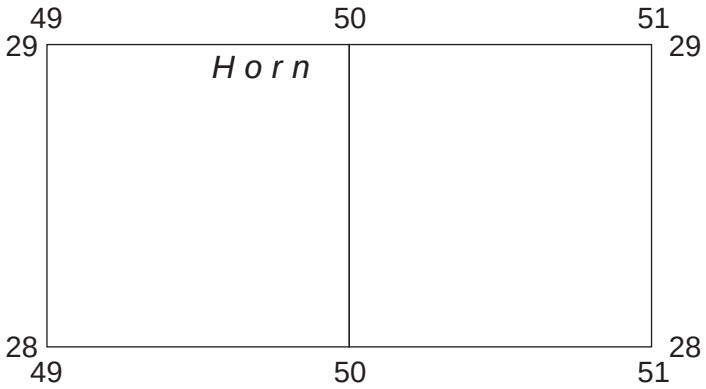

Fig. 2

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.....[5]

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(e) Describe the distribution of cultivation and forest in the area shown by the map extract.

Cultivation .....

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Forest .....

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.....[5]

[Total: 20 marks]

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2 Fig. 3 shows the population structure of Angola, an LEDC. Fig. 4 shows the population structure of Japan, an MEDC.

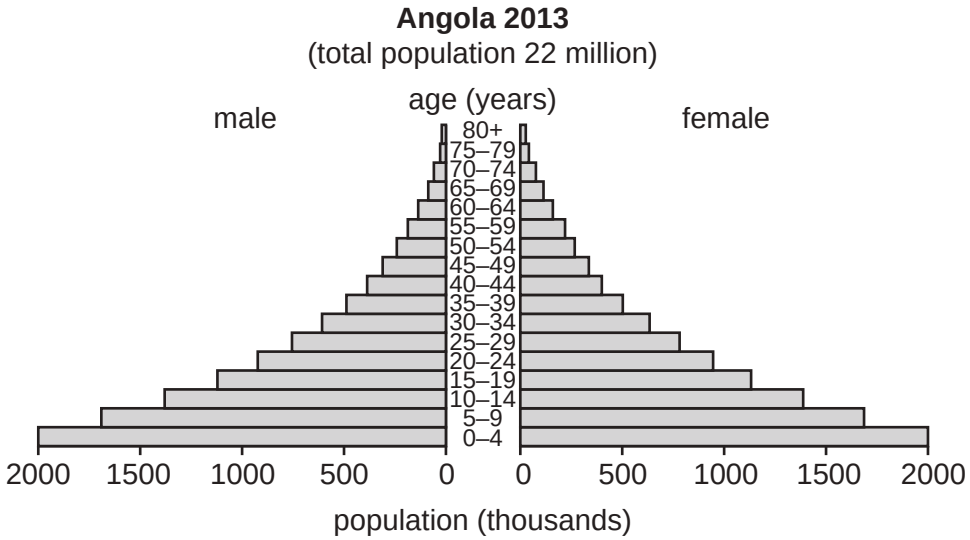

Fig. 3

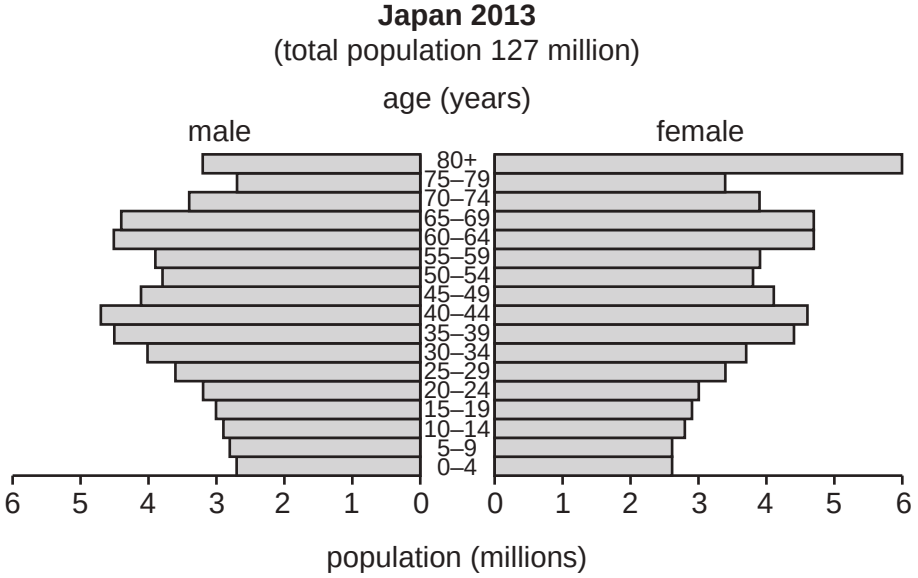

Fig. 4

(a) Using Figs. 3 and 4, state the number of:

(i) females aged 35–39 in Angola; ..... [1]

(ii) males aged 30–34 in Japan. ..... [1]

(b) Describe the differences between the population of Angola and the population of Japan in:

(i) the proportion of the population aged 0–14;

.....

.....[1]

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(ii) the proportion of the population aged 65 and over.

.....

.....[1]

(c) Fig. 5 shows an estimate of the population structure of Japan in 2030.

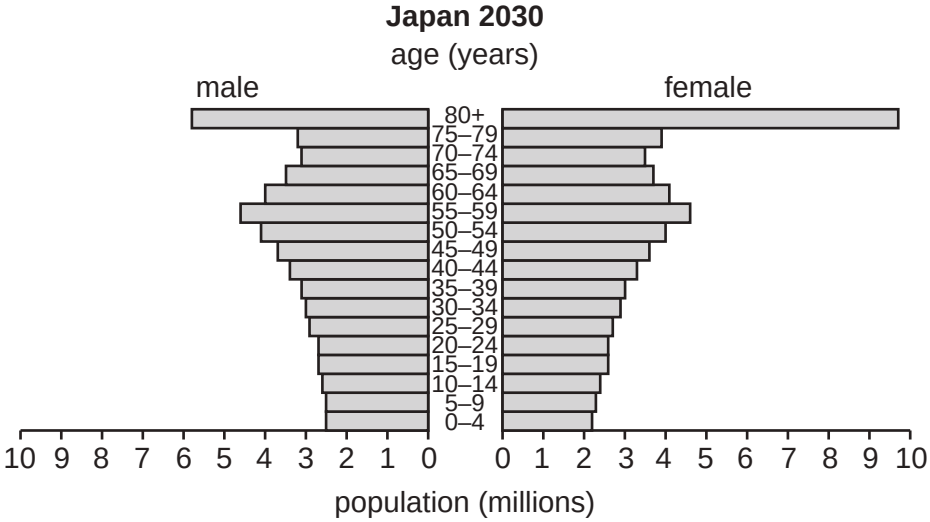

Fig. 5

(i) Using Figs. 4 and 5, describe how Japan's population structure is expected to change between 2013 and 2030.

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.....[2]

(ii) Suggest **two** problems the changes you have described in **(c)(i)** may cause.

1 .....

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2 .....

.....[2]

[Total: 8 marks]

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3 Fig. 6 is a map showing plates, plate boundaries and the directions of plate movement.

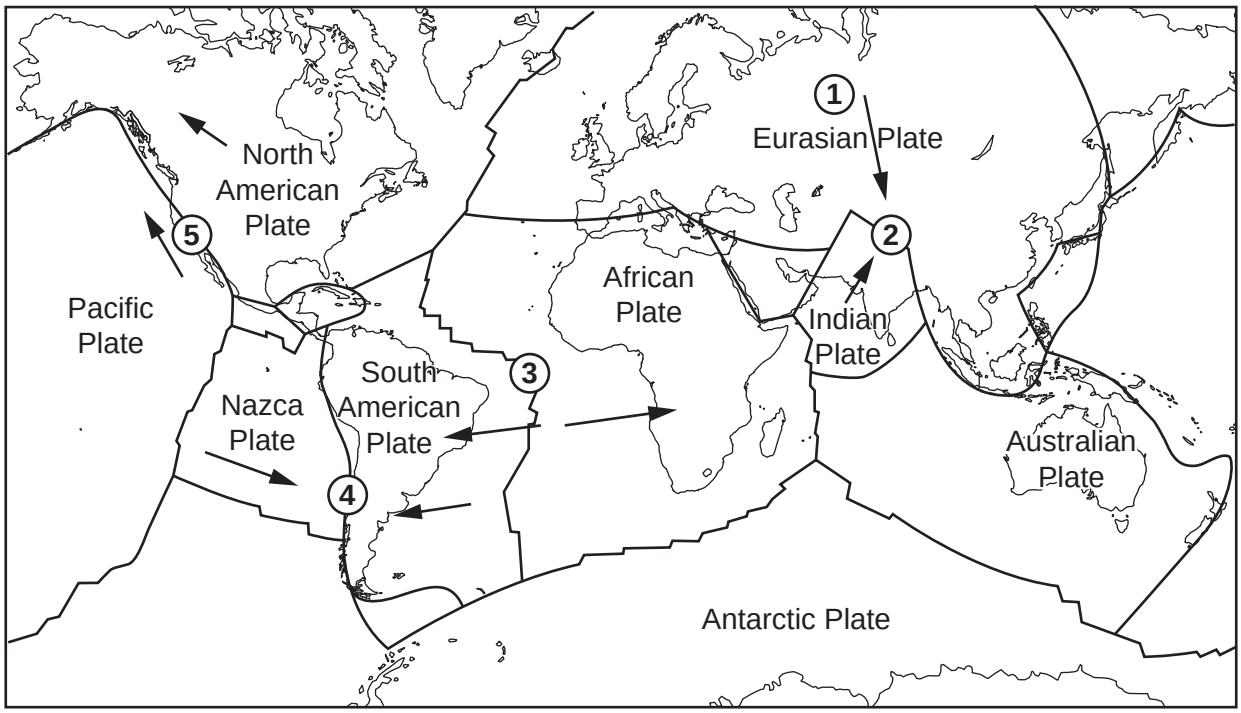

Fig. 6

(a) Five places, **1**–**5**, are marked in Fig. 6. For each question write **one** number in each box below.

Which number on the map shows a:

(i) place where earthquakes are unlikely to occur; [1]

(ii) place where plates are sliding past each other; [1]

(iii) subduction zone; [1]

(iv) place where sea floor spreading is happening? [1]

(b) On April 25 2015 a major earthquake occurred in Nepal at place **2** in Fig. 6. Suggest why an earthquake happened at this location.

.....

.....

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.....[2]

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(c) Fig. 7 shows the pattern of intensity of the earthquake in 2015 in Nepal. Intensity is a measure of the severity of the earthquake effects.

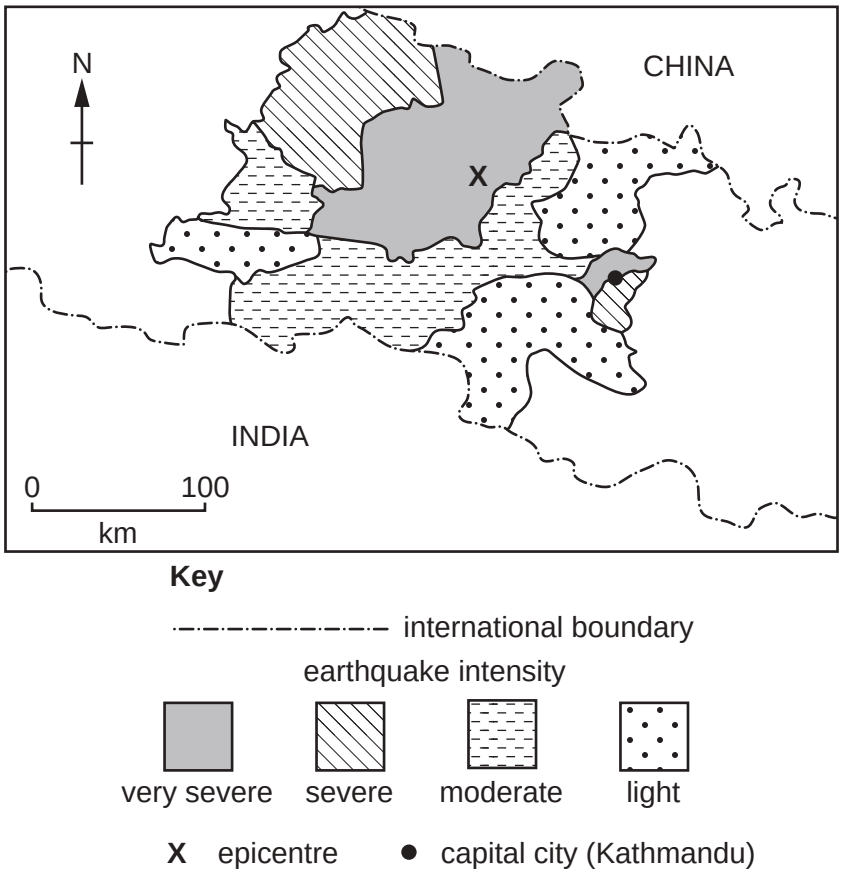

Fig. 7

Suggest reasons for the pattern of intensity shown in Fig. 7.

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.....[2]

[Total: 8 marks]

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4 **(a)** Photograph A (Insert) shows a weather station at a school in Zimbabwe.

(i) Name the box labelled **X** in Photograph A.

..... [1]

(ii) Name **one** instrument kept inside the box.

..... [1]

(iii) What does instrument **Y** measure?

..... [1]

(iv) Identify instrument **Z**.

..... [1]

(v) What does instrument **Z** measure?

..... [1]

(b) Photograph B (Insert) shows a digital weather station.

(i) How is data collected and recorded at this type of weather station?

.....

.....

.....

.....

.....[2]

(ii) Explain **one** disadvantage of the location of the weather station in Photograph B.

.....

.....

.....[1]

[Total: 8 marks]

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5 Employment can be classified as *primary*, *secondary*, *tertiary* and *quaternary*.

(a) Give **one** example of each type of employment. Choose from the following list:

designing

mining

manufacturing

transport

Primary .....

Secondary .....

Tertiary .....

Quaternary .....

[3]

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(b) Fig. 8 shows how employment structure changes as a country becomes more economically developed.

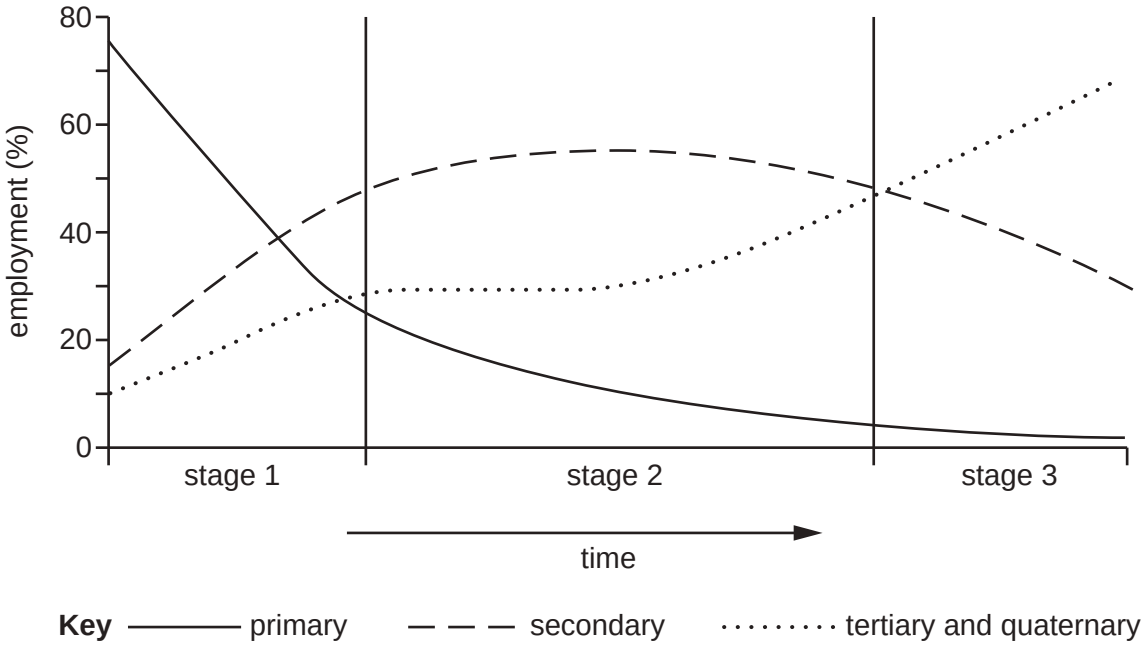

Fig. 8

Describe the changes shown by Fig. 8.

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.....[3]

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(c) Fig. 9 shows the employment structure of two countries **X** and **Y**. For each country, give its stage of economic development, **1**, **2** or **3**, as shown on Fig. 8.

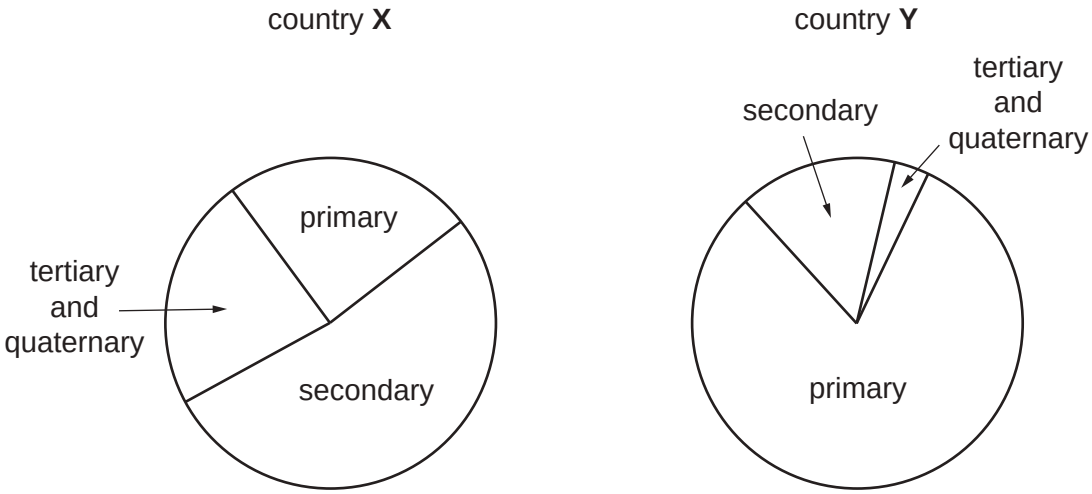

Fig. 9

Country **X** stage .....

Country **Y** stage ..... [2]

[Total: 8 marks]

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6 **(a)** Table 1 gives information about the number of under-nourished people in the world.

Table 1

	1990–1992 (millions)	2012–2014 (millions)
World	1014	805
MEDCs	20	15
LEDCs	994	790
Africa	182	226
Asia	742	525
Latin America & Caribbean	68	37

(i) Using Table 1, describe how the number of under-nourished people in MEDCs and LEDCs has changed.

.....

.....

.....

.....

.....[2]

(ii) 'Food shortages are spread evenly across the world.'

To what extent do you agree? Give evidence from Table 1 to support your answer.

.....

.....

.....

.....

.....[2]

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(b) Study Photograph C (Insert), which shows an agricultural area.

(i) Which **two** of the following terms describe the farming system shown in Photograph C? Tick **two** boxes.

	Tick (✓)
subsistence	
arable	
pastoral	
mixed	
intensive	

[2]

(ii) Suggest how food production could be increased in the area shown in Photograph C.

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.....[2]

[Total: 8 marks]

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Additional Pages

If you use the following pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

9768233174

GEOGRAPHY **0460/22**

Paper 2 **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:25 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

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Write in dark blue or black pen.
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Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Photograph A for Question 3.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries
NICs – Newly Industrialised Countries

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CAMBRIDGE International Examinations

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1 Study the map extract for Bordalen, Norway. The scale is 1:25 000.

(a) Fig. 1 shows some of the features in the north west of the map extract. Study Fig. 1 and the map extract, and answer the questions below.

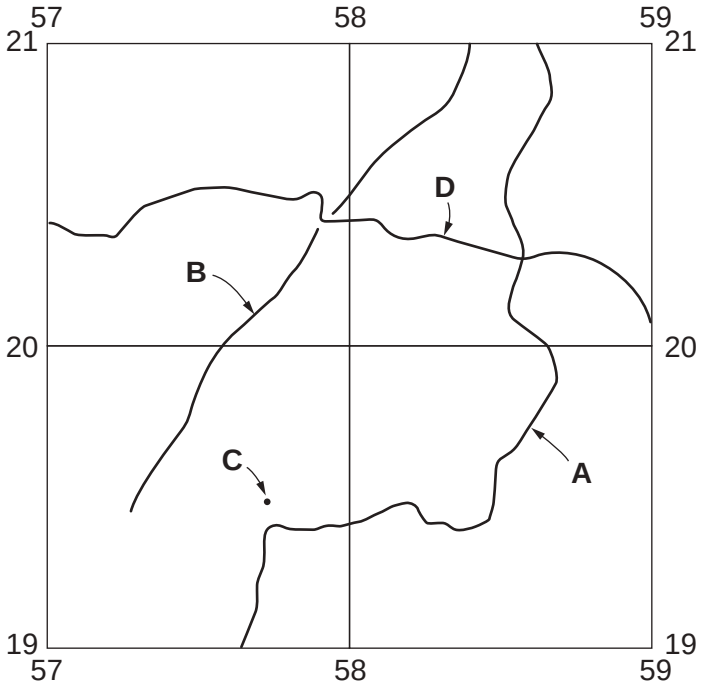

Fig. 1

Using the map extract, identify the following features shown on Fig. 1:

(i) feature **A**;

.....[1]

(ii) the name of river **B**;

.....[1]

(iii) the height above sea level of the spot height at **C**;

..... metres [1]

(iv) the height above sea level of the contour at **D**.

..... metres [1]

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(b) Fig. 2 shows the location of two grid squares in the south east of the map extract. These are square 6316 at Færes-fjellet and square 6416 at Grønahorgi. Study the two areas and answer the questions below.

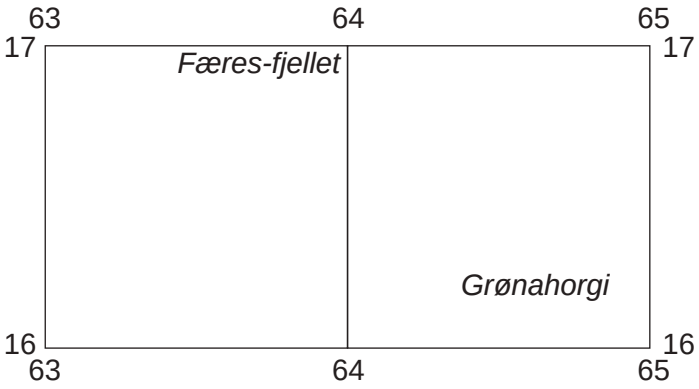

Fig. 2

The table below compares the features of the two areas. Complete the table by putting ticks in the correct **five** boxes. Use only **one** tick for each row.

	Square 6316 at Færes-fjellet	Square 6416 at Grønahorgi	Both these areas	Neither of these areas
lakes				
forest				
marsh				
glaciers				
land over 1100 m above sea level				

[5]

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(c) Fig. 3 is a cross section along northing 20 from 590200 to 620200.

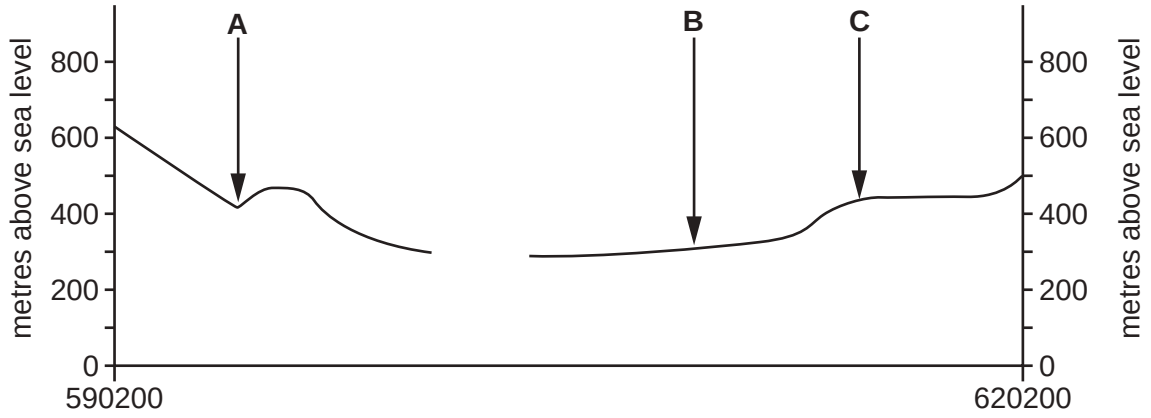

Fig. 3

(i) Name the river at **A**.

..... [1]

(ii) Identify the feature at **B**.

..... [1]

(iii) Identify the type of land use at **C**.

..... [1]

(iv) The cross section shown on Fig. 3 is incomplete. Using information from the map extract, draw a line on Fig. 3 to complete the cross section. [1]

(d) A person walks uphill from the bridge over the main river south of Rjodo (608173) to the trigonometric point at Litraknappen (623167).

(i) In which compass direction does the person travel?

..... [1]

(ii) What distance does the person travel in a straight line?

..... [1]

(iii) How many metres does the person climb? Circle **one** correct answer below.

568 m 668 m 768 m 868 m [1]

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(e) Describe the distribution of farms and houses shown on the map.

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.....[4]

[Total: 20 marks]

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2 Fig. 4 gives information about population change and population migration in four urban areas in the USA between 2010 and 2013. Study Fig. 4 and answer the following questions.

Denver–Aurora–Lakewood		
Population change	Total	154 010
	%	6.1
Net international migration	Total	15 240
	Rate per 1000	5.6
Net internal migration	Total	75 101
	Rate per 1000	27.8

New York–Newark–Jersey City		
Population change	Total	383 084
	%	2.0
Net international migration	Total	399 685
	Rate per 1000	20.0
Net internal migration	Total	–362 359
	Rate per 1000	–18.2



San Francisco–Oakland–Hayward		
Population change	Total	180 895
	%	4.2
Net international migration	Total	75 566
	Rate per 1000	16.3
Net internal migration	Total	35 307
	Rate per 1000	7.8

Chicago–Naperville–Elgin		
Population change	Total	76 184
	%	0.8
Net international migration	Total	74 142
	Rate per 1000	7.8
Net internal migration	Total	–172 378
	Rate per 1000	–18.1

Fig. 4

(a) (i) Which **one** of the four urban areas had the greatest **percentage** change in its population? Tick **one** correct answer below.

Urban area	Tick (✓)
Chicago–Naperville–Elgin	
Denver–Aurora–Lakewood	
New York–Newark–Jersey City	
San Francisco–Oakland–Hayward	

[1]

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(ii) Which **one** of the four urban areas had the greatest change in its **total** population? Tick **one** correct answer below.

Urban area	Tick (✓)
Chicago–Naperville–Elgin	
Denver–Aurora–Lakewood	
New York–Newark–Jersey City	
San Francisco–Oakland–Hayward	

[1]

(iii) Which **one** of the four urban areas had the greatest gain in population because of migration to and from other countries? Tick **one** correct answer below.

Urban area	Tick (✓)
Chicago–Naperville–Elgin	
Denver–Aurora–Lakewood	
New York–Newark–Jersey City	
San Francisco–Oakland–Hayward	

[1]

(iv) Which **one** of the four urban areas had the greatest gain in population because of migration to and from other parts of the USA? Tick **one** correct answer below.

Urban area	Tick (✓)
Chicago–Naperville–Elgin	
Denver–Aurora–Lakewood	
New York–Newark–Jersey City	
San Francisco–Oakland–Hayward	

[1]

(b) Compare the net internal migration of the two urban areas in the east with that of the two urban areas in the west.

.....

.....

.....

.....[2]

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(c) Look at the figures for Chicago-Naperville-Elgin.

(i) The area has lost population because of migration. What type of migration has caused this?

.....[1]

(ii) Give **one** cause of the overall population increase.

.....[1]

[Total: 8 marks]

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3 Photograph A (Insert) shows a mountain landscape.

Describe the river valleys shown in the photograph. Refer to:

- the shape of the cross profiles;
- the long profiles;
- any other features of the landscape.

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.....[8]

[Total: 8 marks]

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4 Fig. 5 shows the climate of a place in Africa.

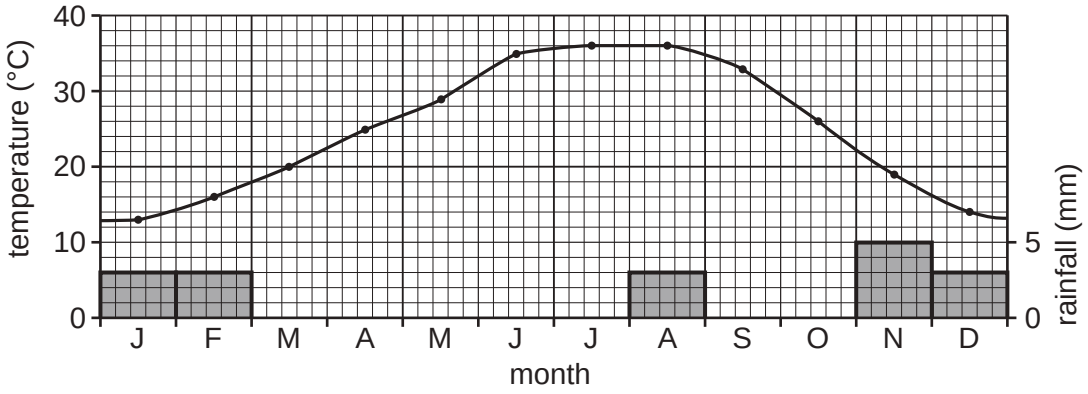

Fig. 5

(a) For the climate shown in Fig. 5 state the:

(i) January temperature;

..... °C [1]

(ii) annual temperature range.

..... °C [1]

(b) What is the annual rainfall at the place shown in Fig. 5? Circle **one** correct answer below.

12 mm 17 mm 34 mm 60 mm [1]

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(c) Fig. 6 shows the location of three places in Africa, **X**, **Y** and **Z**.

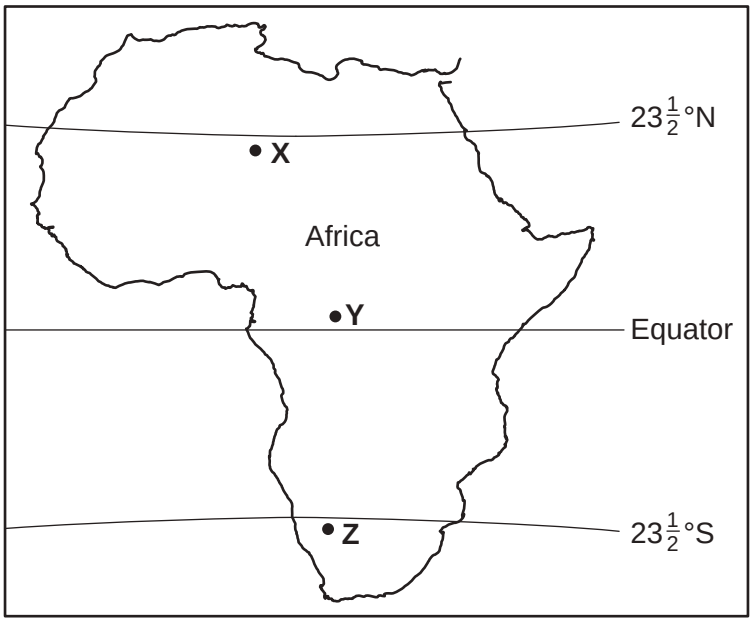

Fig. 6

Which location, **X**, **Y** or **Z**, has the climate shown in Fig. 5?

..... [1]

(d) Give **two** reasons why summer (July) is hotter than winter (January) at the place shown in Fig. 5.

1 .....

.....

2 .....

.....[2]

(e) Suggest **two** reasons for the very low rainfall at the place shown in Fig. 5.

1 .....

.....

2 .....

.....[2]

[Total: 8 marks]

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5 Fig. 7 shows the rivers and drainage basins of Kazakhstan. Kazakhstan is completely surrounded by other countries.



Fig. 7

(a) (i) What is meant by the following terms:

drainage basin;

.....

.....

watershed?

.....

.....[2]

(ii) Identify **two** rivers shown on Fig. 7 which have their sources outside Kazakhstan and their mouths within Kazakhstan.

1 .....

2 ..... [2]

(iii) Identify the river shown on Fig. 7 which is entirely within Kazakhstan.

..... [1]

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(b) Fig. 8 gives information about six of the rivers shown on Fig. 7.

River	River discharge* (km^3/year)		
	Total	Flow from other countries	Minimum flow in dry years
Syrdarya	13.3	10	4.2
Ili	28.77	12.37	17.8
Shu	3.23	2.03	2.7
Irtysh	34.03	9.53	19.7
Tobol	2.1	0.6	0.3
Ural	13.9	8.6	3.0

*River discharge is the amount of water flowing in a river at a certain time.

Fig. 8

Using evidence from Figs. 7 and 8, suggest why the Irtysh river might provide the most reliable water supply for Kazakhstan.

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.....[3]

[Total: 8 marks]

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6 Fig. 9 shows annual average solar radiation in South Africa.

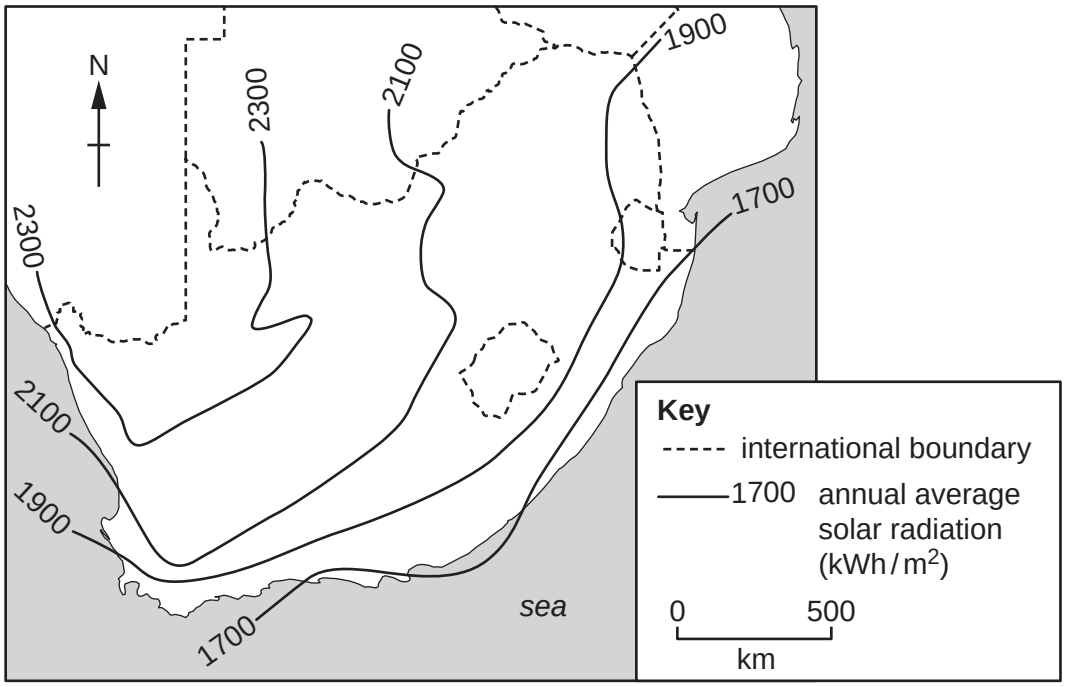

Fig. 9

(a) Using Fig. 9, describe the distribution of solar radiation in South Africa.

.....

.....

.....

.....

.....

.....

.....[3]

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(b) Fig. 10 shows the distribution of solar radiation in Germany.

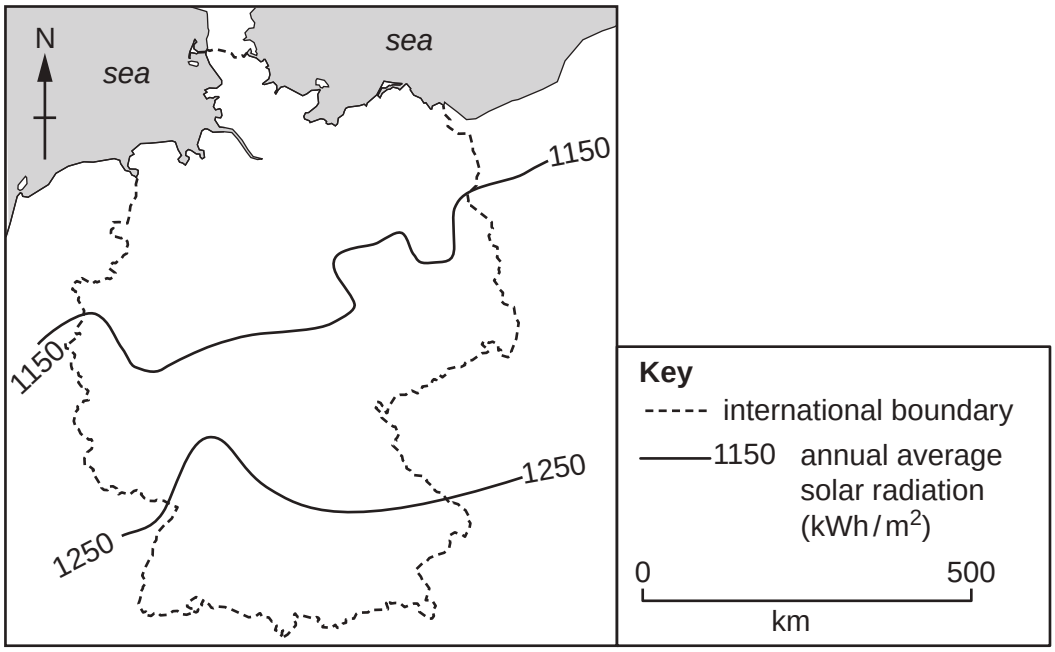

Fig. 10

Using Figs. 9 and 10, describe the difference in the amounts of solar radiation received in South Africa and Germany.

.....

.....

.....

.....

.....[2]

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(c) Fig. 11 shows the location of the main cities in South Africa.

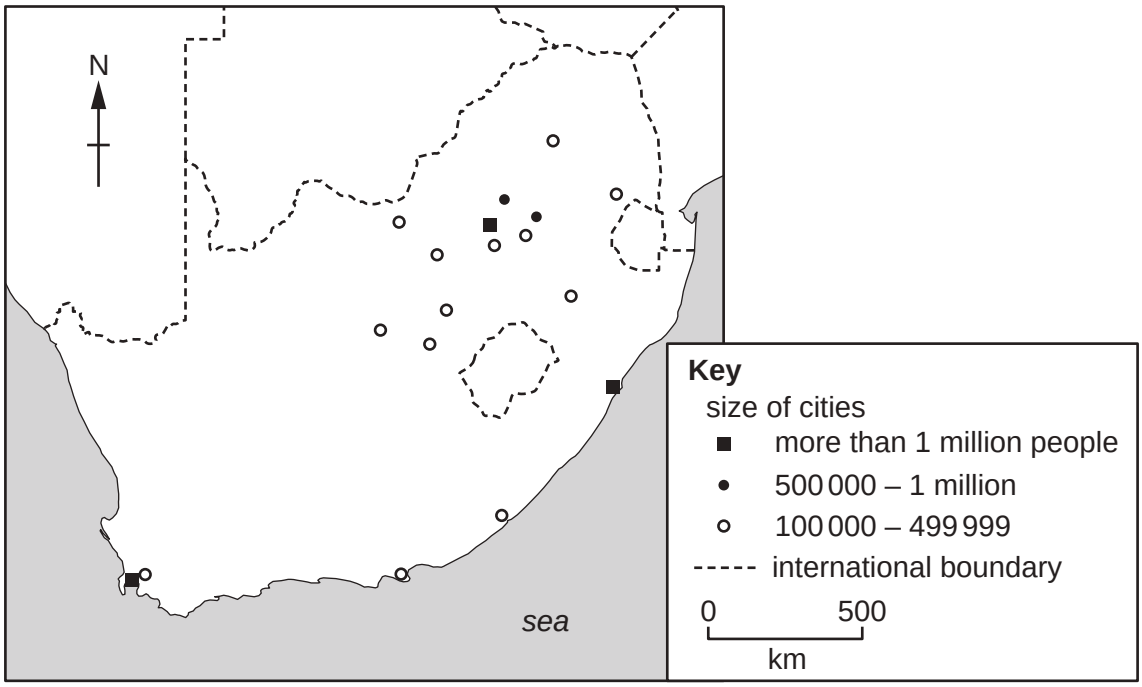

Fig. 11

"South Africa has greater potential for using solar power than Germany."
How far do you agree? Give evidence from Figs. 9, 10 and 11 to support your answer.

.....

.....

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.....

.....

.....

.....

.....[3]

[Total: 8 marks]

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Cambridge IGCSE

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/23**

Paper 2 **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Photographs A and B for Question 2, and Photograph C for Question 3.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **13** printed pages, **3** blank pages and **1** Insert.

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CAMBRIDGE International Examinations

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1 Study the map extract, which is for Mesnali, Norway. The scale is 1:50 000.
Fig. 1 shows some of the features in the southern part of the map extract.

(a) Study Fig. 1 and the map extract and answer the questions below.

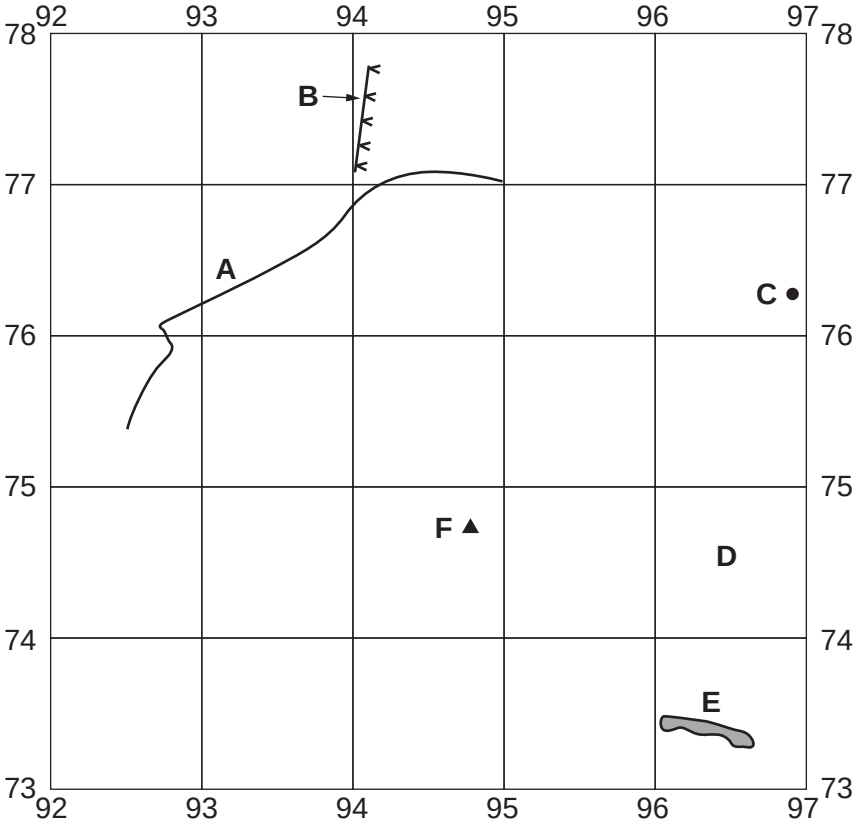

Fig. 1

Using the map extract, identify the following features shown in Fig. 1:

(i) feature **A**;

.....[1]

(ii) feature **B**;

.....[1]

(iii) the height of the land at **C**;

.....[1]

(iv) the main land use in grid square **D**;

.....[1]

(v) the land use at **E**;

.....[1]

(vi) feature **F**.

.....[1]

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(b) List **three** services in the settlement of Mesnali.

1 .....

2 .....

3 .....[3]

(c) Identify ways in which the settlement of Mesnali differs from that of Nattrudstilen. Do **not** write about services.

.....

.....

.....

.....

.....

.....[3]

(d) Describe the relief of Snørvillen in grid squares 9581 and 9681.

.....

.....

.....

.....

.....

.....[3]

(e) **(i)** Measure the distance along the power line from the junction of power lines in Mesnali at 911755 to where the power line leaves the southern edge of the map in grid square 9773. Give your answer in metres.

..... metres [1]

(ii) State the bearing of the power line from the junction of power lines in 9175 to where the power line leaves the southern edge of the map in grid square 9773.

..... degrees [1]

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[Turn over

(f) Fig. 2 shows the river Fjellelva's course between two lakes.

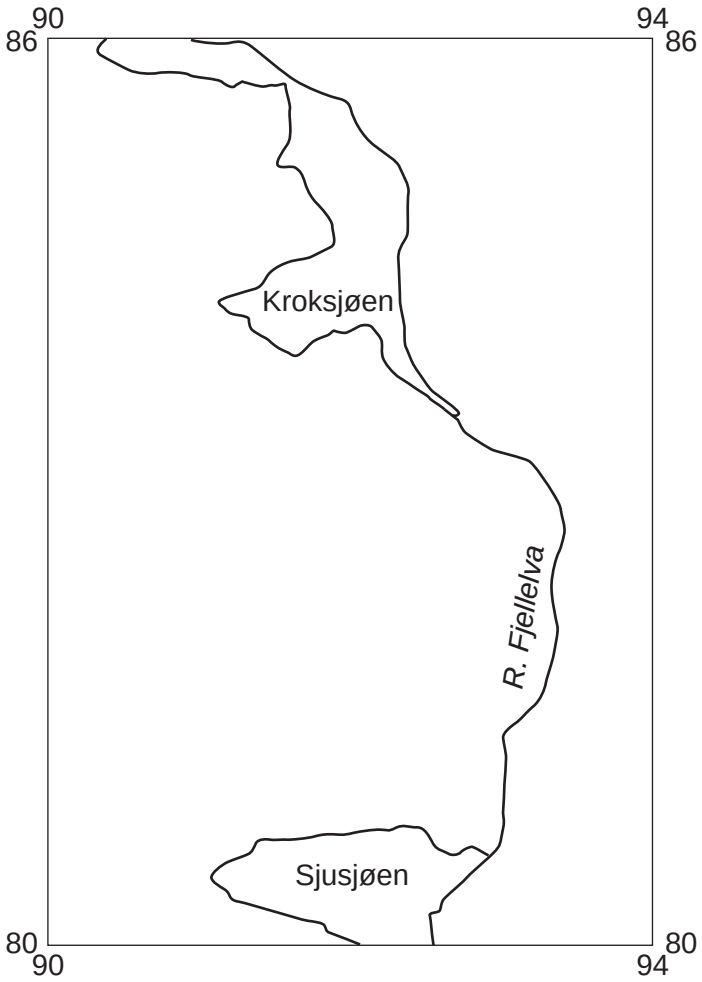

Fig. 2

(i) State the direction in which the river is flowing.

The river flows to the .....[1]

(ii) Give **two** pieces of evidence to support your answer.

1 .....

.....

2 .....

.....[2]

[Total: 20 marks]

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2 Study Photographs A and B (Insert), which show areas important for tourism.

(a) Describe the tourist attractions shown in Photographs A and B.

Photograph A

.....

.....

.....

.....

.....

.....

.....

.....

Photograph B

.....

.....

.....

.....

.....

.....

.....

.....[6]

(b) Suggest **two** activities that tourists are likely to do in the area shown in Photograph A.

1 .....

.....

2 .....

.....[2]

[Total: 8 marks]

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3 **(a)** Study Figs. 3A and 3B, which show a shield volcano and a stratovolcano.

Shield volcano

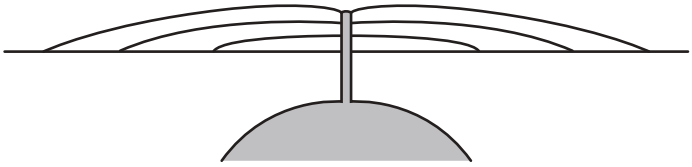

Fig. 3A

Stratovolcano

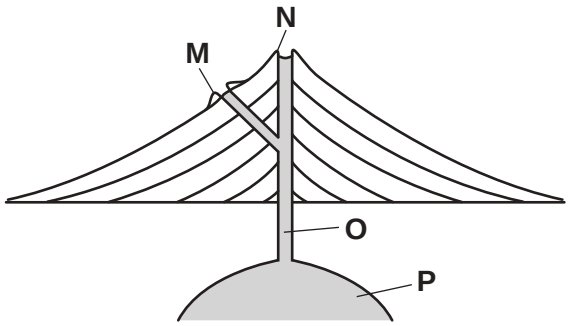

Fig. 3B

not to scale

(i) Name the features labelled **M**, **N**, **O** and **P** in Fig. 3B. Choose from:

crater epicentre fault focus

magma chamber parasitic cone pothole vent

feature **M** .....

feature **N** .....

feature **O** .....

feature **P** ..... [4]

(ii) Compare the slopes of the two types of volcano.

.....

.....

.....

.....[2]

(b) Study Photograph C (Insert), which shows a volcano.

(i) Look at the slope **X**–**Y**. Measure its angle from the horizontal.

..... degrees [1]

(ii) Give **one** piece of evidence that the volcano in the photograph has erupted many times.

.....

.....[1]

[Total: 8 marks]

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4 (a) (i) Qatar is a country in the Middle East. **Complete Fig. 4** to show that 70% of the people living in Qatar were immigrants in 2014. **Complete the key.**

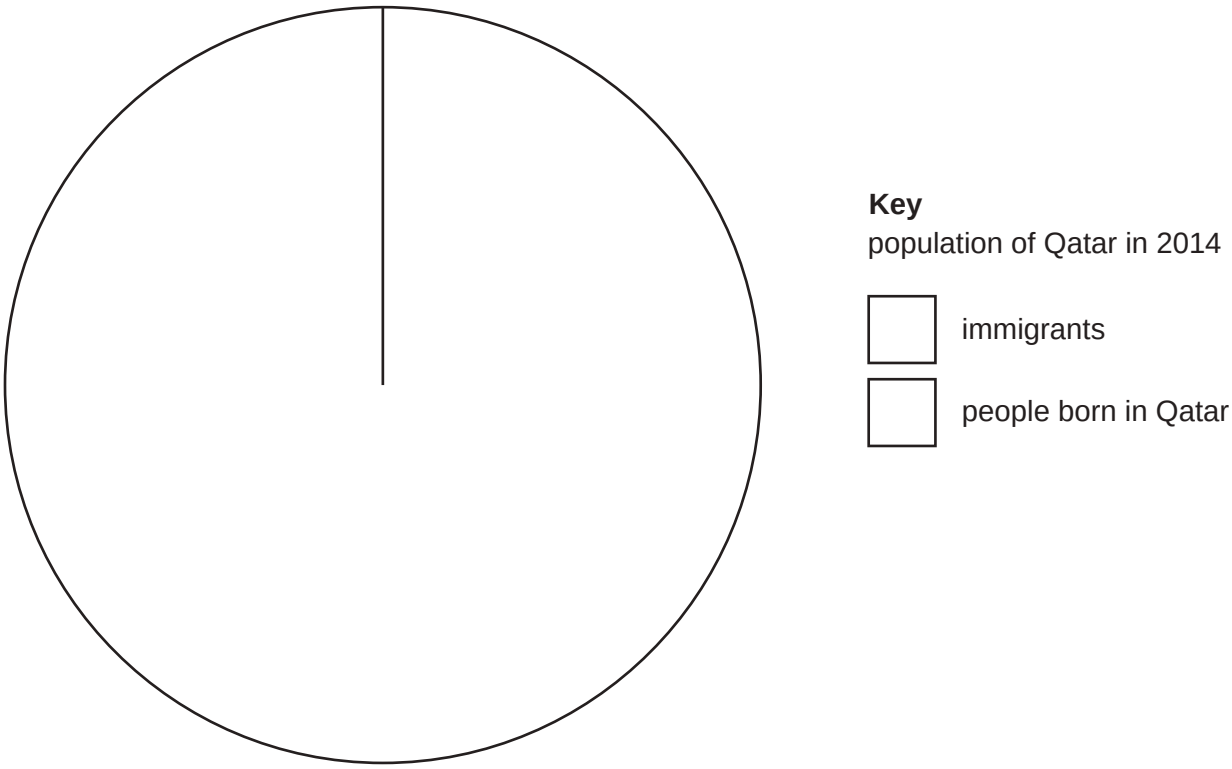

Fig. 4

[2]

(ii) **Complete Fig. 5**, a divided bar graph, to show that 94% of the workers in Qatar are immigrants and 6% were born in Qatar. **Complete the key and the scale.**

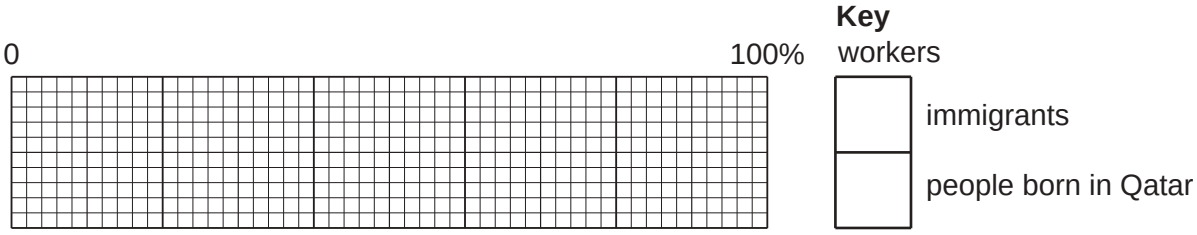

Fig. 5

[3]

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(b) Study Fig. 6, which shows the population structure of Qatar in 2014.

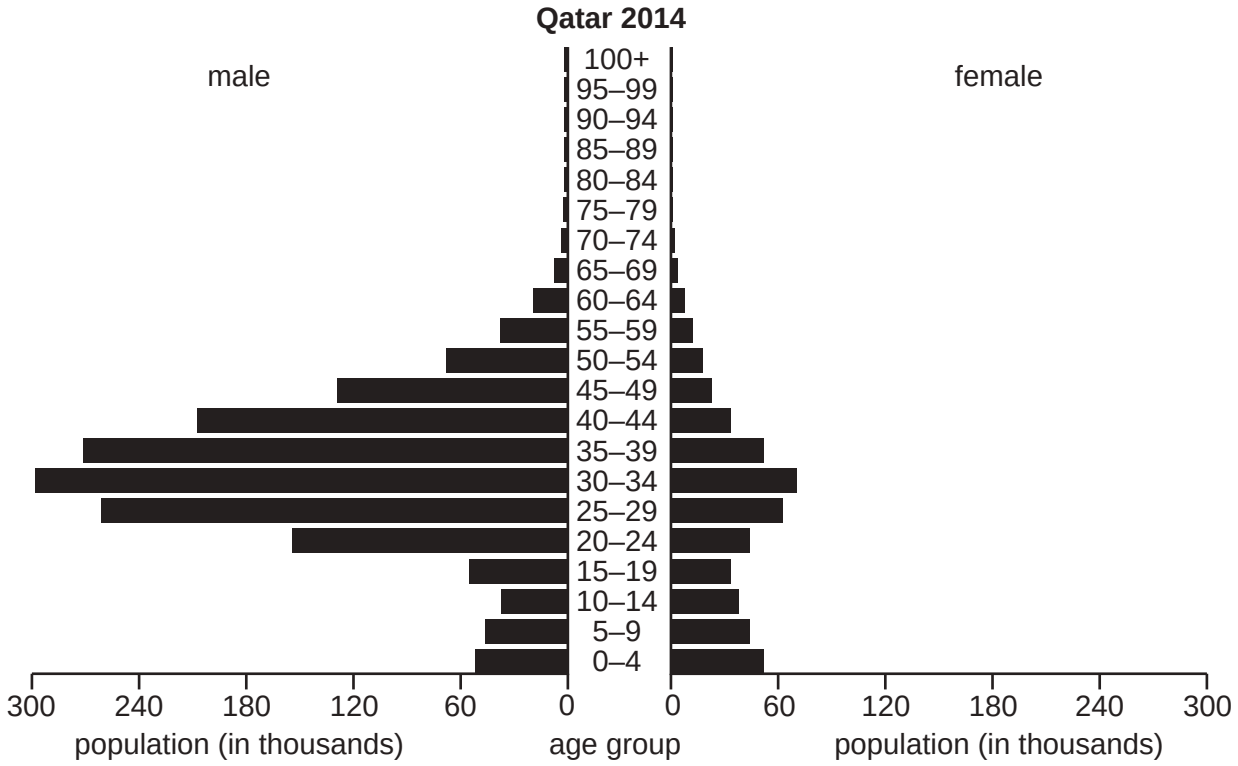

Fig. 6

Describe what Fig. 6 suggests about the age and gender of the immigrants living in Qatar in 2014.

.....

.....

.....

.....

.....

.....[3]

[Total: 8 marks]

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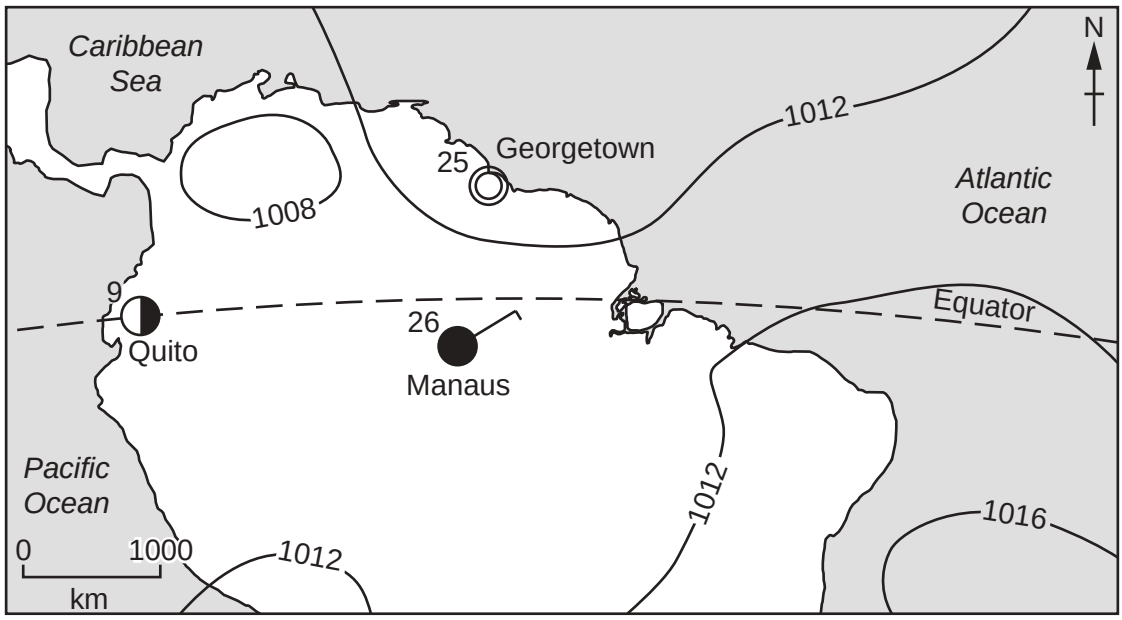
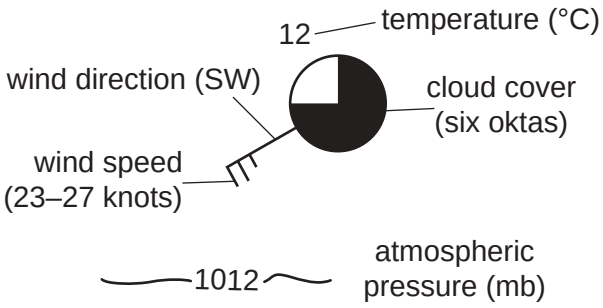
5 **(a)** Study Fig. 7, showing weather in the northern part of South America at midday on a day in July.



Key



circles	cloud cover	circles	wind speed
○	clear sky	◎	calm
◐	one okta	○—	1–2 knots
◔	two oktas	○—	3–7 knots
◑	three oktas	○—	8–12 knots
◑	four oktas	○—	13–17 knots
◕	five oktas	○—	18–22 etc until
◕	six oktas	○—	48–52 knots
●	seven oktas		
●	eight oktas		
⊗	sky obscured		

Fig. 7

(i) **Shade the area on Fig. 7** which has the highest atmospheric pressure and label it 'high'. [1]

(ii) Use Fig. 7 to **complete the table** below.

weather	answer
cloud amount at Quito	..... oktas
wind direction at Manaus	.....
wind speed at Manaus	..... knots

[3]

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(iii) Describe the weather conditions at Georgetown shown in Fig. 7.

.....

.....

.....

.....

.....

.....[3]

(b) Give **one** reason why there is a low annual temperature range in equatorial areas.

.....

.....[1]

[Total: 8 marks]

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6 Study Fig. 8, which shows information about world food supplies, and answer the questions that follow.

> In 2012 the World Hunger Education Service stated that the world had enough food to feed everyone. This was because food supplies had continued to increase in MEDCs and had increased enormously in the previous four years in LEDCs. Access to food had also improved in some areas, as had the distribution of food supplies. Between 1982 and 2012, the percentage of undernourished (not having enough food to be healthy) people in LEDCs fell from 34% to 15%. However, many people still do not have enough land on which to grow the crops they need.

Fig. 8

(a) (i) Suggest why many people do not have sufficient land on which to grow crops to feed their families.

.....

.....

.....

.....[2]

(ii) Explain why 15% of the world's people are undernourished, even though there is enough food to feed everybody. **Do not** write about lack of land.

.....

.....

.....

.....

.....

.....[3]

(b) Explain how food shortages can be caused by natural events.

.....

.....

.....

.....

.....

.....[3]

[Total: 8 marks]

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Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

READ THESE INSTRUCTIONS FIRST

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Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1 and 3, Tables 1 and 3 for Question 1, and Tables 4, 5, 6 and Fig. 10 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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This document consists of **17** printed pages, **3** blank pages and **1** Insert.

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1 A class of students were studying how a river changes downstream. As part of their study they did some fieldwork on a river in their local area. The teacher divided the class into two groups which each investigated one hypothesis.

The hypotheses investigated by the two groups of students were:

Hypothesis 1: *The area of the cross section of the river channel increases downstream.*

Hypothesis 2: *Water quality decreases downstream.*

(a) The class agreed to do their fieldwork tasks at six sites along the river.

Suggest **three** things they should consider in choosing their fieldwork sites.

1 .....

.....

2 .....

.....

3 .....

.....[3]

(b) To investigate **Hypothesis 1** the students measured the width of the river channel and the depth of the river at points across the channel.

(i) Which **two** of the following pieces of equipment would they use to measure the width of the river channel? Tick (✓) your choices.

Equipment	Tick (✓)
clinometer	
floating object	
quadrat	
ranging poles	
tape measure	

[2]

(ii) Describe how the students measured the width of the river channel.

.....

.....

.....

.....[2]

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(c) The students measured the depth of the river every 20 centimetres (0.2 metres) across the channel. They used their results to draw a cross section of the river channel at each site. The cross section at site 2 is shown in Fig. 1 (Insert).

(i) The results of the students' fieldwork at site 5 are shown in Table 1 (Insert).
Use these results **to complete the cross section** of the river channel and then **shade in** the river channel at site 5 on Fig. 2 below. [3]

Cross section at site 5

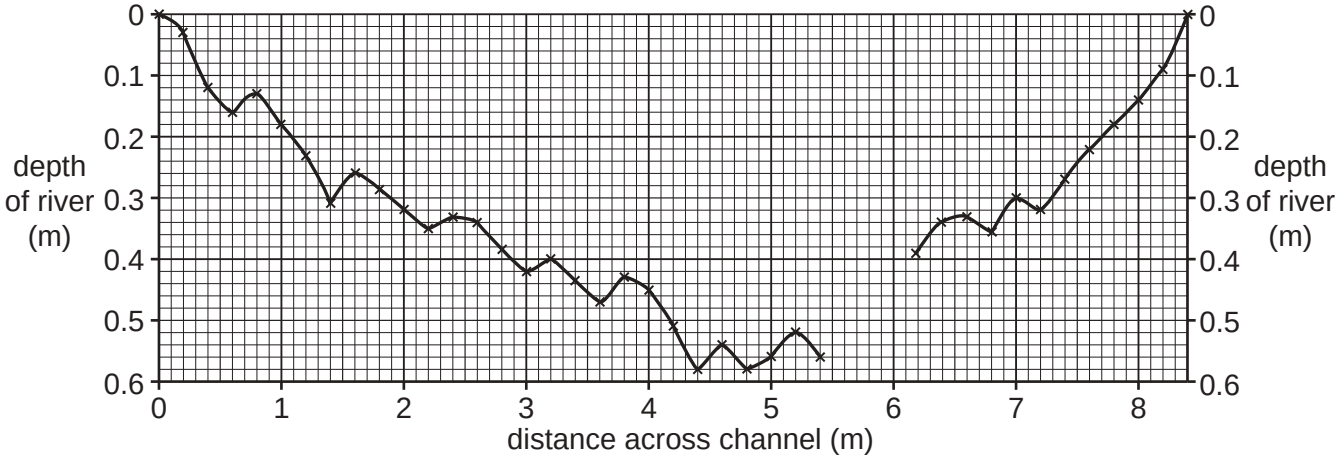

Fig. 2

(ii) Describe **two** differences between the cross sections at site 2 (Fig. 1 (Insert)) and site 5 (Fig. 2).

1 .....

.....

2 .....

.....[2]

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(d) The students used their measurements to calculate the area of the cross section of the river channel at each site. Their results are shown in Table 2 below.

Table 2

Site number	Distance downstream from source (km)	Width of channel (m)	Mean (average) depth of river (m)	Area of river channel cross section (sq m)
1	3	2.3	0.14	0.32
2	7	4.6	0.16	0.74
3	11	4.8	0.18	0.86
4	15	5.1	0.19	0.97
5	23	8.4	0.33	2.77
6	37	18.5	0.51	9.44

(i) Which **one** of the following is the correct calculation to work out the area of the cross section? Tick (✓) your choice.

Calculation	Tick (✓)
width + mean (average) depth	
width × mean (average) depth	
width ÷ mean (average) depth	

[1]

(ii) Do the results shown in Table 2 support **Hypothesis 1:** *The area of the cross section of the river channel increases downstream*? Support your answer with data from Table 2.

.....

.....

.....

.....[2]

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(e) To investigate **Hypothesis 2:** *Water quality decreases downstream*, the students did a visual survey of the river at the six sites to assess the quality of the water. They used the survey sheet shown in Fig. 3 (Insert).

(i) The table below shows three possible problems of using the visual pollution survey sheet which may make results unreliable.

Suggest **one** different way to solve each problem.

Problem	Possible solution
Students in the group may award different points for the same evidence	....
Conditions in the river may change over time	....
Students are unsure how to use the visual pollution survey sheet	....

[3]

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(ii) At each site the students calculated a total pollution score. They also recorded a description of the main land use at the site. These are both shown in Table 3 (Insert). Use these results **to plot** the total pollution score for site 2 on Fig. 4 below. [1]

Results of fieldwork

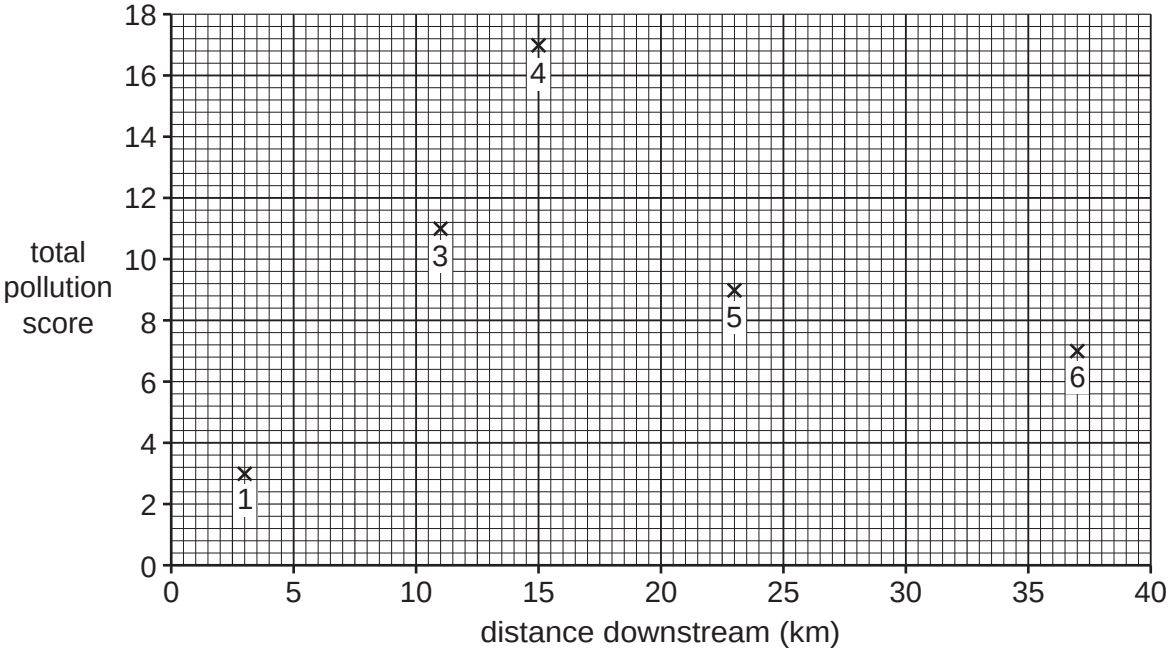

Fig. 4

(iii) What conclusion would the students make about **Hypothesis 2:** *Water quality decreases downstream*? Support your answer with evidence from Fig. 4 and Table 3.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(iv) Use information in Table 3 to suggest why water quality varies along the river.

.....

.....

.....

.....[2]

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(v) Suggest **one** way, other than the survey sheet in Fig. 3, that the students could have investigated water quality along a river.

.....

.....[1]

(f) Another group of students did fieldwork to measure how river velocity varied at the six sites. With the aid of an annotated (labelled) diagram explain how they could measure velocity at one site.

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[4]

[Total: 30 marks]

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2 Students in Nova Friburgo, Brazil were learning about different types of services, threshold populations and spheres of influence.

(a) (i) Which **one** of the following is the correct definition of *threshold population*? Tick (✓) your choice in the table below.

Definition	Tick (✓)
the maximum number of people using a service	
the distance people travel to get a service	
the minimum number of people needed to support a service	
the area which people come from to get a service	
the largest number of people who can afford a service	

[1]

(ii) Define the term *sphere of influence*.

.....

.....[1]

(iii) The Central Business District (CBD) of the city contains a variety of shops providing a range of high and low-order goods and services.

Explain how high-order goods and services are different from low-order goods and services.

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.....[3]

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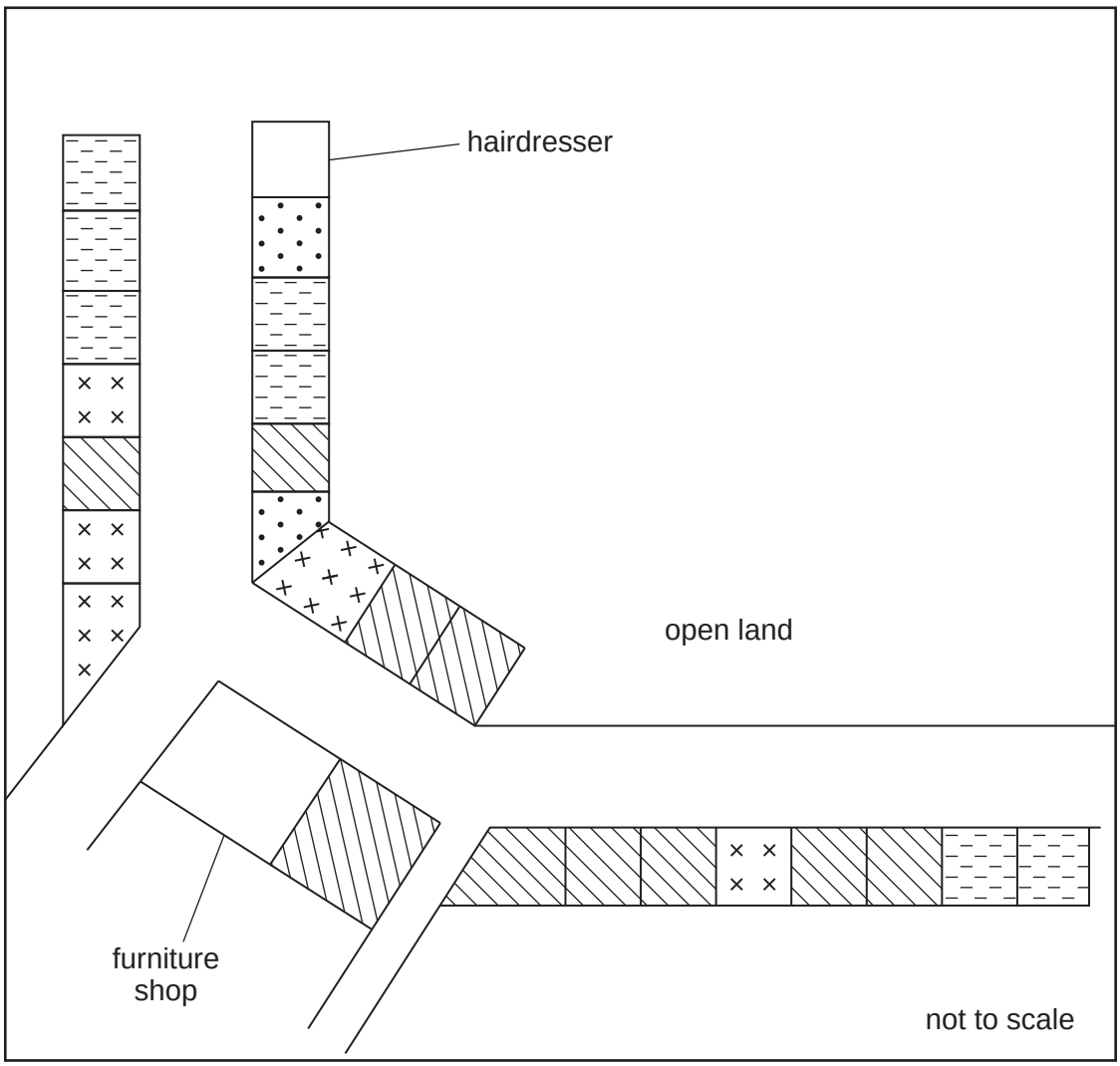
Some students decided to test the following hypotheses in Nova Friburgo:

Hypothesis 1: *The CBD contains more high-order shops and services than low-order shops and services.*

Hypothesis 2: *The sphere of influence of Nova Friburgo is equal in all directions.*

(b) To investigate **Hypothesis 1** the students recorded the shops and services as either high-order or low-order on a sketch map of the CBD. Part of their map is shown in Fig. 5 below.

Sketch map of part of the CBD



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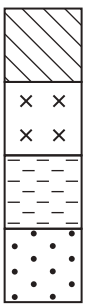

shop selling high-order goods

high-order service

shop selling low-order goods

low-order service

Fig. 5

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(i) On Fig. 5, use the key provided to **shade in** the following shops and services:

- hairdresser
- furniture shop [2]

(ii) Using their results the students calculated the percentages of high and low-order shops and services in the CBD. These are shown in Table 4 (Insert).

Use the results in Table 4 to **complete the pie graph**, Fig. 6, below. [2]

Shops and services in the CBD

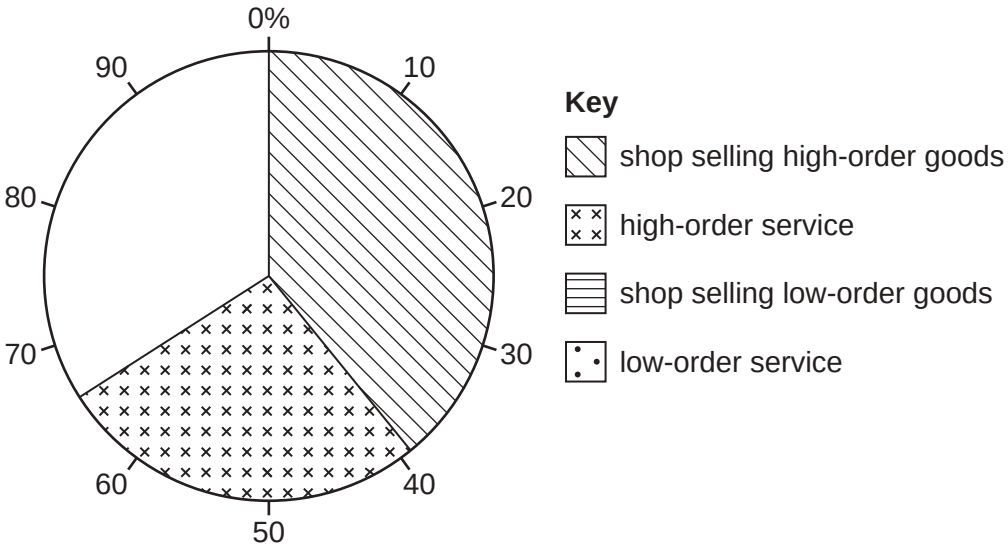

Fig. 6

(iii) What conclusion would the students make about **Hypothesis 1:** *The CBD contains more high-order shops and services than low-order shops and services*? Support your answer with evidence from Fig. 6 and Table 4.

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.....[3]

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(iv) The students' teacher asked why they had not also investigated the number of middle-order shops and services.

Suggest **two** reasons why the teacher thought that this was a weakness in their method.

1 .....

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2 .....

.....[2]

(c) To investigate **Hypothesis 2:** *The sphere of influence of Nova Friburgo is equal in all directions*, the students used a questionnaire with some people in the CBD. The questionnaire is shown in Fig. 7 below.

Questionnaire

I'm a geography student at college. I am doing a survey to find out about shopping in the CBD of Nova Friburgo.

Please answer the following questions.

1. Which age group are you in?

☐ ..... ☐ 20–39 ☐ ..... ☐ 60 and over

2. Which settlement have you come from today?

.....

3. How did you travel to the CBD today? .....

☐ Male ☐ Female

Thank you for your time.

Fig. 7

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(i) In the spaces provided on Fig. 7 **add two age groups** which are appropriate for classifying the people interviewed. Two age groups have already been included. [1]

(ii) To make their results reliable the students needed to use a sampling method.
Name an appropriate sampling method **and** explain how the students would use this method to choose people to interview.

Name of sampling method .....

Explanation .....

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(iii) Suggest **two** pieces of advice their teacher gave the students about using the questionnaire in the CBD.

1 .....

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2 .....

.....[2]

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(d) The results of Question 2 *'Which settlement have you come from today?'* are shown in Table 5 (Insert).

(i) Use these results to **draw flow lines** on Fig. 8 below, to show the number of people coming from Sumidouro and São Jorge. [2]

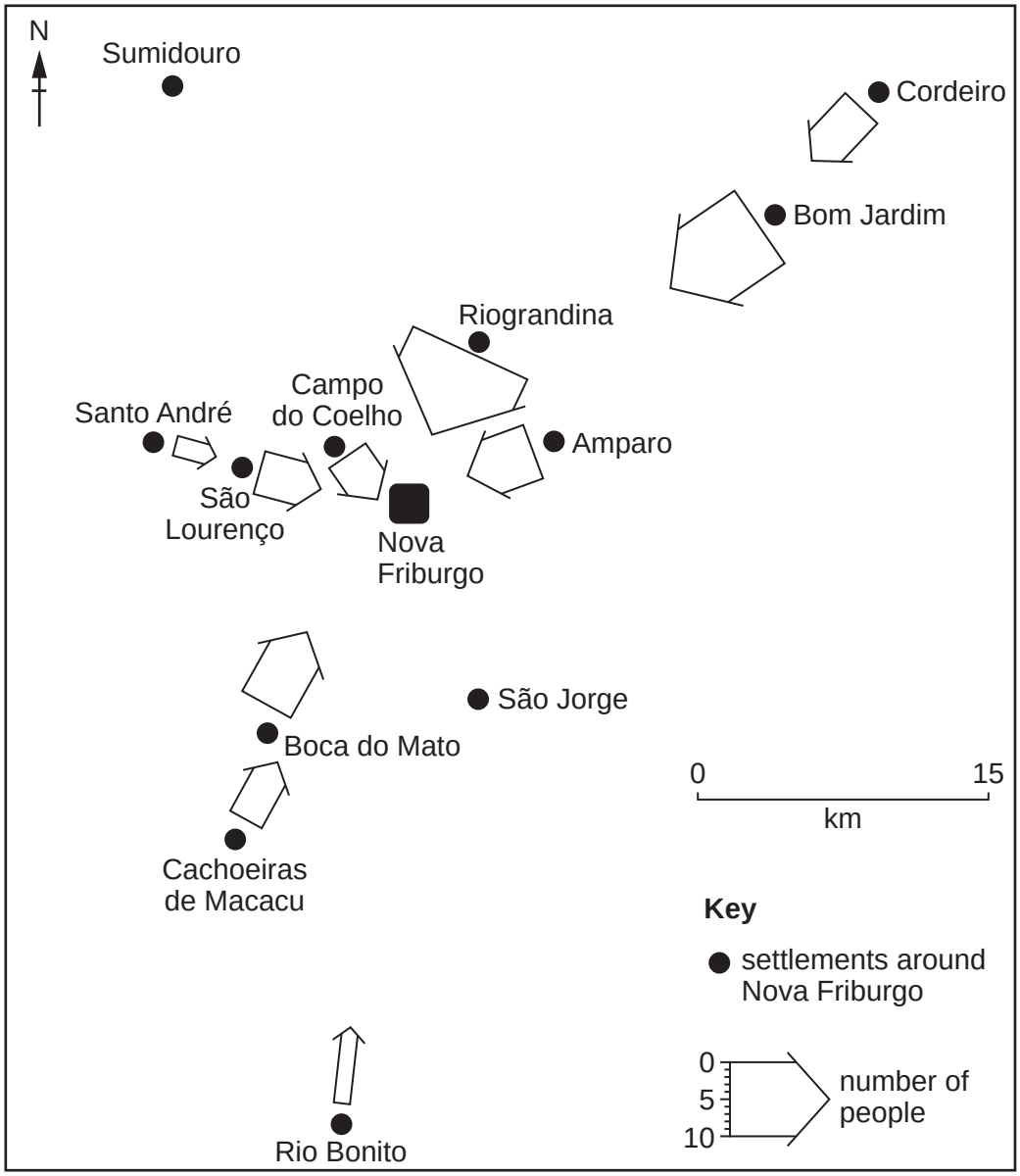

Fig. 8

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(ii) The students made the conclusion that **Hypothesis 2:** *The sphere of influence of Nova Friburgo is equal in all directions* is incorrect (false). Use evidence from Fig. 8 and Table 5 to support this conclusion.

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.....[3]

(iii) The results of Question 3 *'How did you travel to the CBD today?'* are shown in Table 6 (Insert).
Use these results to **draw in the missing bars** in Fig. 9 below. [2]

Answers to Question 3:
How did you travel to the CBD today?

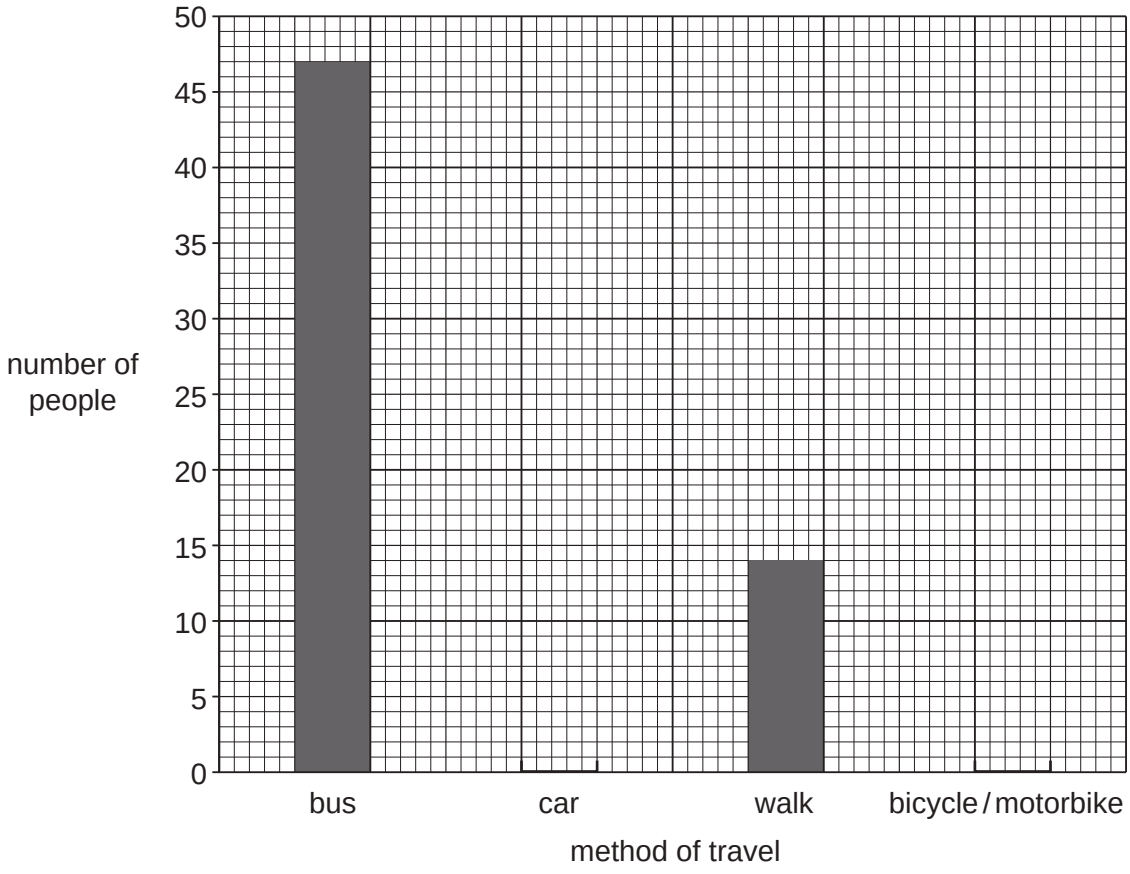

Fig. 9

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(iv) The answers to Question 3 show that the main ways of travelling to the CBD were by bus and car. One student drew the main roads leading to the CBD on her map. She also added upland areas on the map. Her completed map is shown in Fig. 10 (Insert).

Use evidence from Figs. 9 and 10 to explain why the sphere of influence of Nova Friburgo is NOT equal in all directions.

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.....[3]

[Total: 30 marks]

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If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

3519206691

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet.
The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1, 2 and 6 and Tables 1, 2 and 3 for Question 1, and Figs. 8 and 9 and Tables 4 and 5 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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1 Students in Brazil did fieldwork to investigate infiltration. Infiltration is the process by which water soaks into the soil.

(a) The students worked in two groups to do their fieldwork in a river valley. They created two transects (A and B) going away from the river. These are shown in Fig. 1 (Insert).

Which **one** of the following pieces of equipment would they use to create a transect? Tick (✓) your answer.

Equipment	Tick (✓)
callipers	
clipboard	
quadrat	
rope	
ruler	

[1]

The hypotheses investigated by the students were:

Hypothesis 1: *The infiltration rate decreases as distance from the river increases.*

Hypothesis 2: *The infiltration rate decreases as soil moisture content increases.*

Soil moisture content is the quantity of water in the soil.

(b) (i) To investigate **Hypothesis 1** the students in group A collected data to measure the rate (speed) of infiltration at equal distances along transect A. Fig. 2 (Insert) shows the method they used to do this. Describe how the students measured the rate (speed) of infiltration to get the results shown in Table 1 (Insert).

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.....[3]

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(ii) The students recorded the water level in the tube every minute for 10 minutes or until there was no water left. The results of their measurements at sites 4 and 7 are shown in Table 1 (Insert).
Use these results to **complete the measurements** for site 4 in Fig. 3 below. [2]

Results of measurement of water height at two sites on transect A

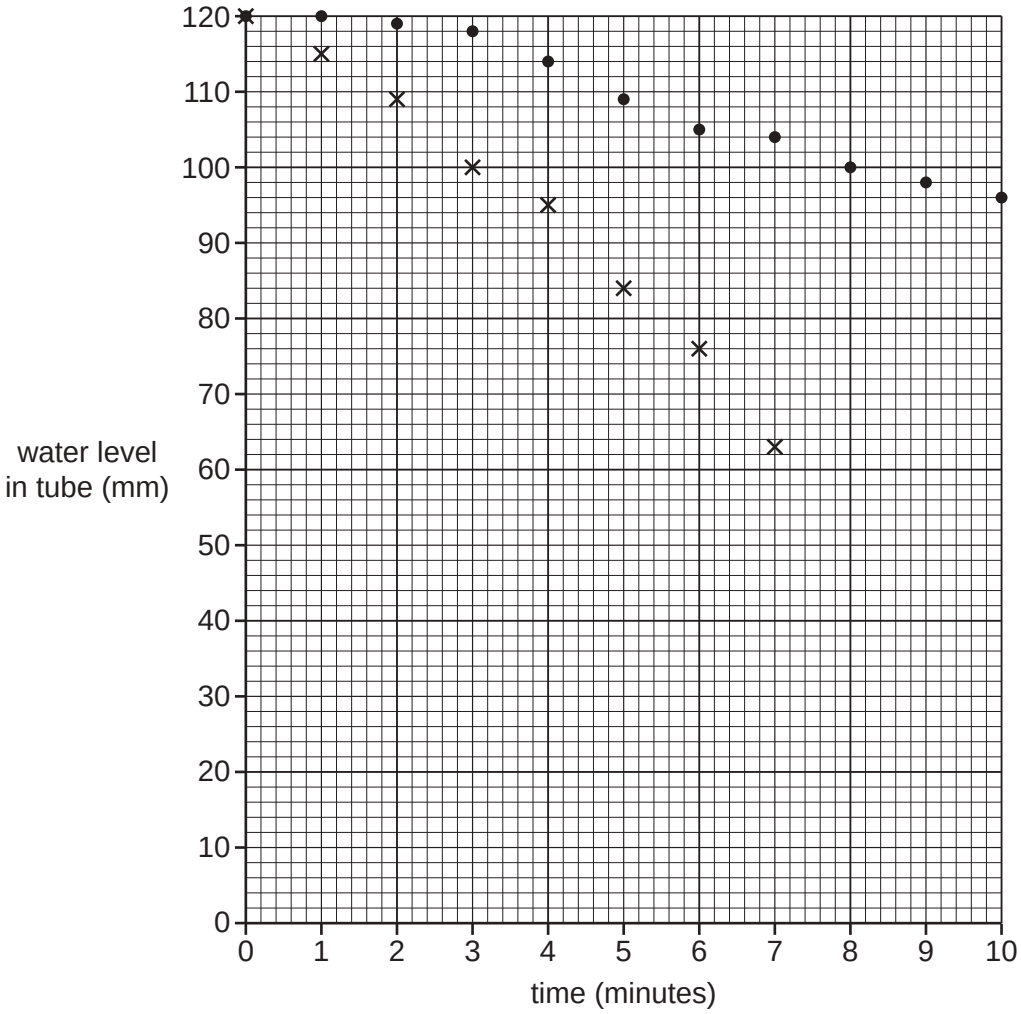

Fig. 3

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(iii) The students then calculated the infiltration rate at each site. Their calculation for site 4 is shown below.

$$\text{Infiltration rate} = \frac{\text{fall in water level (mm)}}{\text{time (min)}}$$

$$= \frac{70}{10}$$

$$= 7.0 \text{ mm per min}$$

Use the data in Table 1 to show the calculation which produced the result for site 7 in the space below. [1]

$$\text{Infiltration rate} = \frac{\text{fall in water level (mm)}}{\text{time (min)}}$$

$$= \text{.....}$$

$$= 2.4 \text{ mm per min}$$

(iv) The measurements of distance from the river and infiltration rate at the different fieldwork sites on transect A are shown in Table 2 (Insert). The students plotted these results on a graph, Fig. 4 below. **Complete the graph** by plotting the result for site 7. [1]

Infiltration rate at the sites on transect A

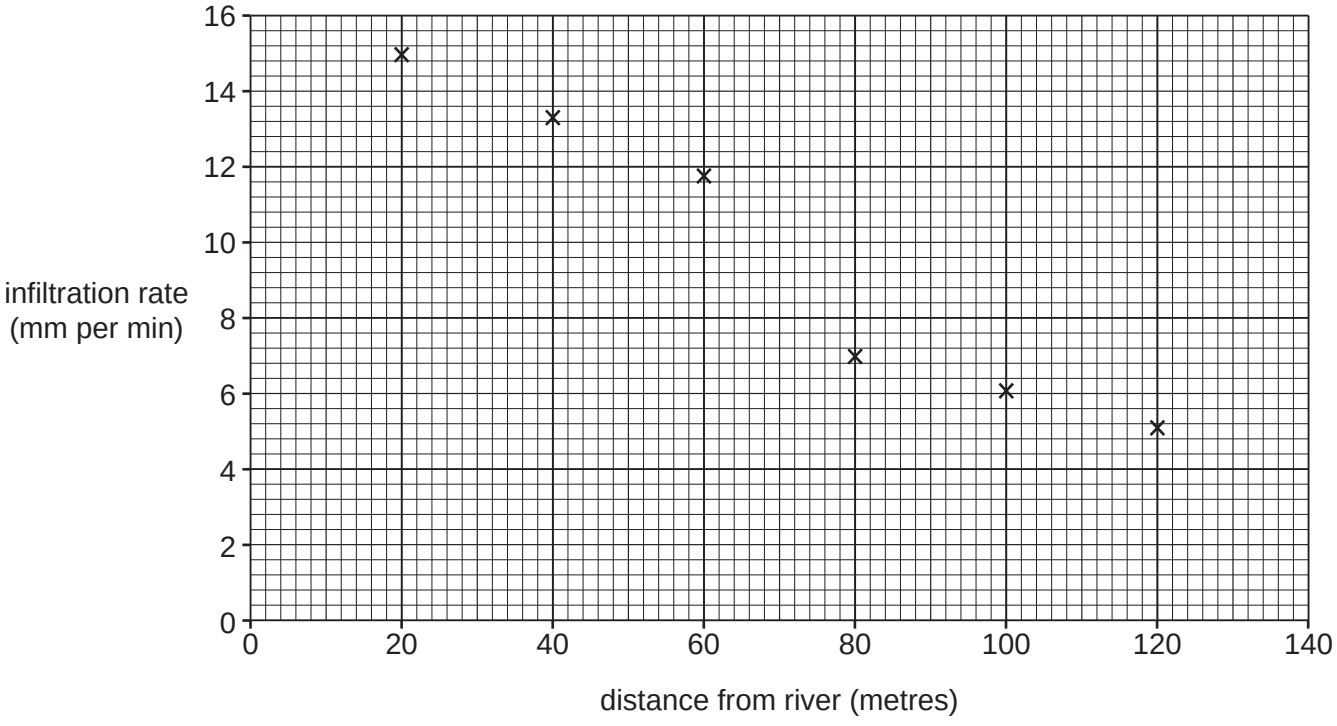

Fig. 4

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(v) What conclusion would the students in group A make about **Hypothesis 1:** *The infiltration rate decreases as distance from the river increases*? Support your answer with evidence from Fig. 4 and Table 2.

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(c) The students in group B did the same fieldwork along transect B shown in Fig. 1 (Insert). Their results are shown in Fig. 5 below.

Infiltration rate at the sites on transect B

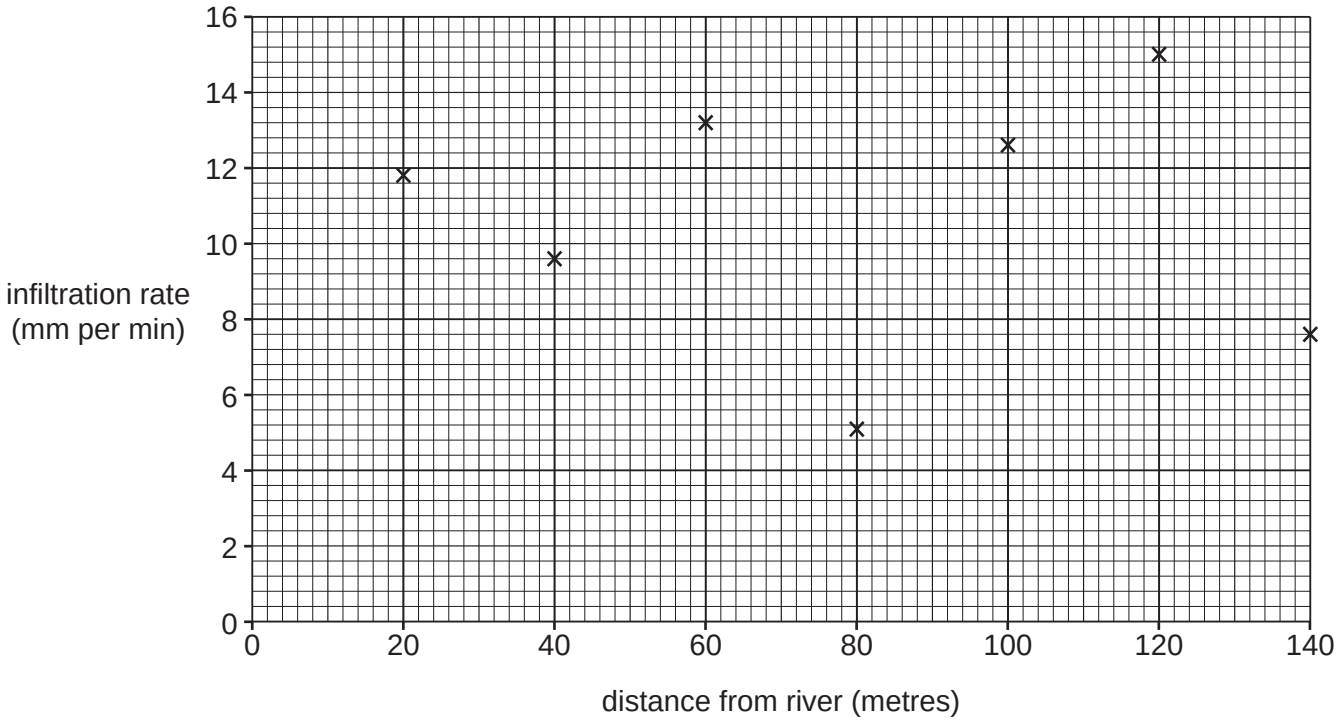

Fig. 5

(i) Compare the results of the two groups on transects A and B. Use evidence from Figs. 4 and 5 in your answer.

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.....[2]

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(ii) As the results of the two groups were different their teacher checked their measurements and calculations and agreed that they had not made any errors. Suggest why the two groups got different results. Look at Fig. 1 to help you to answer.

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.....[4]

(d) To investigate **Hypothesis 2:** *The infiltration rate decreases as soil moisture content increases*, the two groups of students measured the soil moisture content at each sampling site along their transects. Fig. 6 (Insert) shows students' fieldwork notes which describe the two different methods that the groups used.

(i) Suggest **three** advantages of method 2 for measuring soil moisture content.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) The results for transects A and B are shown in Table 3 (Insert). Use this data **to plot the results** at site 3 on transect B in Fig. 7 below. [2]

Results of measurements of infiltration rate and soil moisture content

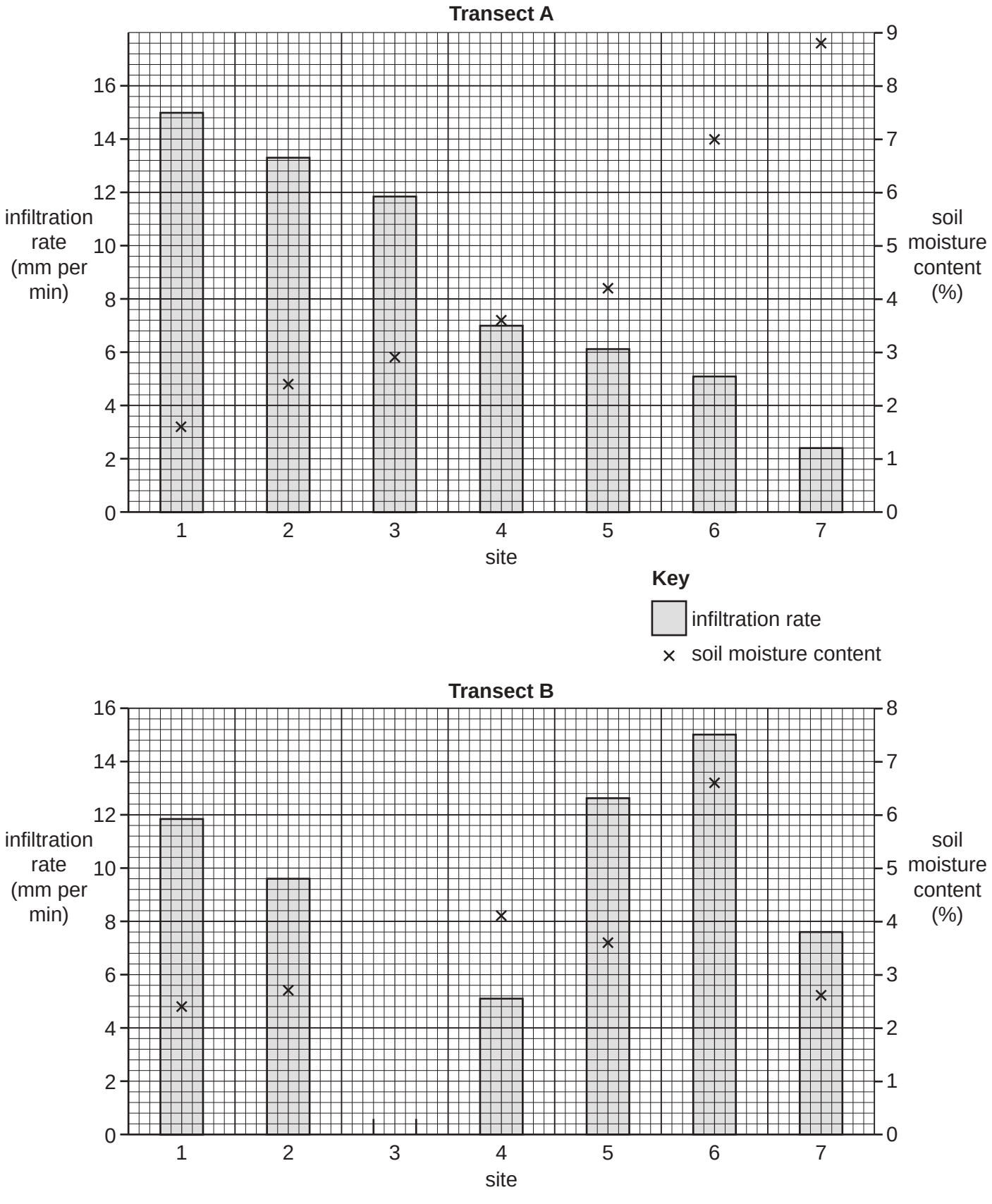

Fig. 7

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(iii) Which group's results agree with **Hypothesis 2:** *The infiltration rate decreases as soil moisture content increases*? Circle your decision below.

Group A on Transect A Group B on Transect B

Support your decision with evidence from Fig. 7 and Table 3.

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(e) If the students repeated their infiltration measurements after a week of heavy rain, how and why would the infiltration rates be different?

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.....[2]

(f) The area around the river where the students did their fieldwork is a popular tourist area. Suggest how and explain why people walking in the area might affect the infiltration rate.

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.....[3]

[Total: 30 marks]

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2 Students in the UK wanted to investigate how areas of their city were different from each other. In particular they decided to find out about differences in the quality of the urban environment and access to local services.

The students selected six sites to do their fieldwork in different areas of the city. These are shown in Fig. 8 (Insert).

The students decided to test the following hypotheses:

Hypothesis 1: *The quality of the urban environment improves as distance from the city centre increases.*

Hypothesis 2: *Access to local services is better further away from the city centre.*

(a) To investigate **Hypothesis 1** the students did an environmental quality survey at one site in each area of the city. Their recording sheet is shown in Fig. 9 (Insert).

(i) Describe how the students would use the recording sheet.

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.....[2]

(ii) Explain how an environmental quality survey should be organised and carried out to make sure that results are reliable.

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(b) The results of the environmental quality survey are shown in Table 4 (Insert).

(i) Identify **one** difference in the quality of the urban environment between each of the following areas:

- Tettenhall and Pendeford

.....

.....

- Whitmore Reans and Low Hill

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.....[2]

(ii) Use the data in Table 4 to **complete the bi-polar graph** for Low Hill in Fig. 10 below. [1]

Bi-polar graph to show environmental quality scores in Low Hill

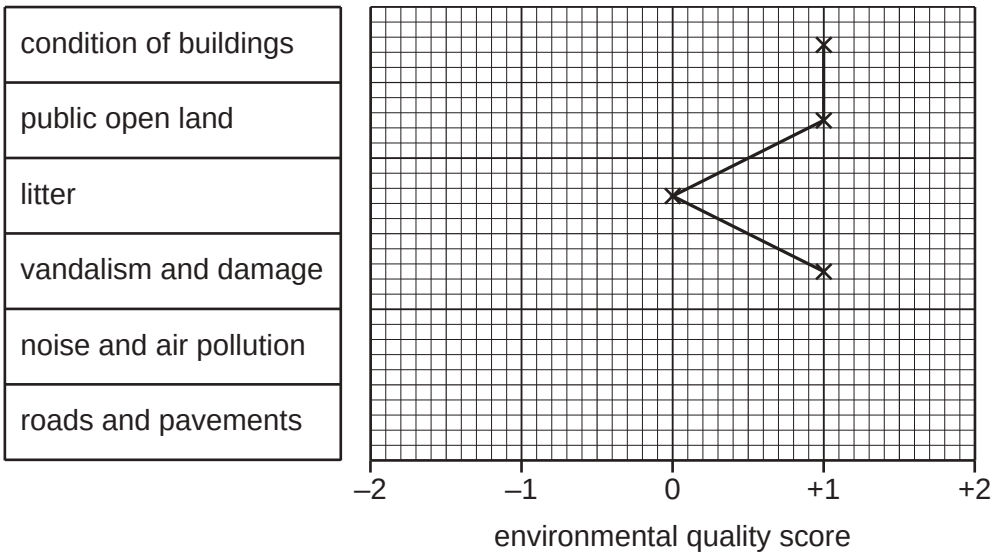

Fig. 10

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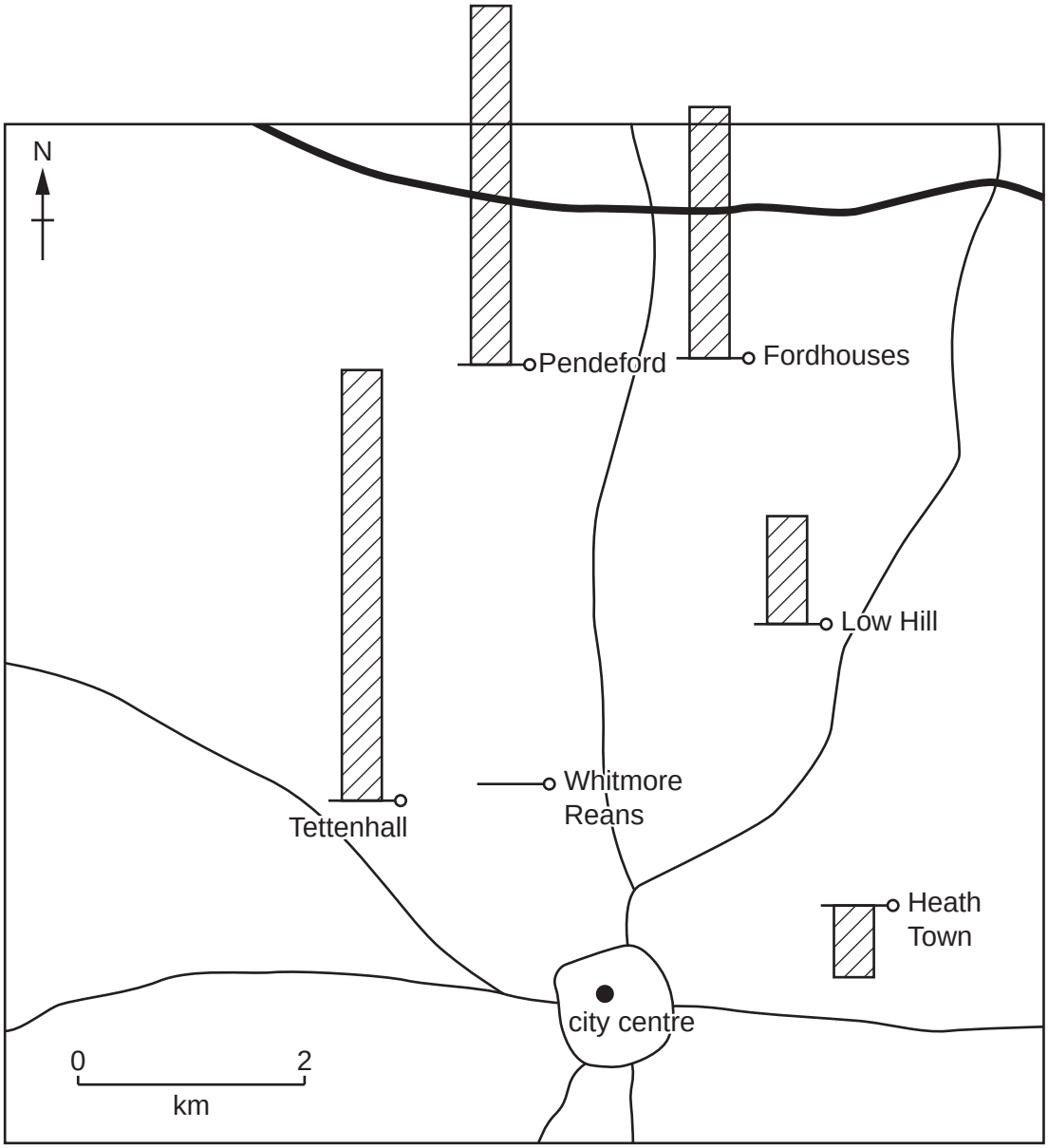
(iii) Using the data in Table 4 the students plotted the total environmental quality score for each area on Fig. 11 below. Use the scale to **plot the total environmental quality score** for Whitmore Reans on Fig. 11. [1]

Total environmental quality score for each area



environmental quality score scale

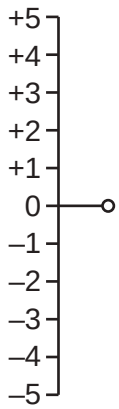


Fig. 11

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(iv) Which **one** of the following conclusions about **Hypothesis 1:** *The quality of the urban environment improves as distance from the city centre increases* is correct? Support your decision with evidence from Fig. 11 and Table 4.

Conclusion	Tick (✓)
Hypothesis 1 is true	
Hypothesis 1 is partly true	
Hypothesis 1 is false	

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.....[4]

(c) To investigate **Hypothesis 2:** *Access to local services is better further away from the city centre*, the students asked residents in each area to tell them how much time they took to walk to different services.

The students used a random sampling method to select people to interview.

Describe this method and give **one** advantage of the method.

Description

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Advantage

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.....[2]

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(d) Fig. 12 below is an example of a partly completed survey sheet.

Survey sheet

Name of residential area: Pendeford

How many minutes does it take you to walk to the nearest service for each of the following?

Circle your answer

Park	less than 5	between 5 and 15	between 16 and 30	more than 30
Supermarket	less than 5	between 5 and 15	between 16 and 30	more than 30
Primary school	less than 5	between 5 and 15	between 16 and 30	more than 30
Secondary school	less than 5	between 5 and 15	between 16 and 30	more than 30
Doctors' surgery / Health centre	less than 5	between 5 and 15	between 16 and 30	more than 30
Bus stop	less than 5	between 5 and 15	between 16 and 30	more than 30
City centre shops	less than 5	between 5 and 15	between 16 and 30	more than 30
Local store	less than 5	between 5 and 15	between 16 and 30	more than 30

Fig. 12

(i) **Complete Fig. 12** using the following information.

- Time taken to walk to the nearest park: 7 minutes;
- Time taken to walk to the nearest secondary school: 40 minutes. [2]

(ii) Why might the question used in the survey (How many minutes does it take you to walk to the nearest service for each of the following?) result in an answer that is **not** useful?

.....

.....

.....

.....[2]

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(iii) When the students had completed the survey they produced a 'household convenience index' by giving a score to each answer circled on the survey sheet. The scoring system is shown below.

Time taken	Score
less than 5 minutes	4
between 5 minutes and 15 minutes	3
between 16 minutes and 30 minutes	2
more than 30 minutes	1

Use this scoring system **to complete Fig. 13**, below, which shows the household convenience index for one person's answers in Low Hill. Insert the score for the local store and the total index score. [2]

Household convenience index result in Low Hill

Name of residential area: Low Hill

How many minutes does it take you to walk to the nearest service for each of the following?

Circle your answer					**Score**
Park	less than 5	between 5 and 15	between 16 and 30	more than 30	4
Supermarket	less than 5	between 5 and 15	between 16 and 30	more than 30	3
Primary school	less than 5	between 5 and 15	between 16 and 30	more than 30	3
Secondary school	less than 5	between 5 and 15	between 16 and 30	more than 30	2
Doctors' surgery / Health centre	less than 5	between 5 and 15	between 16 and 30	more than 30	3
Bus stop	less than 5	between 5 and 15	between 16 and 30	more than 30	4
City centre shops	less than 5	between 5 and 15	between 16 and 30	more than 30	1
Local store	less than 5	between 5 and 15	between 16 and 30	more than 30	
Total household convenience index score					
Percentage household convenience score					75%

Fig. 13

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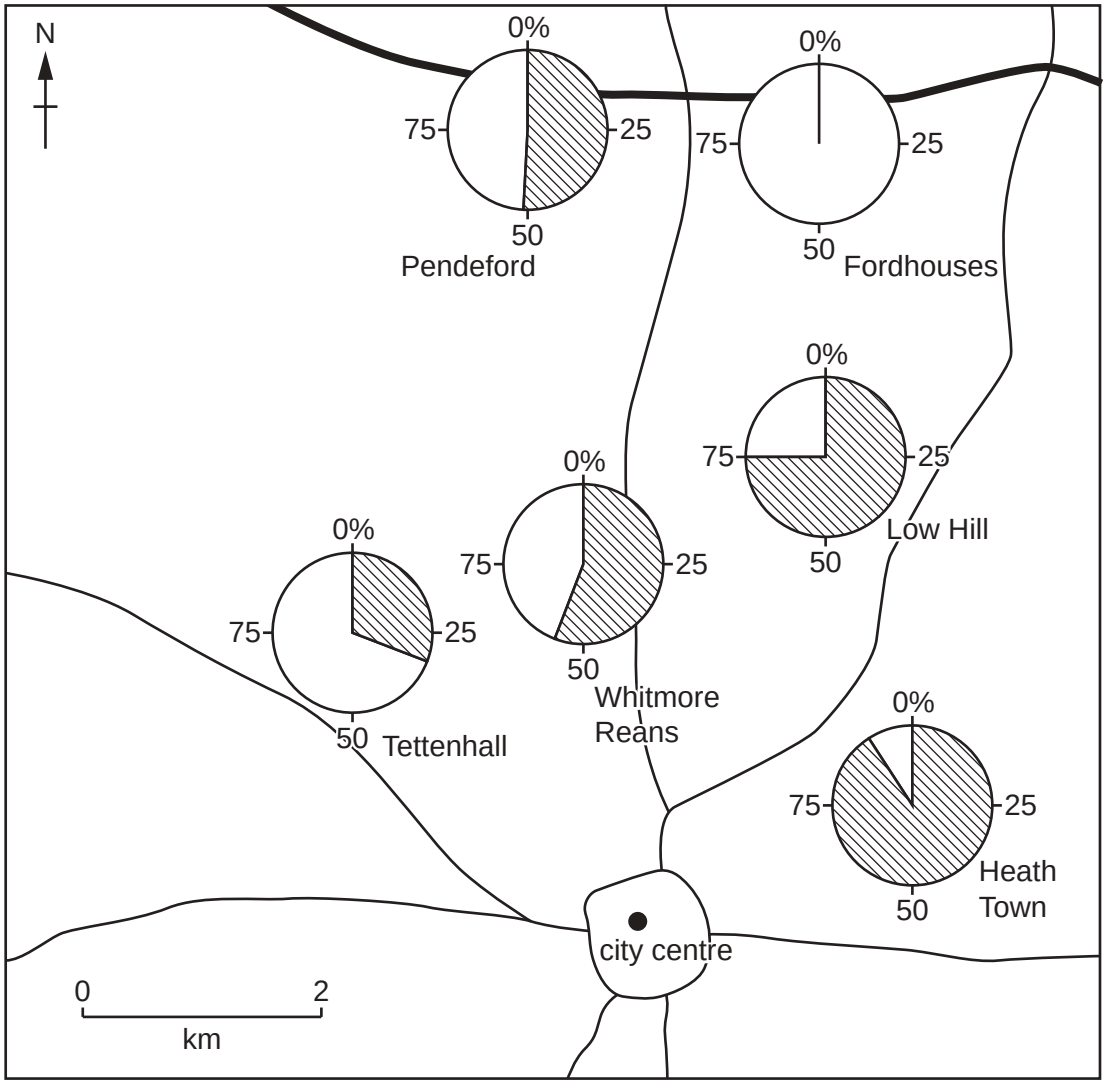
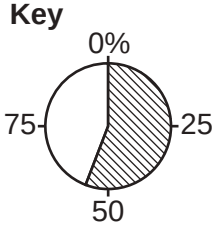
(e) The students then calculated a percentage household convenience score for each area of the city. These results are shown in Table 5 (Insert).

(i) **Complete Fig. 14 below** by plotting the percentage household convenience score for Fordhouses. [1]

Household convenience score of each area



Key



shaded area shows percentage household convenience score

Fig. 14

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(ii) What conclusions would the students make about **Hypothesis 2:** *Access to local services is better further away from the city centre*? Support your decision with evidence from Fig. 14 and Table 5.

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(f) For extension work the students wanted to investigate how the amount of traffic might vary between different areas of the city. Describe a fieldwork method for this investigation.

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.....[4]

[Total: 30 marks]

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Additional Pages

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Cambridge IGCSE

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4574868804

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2017**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

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Write your Centre number, candidate number and name in the spaces provided.
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Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
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Answer **all** questions.

The Insert contains Figs. 1, 2 and 6 and Tables 2 and 3 for Question 1, and Fig. 7 and Tables 4, 5, 6 and 7 for Question 2.
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1 Students in the UK visited a coastal area where a spit had formed. Fig. 1 (Insert) shows a map of the area.

(a) Which **one** of the following is the correct description of a spit? Tick (✓) your answer.

Description	Tick (✓)
a resistant rock that is separated from the land by erosion	
a tall, steep cliff which extends out into the sea	
an inlet which is sheltered on both sides by cliffs	
a sheltered area of coastline where sand collects	
a ridge of sand or shingle attached to the land at one end	

[1]

The students decided to test the following hypotheses:

Hypothesis 1: *The spit has been formed by constructive waves moving beach material along the coast.*

Hypothesis 2: *The coastal area is being managed to encourage sustainable tourism.*

Sustainable tourism meets the needs of people now and protects the area for future generations.

(b) Before they began their fieldwork the students discussed safety on the beach with their teacher.

Suggest **three** precautions the students or teacher needed to take to reduce the risk of accidents.

1 .....

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2 .....

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3 .....

.....[3]

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(c) To investigate **Hypothesis 1** the students needed to know more about the waves along the coastline. They had learned that waves are either constructive or destructive.

Wave frequency is the number of waves which break on the shore per minute.

The wave frequency of constructive waves is less than 10 waves per minute and the wave frequency of destructive waves is 10 or more waves per minute.

(i) Describe a method the students could use to measure wave frequency.

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.....[3]

(ii) The results of the students' measurements of wave frequency are shown in Table 1 below.

Table 1

Results of students' measurements

Measurement number	Waves per minute
1	6
2	8
3	8
4	7
5	8
6	6
7	9
8	7
9	8
10	7
Average	

Calculate the average (mean) number of waves per minute. **Insert your answer** into Table 1. [1]

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(d) The students had learned that longshore drift is important in moving beach material along the coast.

(i) Which **one** of the following statements about longshore drift is correct?
Tick (✓) your answer.

Statement	Tick (✓)
Waves approach the coastline at an angle.	
Swash moves material down the beach.	
Longshore drift occurs in deep water.	
Backwash moves material up the beach.	
The direction of longshore drift depends on the tide.	

[1]

(ii) To investigate longshore drift the students used two fieldwork methods. These are described in Fig. 2 (Insert), which is part of a student's fieldwork notes.

Suggest **one** disadvantage of method 1.

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.....[1]

(iii) Suggest **one** way the students could have made sure that their results using method 2 were accurate.

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.....[1]

(iv) The results of method 1 are shown in Table 2 (Insert). Use these results to **plot the average distance moved along the beach** in Fig. 3 below. [1]

Results of method 1

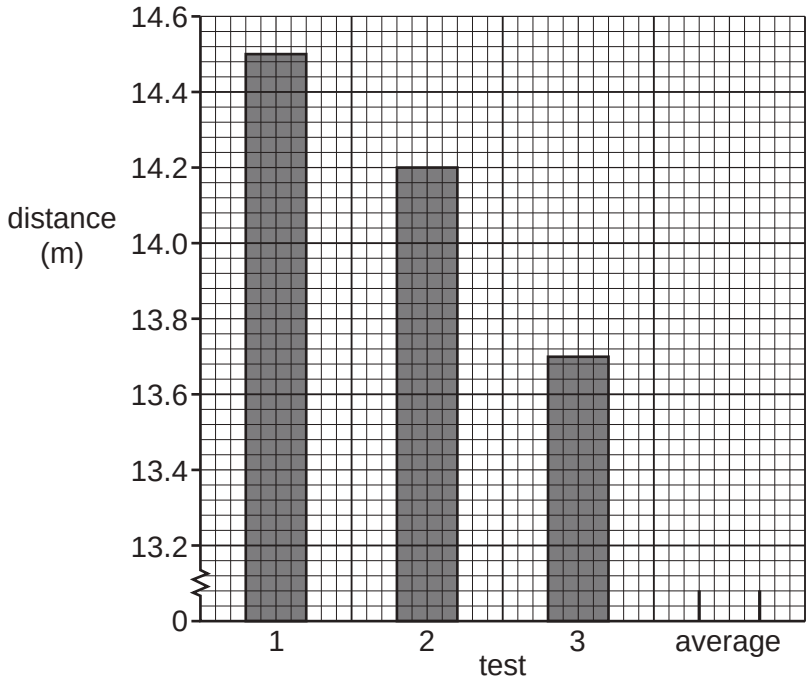

Fig. 3

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(v) The results of method 2 are shown in Table 3 (Insert). Use these results **to complete Fig. 4** below. [1]

Height of beach material either side of the two groynes

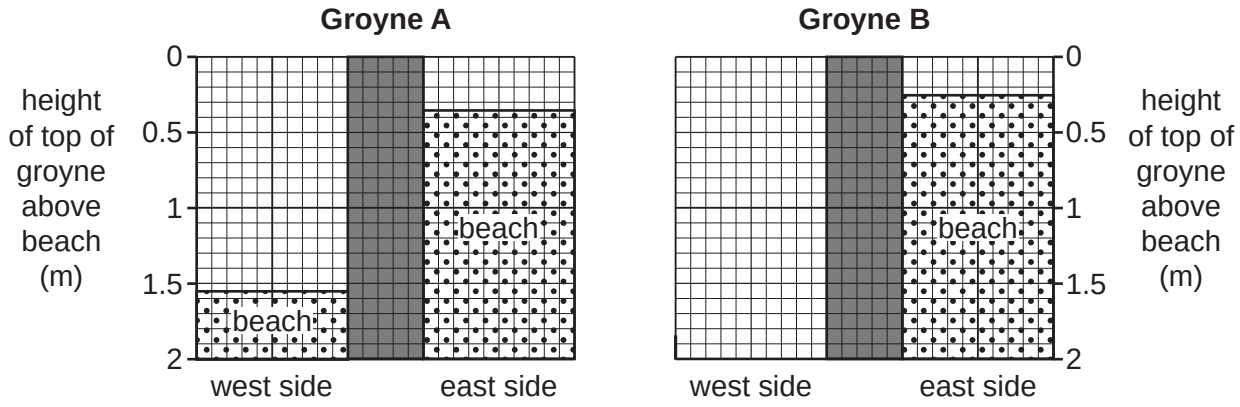

Fig. 4

(vi) What conclusion would the students make about **Hypothesis 1:** *The spit has been formed by constructive waves moving beach material along the coast*? Support your answer with evidence from Tables 1, 2 and 3, and Figs. 3 and 4.

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(vii) Look again at Fig. 1 (Insert). Suggest why the groynes have been built on the beach.

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(e) The coastline where the students did their fieldwork attracts many visitors. To investigate **Hypothesis 2:** *The coastal area is being managed to encourage sustainable tourism*, the students needed to assess the types and amount of management found on and near the beach.

(i) First they recorded evidence of management methods in the tally chart shown in Fig. 5 below. **Complete the tally chart** with their result of counting **eight** litter bins in the area. [1]

Tally chart

Evidence of management	Tally	Number counted
board-walk	𝍸	5
café	/	1
campsite	//	2
car park	//	2
direction signpost	𝍸 ////	9
fence	///	3
footpath	////	4
information board	//	2
litter bin		
recycling point	/	1
toilets	/	1
tourist information centre	/	1

Fig. 5

(ii) Another student located some of this evidence on a sketch map of part of the area near the beach. This is shown in Fig. 6 (Insert).

Describe the location of the footpaths shown on the map.

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.....[2]

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(iii) Is **Hypothesis 2:** *The coastal area is being managed to encourage sustainable tourism* true or false? Circle your answer below.

True False

Explain your conclusion. Include evidence from Figs. 5 and 6.

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.....[4]

(f) For extension work the students drew the beach profile from the edge of the sea to the top of the beach. They used a tape measure, two ranging poles and a clinometer. Describe how they made their measurements.

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.....[4]

[Total: 30 marks]

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2 Students in India wanted to find out more about people who had migrated to the city of Jaipur from within India and lived in squatter settlements made up of homemade shelters on pavements or next to roads.

The students decided to test the following hypotheses:

Hypothesis 1: *More migrants who live in the squatter settlement came from the area around Jaipur than areas further away.*

Hypothesis 2: *The quality of life of residents in the squatter settlement is poor.*

(a) To investigate the hypotheses the students used a questionnaire with 10% of the residents of the squatter settlements.

(i) Describe a sampling method for how the students could choose people to complete the questionnaire. Explain why you have chosen this method.

Name of sampling method .....

Description of method .....

.....

Explanation for choice .....

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.....[3]

(ii) Explain why a 10% sample (300 people) is an appropriate number of residents to answer the questionnaire.

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.....[2]

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(b) The questionnaire is shown in Fig. 7 (Insert).

(i) The results of Question 1 (Which state did you come from when you moved to Jaipur?) are shown in Table 4 (Insert). **Complete Fig. 8** below by plotting the data for Gujarat. [1]

States from which migrants to the squatter settlement came



Key

× Jaipur

number of migrants

- more than 100
- 51–100
- 21–50
- 11–20
- 1–10
- 0

- international boundary
- state boundary
- disputed boundary

Fig. 8

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(ii) Suggest **one** other suitable method to display the results of Question 1 on a map of India.

.....[1]

(iii) What is the correct conclusion about **Hypothesis 1:** *More migrants who live in the squatter settlement came from the area around Jaipur than areas further away*? Support your answer with evidence from Fig. 8 and Table 4.

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.....[3]

(iv) Suggest reasons for the pattern of migration shown in Fig. 8.

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.....[2]

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(c) To investigate **Hypothesis 2:** *The quality of life of residents in the squatter settlement is poor*, the students used the results of Questions 2, 3 and 4 in their questionnaire.

(i) The students plotted their results of Question 2 (Where do you get most of your water from?) and Question 3 (What is your main method of lighting?) in pie graphs shown in Figs. 9A and 9B below. Use the data in Table 5 (Insert) to **complete the pie graph** in Fig. 9A. [3]

Main source of water

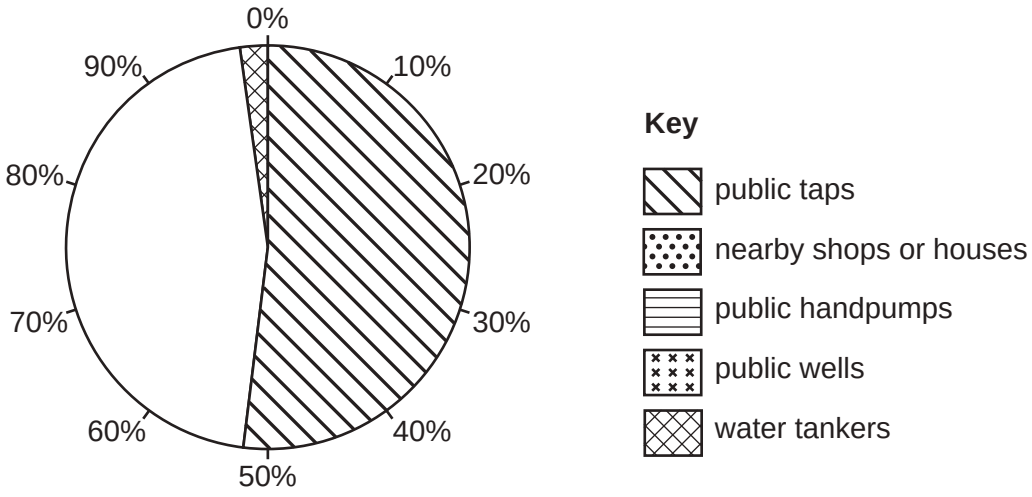

Fig. 9A

Main method of lighting

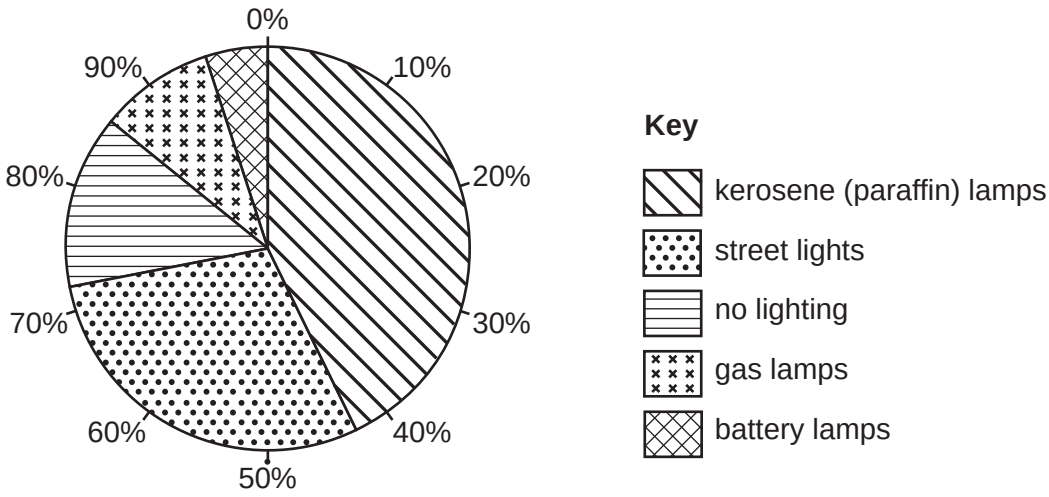

Fig. 9B

(ii) In Fig. 9B what percentage of residents have 'no lighting'?

.....% [1]

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(iii) The answers to Question 4 (How do you dispose of your rubbish?) are shown in Table 6 (Insert). **Plot the result** for 'Throw it on the road' in Fig. 10 below. [1]

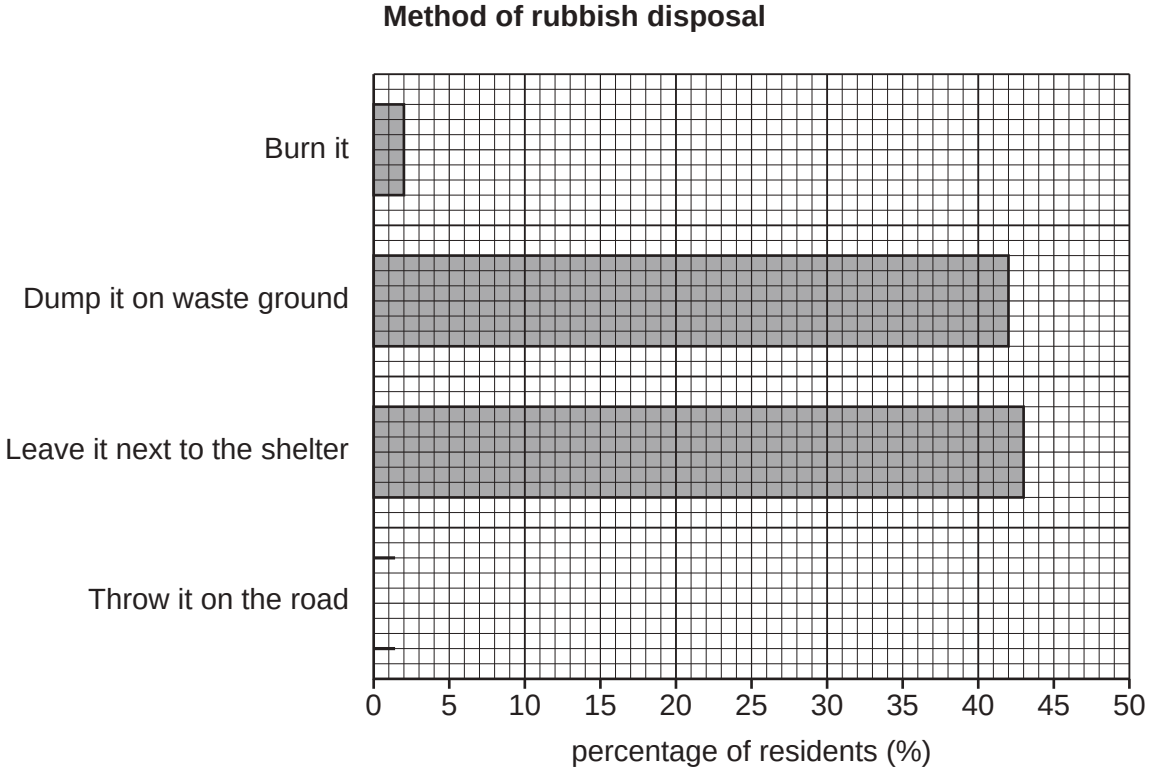

Fig. 10

(iv) The students decided that **Hypothesis 2:** *The quality of life of residents in the squatter settlement is poor* was true. Support this decision with information from Figs. 9A, 9B and 10.

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.....[4]

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(d) (i) The answers to Question 5 (What is the job of the main income earner in the family?) are shown in Table 7 (Insert). Use the results to **complete Fig. 11** below. [3]

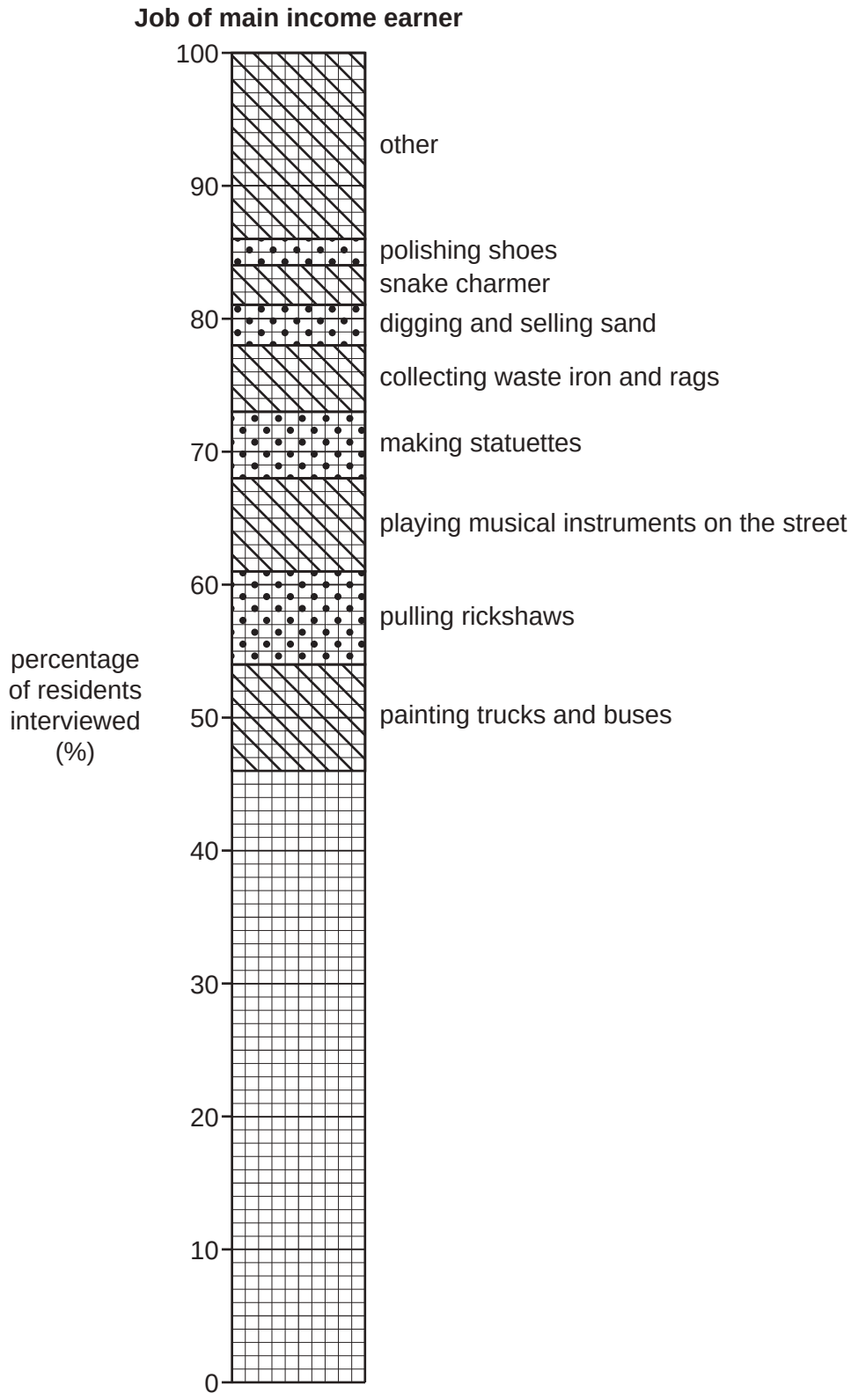

Fig. 11

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(ii) Why do the jobs shown in Fig. 11 help to support the students' conclusion that residents in the squatter settlement have a poor quality of life?

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.....[2]

(e) To extend their work the students discussed ways to solve the problem of people living on pavements or next to roads. They suggested two possible solutions which are shown in Fig. 12 below.

Two possible solutions suggested by students

Solution A Build low-cost houses with basic water, sewage and power supplies which are cheap to rent. Solution B Police remove the people living on the pavements or next to roads and council workers clear the area of rubbish.

Fig. 12

Explain why solution A is better for people living on pavements or next to roads than solution B.

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.....[4]

[Total: 30 marks]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Grade thresholds – March 2018

Cambridge IGCSE Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the March 2018 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 12	75	50	41	33	29	25	20	16
Component 22	60	44	38	33	29	25	22	19
Component 3	60	50	42	35	28	22	17	12
Component 42	60	41	37	34	29	25	21	17

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AY	03, 12, 22	183	159	135	112	96	80	66	52
BY	12, 22, 42	170	150	130	111	97	83	70	57

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GEOGRAPHY **0460/12**

Paper 1 **February/March 2018**

INSERT

1 hour 45 minutes

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READ THESE INSTRUCTIONS FIRST

The Insert contains Fig. 2.1 for Question 2, Fig. 3.1 for Question 3, Fig. 4.1 for Question 4, and Figs. 5.2 and 5.3 for Question 5.

The Insert is **not** required by the Examiner.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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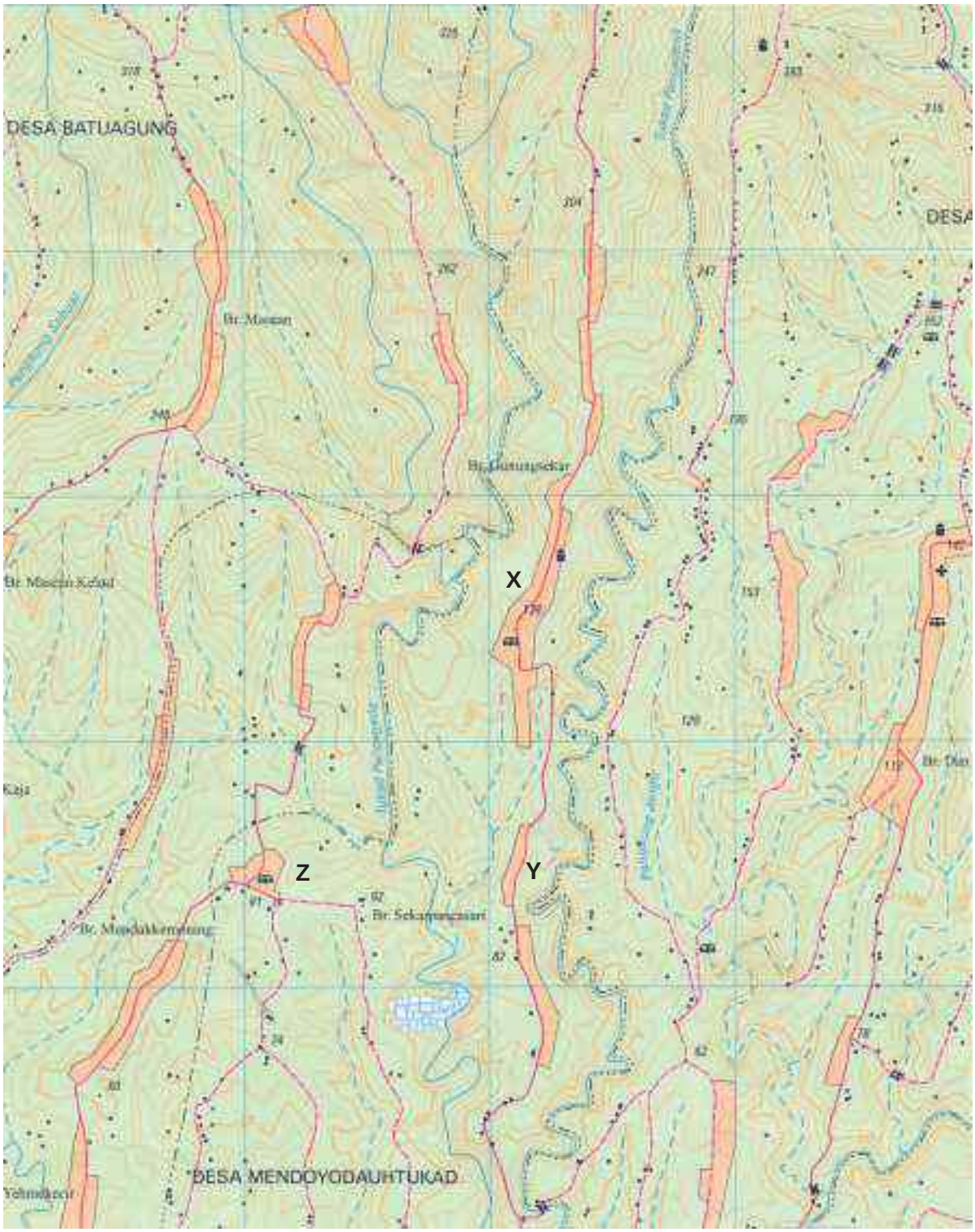
Fig. 2.1 for Question 2



Key

built-up area	local road
building	track
temple	irrigated rice fields
school	farmland
	bridge

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Fig. 3.1 for Question 3



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Fig. 4.1 for Question 4



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Fig. 5.2 for Question 5



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Fig. 5.3 for Question 5



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GEOGRAPHY **0460/12**

Paper 1 **March 2018**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	17	**1**
1(a)(ii)	Ideas such as: Employment/business/commerce/trading/better pay; Service provision or example (hospitals, health care, universities, education, range of shops etc.); Entertainment; Accessibility/central location/harbour/port/airport etc. 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: More people live on North Island/less on South island; Uneven distribution; Large clusters on some areas (or example); Scattered in many parts; Many people live close to coasts/few in centre etc. 3 @ 1 mark	**3**
1(a)(iv)	Identification of physical factors such as: Relief/high/steep/mountainous land/terrain/gradient/aspect/ topography; Weather/climate/cold/icy/dry/desert/temperature; Soils; Volcanoes. River Explanation of each as appropriate: (Relief/high/steep/mountainous land/terrain/gradient/aspect) e.g. People do not want to live in the mountains as it is hard to build on steep slopes etc. (Weather/climate/cold/icy/dry/desert/temperature): e.g. People do not want to live in deserts as people will not survive where there are no water supplies etc. (Soil): e.g. Many farmers are attracted to areas with fertile soil so they can produce food etc. (Volcanoes): e.g. Many people are attracted to areas with volcanoes so they can work in the tourist industry (River) e.g. people live near rivers to obtain a water supply. 2 marks for identification of each factor and 2 for explanation of how it can influence population distribution. 4 @ 1 mark	**4**

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Question	Answer	Marks
1(b)(i)	Ideas such as: Increase/Greater percentage in Africa; Decrease/Lower percentage in Europe; Decrease/Lower percentage in Americas; Decrease/Lower percentage in Asia; Asia is largest percentage in 2000 but Africa largest in 2100. Note: Accept accurate statistics 3 @ 1 mark	**3**
1(b)(ii)	Ideas such as in LEDCs there are: high birth rates; poor access to/cannot afford contraceptives; lack of education about birth control; some religions are against contraception; little education about adverse impacts of large families; dependence on agriculture/children work on farms; children are sent out to work/earn money; children help out in the home/fetch firewood/collect water; children look after elderly people; high IMR; traditional attitudes encourage large families/people keep having children until a son is born; many women don't have careers; early marriage; decreasing death rates; improving health care; setting up care structure for old (or examples) pension schemes being set up etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the problems caused by overpopulation. Level 2 (4–6 marks) Uses named example. More developed statements which describe the problems caused by overpopulation. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: • Employment • Food supply • Provision of health care • Provision of housing/shelter • Water supply • Sanitation • Provision of education • Traffic congestion • deforestation etc. Place specific reference is likely to consist of: Named parts of the chosen country, Population data etc.	**7**

Question	Answer	Marks
2(a)(i)	Linear	**1**
2(a)(ii)	Similarities such as they are both: Linear/long and thin; Along a road; Surrounded by farmland etc. Differences such as: X is longer; X is wider; X is larger; X has a temple/school but Y does not; Y is nearer irrigated fields; Y only on one side of road but X is on both sides etc. 2 @ 1 mark	**2**

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Question	Answer	Marks
2(a)(iii)	Ideas such as: Z is more nucleated but X is linear (reserve); Z is at a junction of roads but X has grown along one road; X space is limited by rivers/valleys but Z is not; Steep slopes/likelihood of floods prevents expansion to east and west at X but there is space to expand at Z etc. 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Low order; Small sphere of influence; Low threshold population; Used regularly/daily; Basic necessities / convenience goods E.g.primary school, general store, small shops etc. MAX 1 4 @ 1 mark	**4**
2(b)(i)	Ideas such as; on high land/hill; inland; top of hill; away from river/higher than river etc.; 3 @ 1 mark	**3**
2(b)(ii)	Ideas such as: Next to river; lowest bridging point of the river; which encourages trade (dev); Road connections/on road; Providing good access/transport links; Water availability; Low/flat land; Likely to be fertile soils; Which encourages food production (dev); Sea breezes/moderating influence of sea; Sheltered by high land; fishing etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describes and/or explains service provision Level 2 (4–6 marks) Uses named example. More developed statements which describes and/or explains service provision (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describes and explains service provision, with some place specific reference. Content Guide: Answers are likely to refer to ideas such as: Order of services, Frequency of use, Sphere of influence, Competing settlements/services, Population size; Access etc. Place specific reference is likely to consist of: Locational details, Specific details of the services, Named businesses etc.	**7**

Question	Answer	Marks
3(a)(i)	Wave cut platform	**1**
3(a)(ii)	Ideas such as: There are areas of soft rock/hard rock; Which are eroded more quickly/less quickly/erosion takes place at different speed/differential erosion; There may be faults/lines of weaknesses etc. 2 @ 1 mark	**2**

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Question	Answer	Marks
3(a)(iii)	Hydraulic action: Waves trap/compress air in cracks/cliffs are eroded by the power/weight of waves etc. Corrasion/abrasion: Pebbles/rocks carried by waves are thrown against the cliffs/rocks in the waves act like sandpaper etc. Corrosion: Acids in the water wear away the rocks/rocks are dissolved by the chemicals in the water etc. 3 @ 1 mark	**3**
3(a)(iv)	Problems such as: Loss of farmland/farmers lose jobs ; Collapse/damage to housing; Roads/paths destroyed/access disrupted/parking areas lost; Cliff top businesses (or example) damaged/closed down; Negative impact on tourism; Cost of protection measures; People are unable to get insurance etc. 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: Coral is much more widely distributed; Mangrove is next to/on land, coral is at sea/coral goes further out to sea; Coral is all around island, mangrove is not etc. 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: • warm water; • water temperatures between 18–27 °C (accept figure within range)(dev); • shallow water; • not more than 60 metres deep (dev); • water free from sediment/clear/not polluted/clean; • plentiful supply of oxygen in water; • plentiful supply of plankton/plentiful supply of nutrients; • calm water/no strong currents/waves; • PH is alkaline/basic/8 or above; • high salinity/salty water 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain what has been done to reduce the risk of the chosen hazard. Level 2 (4–6 marks) Uses named example. More developed statements which explain what has been done to reduce the risk of the chosen hazard. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Sea walls Offshore barriers groynes evacuation plans forecasting etc. Place specific reference is likely to consist of: Locational details, named places along the coast specific details of schemes etc.	**7**

Question	Answer	Marks
4(a)(i)	The condition of the atmosphere at a given time and place	**1**
4(a)(ii)	Wind/weather vane anemometer 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: There are too many trees/vegetation close to the weather station; There are buildings near by; There are areas of concrete/it is not all grassed; It is sheltered/shaded/not in open space etc.; 3 @ 1 mark	**3**

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Question	Answer	Marks
4(a)(iv)	Ideas such as: The instruments are not in direct sunlight/roof protects them from heat/sun; They will not be affected by the wind; It measures air temperature/not ground temperatures/not affected by radiation from ground; They are secure from tampering/protected from people/animals; does not conduct heat; free flow of air/ventilation; reflects/does not absorb sun's rays etc. 4 @ 1 mark	**4**
4(b)(i)	Ideas such as: Close to/on equator/in Equatorial region; Between 10 degrees N/S/between 10 degrees N and 23S; Middle/Central Africa; Western side ; Coast of West Africa/East coast of Madagascar/island around 20S) Further south than north / stretches to Capricorn not Cancer etc. 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: Close to Equator/in Equatorial region; Overhead sun/high angle of sun/sun's rays more concentrated; Convectional rainfall/convection; Large amounts of evaporation; Large amounts of transpiration; Low pressure/ascending air Evapo-transpiration (as alternative to evaporation and transpiration) etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe impacts of deforestation on local natural environment and/or local people. Level 2 (4–6 marks) Uses named example. More developed statements which describe impacts of deforestation on local natural environment and/or local people (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements which describe impacts of deforestation on local natural environment and local people including some place specific reference. Content Guide: Answers are likely to refer to: Death of wildlife extinction loss of habitat impact on food chains, soil erosion killing of people migration of people to urban areas etc. Place specific reference is likely to consist of: Locational details, named species/tribes etc.	**7**

Question	Answer	Marks
5(a)(i)	Cross on Fig.6	**1**
5(a)(ii)	Arable – where crops or e.g. are grown Pasture – where animals or e.g. are grazed/kept 2 @ 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Fife has: Greater percentage arable; Greater percentage lowland pasture; Smaller percentage upland pasture; Largest in Fife is arable but largest average is lowland pasture; Smallest in Fife is upland pasture but smallest average is arable Note: Accept accurate statistics. 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: They are farming as a job/to earn money/to get a profit; They produce large outputs/high yields/more crops; They are able to use chemicals/fertilisers/pesticides; Areas can be mechanised/they can afford equipment; There is a large demand for products; Good communications enable transport to market etc.; 4 @ 1 mark	**4**
5(b)(i)	Ideas such as both farms: are mixed farms; have pasture/grassland/animals (or e.g.); have arable land/grow crops; have large fields/are large; have gently sloping land; are commercial etc. 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: Fertile soils are required for many crops; Steep slopes are often used for pasture/too steep for Crops/flat land used for crops; lowland areas are often used for crops/upland for grazing; Amount of precipitation will determine which crops will grow; sunshine needed for ripening of crops; number of frost free days/length of growing season influences choice of crops/some areas are too cold to grow crops so animals are kept etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the farming system. Level 2 (4–6 marks) Uses named example. More developed statements which describe the farming system. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers are likely to refer to: Natural inputs e.g. rainfall, soil, temperatures etc. Human/economic inputs e.g. labour, machinery, fertilisers etc. Processes e.g. ploughing, feeding animals, harvesting etc. outputs Place specific reference is likely to consist of: Locational details/named areas within country/area chosen Statistics etc	**7**

Question	Answer	Marks
6(a)(i)	2009/2010	**1**
6(a)(ii)	Increases predicted for China are greater/more rapid 150 to 220 (quadrillion Btu) China/100 to 110 (quadrillion Btu) USA 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Increasing ownership of cars/vehicles; Industrialisation; Mechanisation/technological development; More aircraft/flights; Tourism is increasing; More use of electrical appliances in the home (or example) etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
6(a)(iv)	Ideas such as: Use of fossil fuel/burning of coal/oil; Emissions of carbon dioxide/greenhouse gases; Trap heat/form a blanket around the earth/greenhouse effect; Temperatures increase/global warming; Ice sheets/glaciers melted; Rise in sea level etc. 4 @ 1 mark	**4**
6(b)(i)	Country with most polluted air = Pakistan A country where air quality is moderate = China/Myanmar/Sri Lanka/South Korea/Indonesia Country where air pollution is least likely to cause problems = Japan 3 @ 1 mark	**3**
6(b)(ii)	Ideas such as: loss of/damage to natural vegetation; birds/insects/animals killed /poisoned; habitat loss; extinction of species; impact on ecosystems/food chains; acid rain pollutes water; acid rain decreases soil pH etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe methods used to supply water. Level 2 (4–6 marks) Uses named example. More developed statements which describe methods used to supply water. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Methods are likely to include: Reservoirs Wells Pumping water from aquifer Desalination Water transfer schemes Network of pipes River water Water treatment plants Tanks on roofs Import water etc. Place specific reference is likely to consist of: Locational details; Names of places/species within chosen country Specific details of methods	**7**

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Cambridge International Examinations
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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/12**

Paper 1 **February/March 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 2.1 for Question 2, Fig. 3.1 for Question 3, Fig. 4.1 for Question 4, and Figs. 5.2 and 5.3 for Question 5.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **29** printed pages, **3** blank pages and **1** Insert.

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about the population of New Zealand, an MEDC.

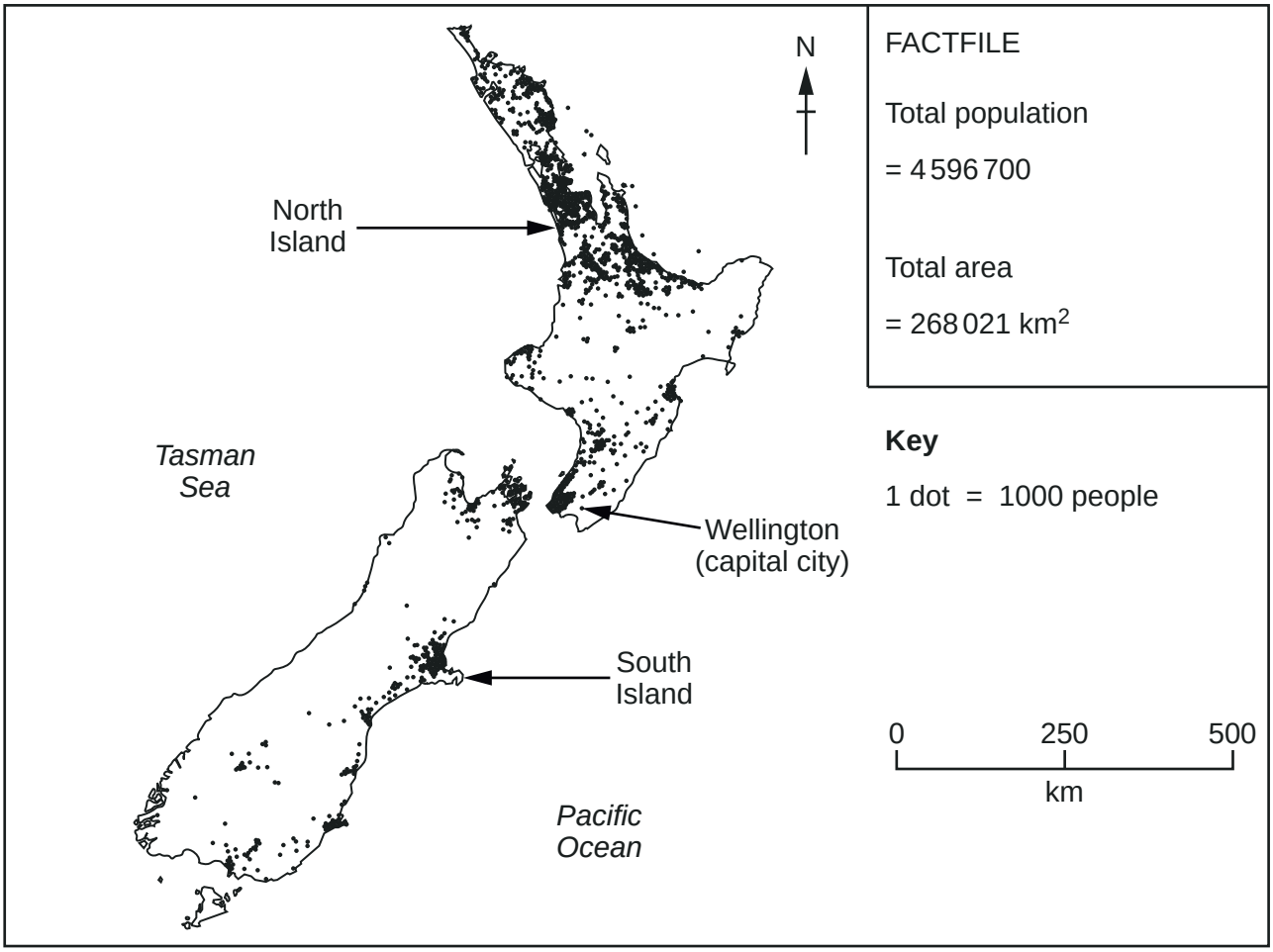

Fig. 1.1

(i) Which of the following is the approximate population density of New Zealand?

Circle your answer in the list below.

17 people per square kilometre

45 people per square kilometre

268 people per square kilometre [1]

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(ii) Suggest **two** reasons why many people live in Wellington, the capital city of New Zealand.

1 .....

.....

2 .....

.....[2]

(iii) Describe the main features of the distribution of the population of New Zealand.

.....

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.....[3]

(iv) State **two** different physical factors and for each one explain how it may influence the distribution of population in a country.

1 .....

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2 .....

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.....[4]

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(b) Study Fig. 1.2, which shows information about the distribution of the world's population in 2000, along with a prediction for the year 2100.

World's population distribution in 2000 and 2100 (predicted)

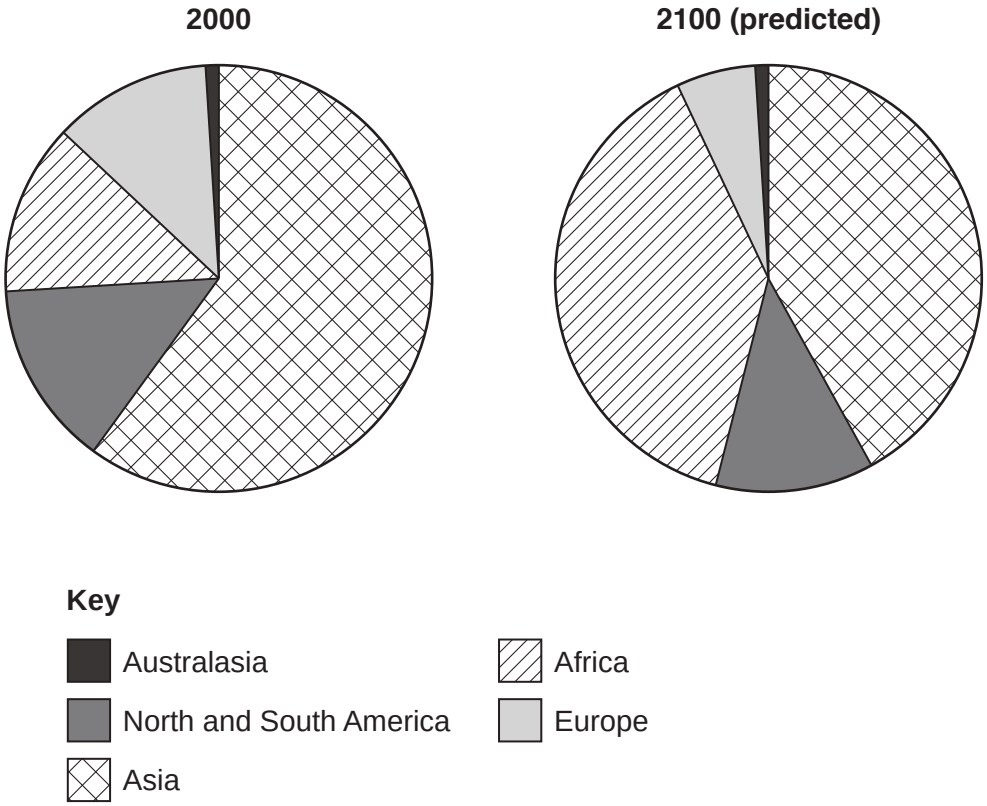

Fig. 1.2

(i) Using Fig. 1.2 **only**, identify **three** changes which are expected in the distribution of the world's population between 2000 and 2100.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Explain why the number of people living in LEDCs is increasing.

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(c) For a named country you have studied, describe the problems caused by overpopulation.

Name of country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1 (Insert), which is a map showing rural settlements in part of Indonesia.

(i) What type of settlement is **X**?

Circle your answer in the list below.

Dispersed Linear Nucleated

[1]

(ii) Give **one** similarity and **one** difference between rural settlements **X** and **Y**.

Similarity

.....

.....

Difference

.....

.....

[2]

(iii) Describe how the shape of settlement **X** differs from the shape of settlement **Z**.
Using evidence from Fig. 2.1 **only**, suggest **two** reasons why the settlements are different shapes.

Difference in shape .....

.....

.....

Reason 1 .....

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Reason 2 .....

.....[3]

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(iv) Suggest the characteristics of the services which are likely to be provided in the settlements shown in Fig. 2.1.

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.....[4]

(b) Study Fig. 2.2, which shows a diagram of the sites of settlements **A** and **B**.

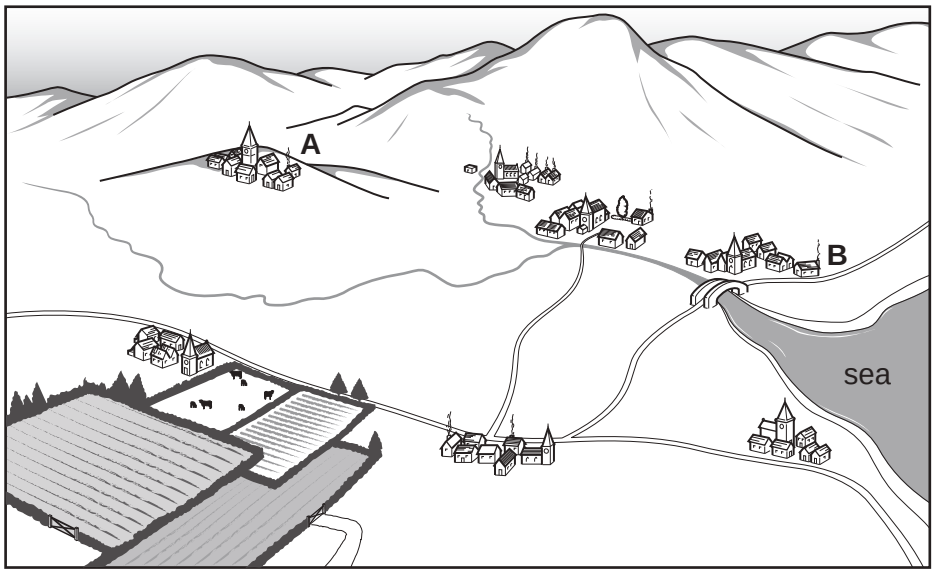

Fig. 2.2

(i) Describe the site of settlement **A**.

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.....[3]

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(ii) Using evidence from Fig. 2.2 **only**, explain why a settlement has grown up at **B**.

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(c) For one named settlement which you have studied, describe and explain the service provision.

Name of settlement .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1 (Insert), which is a photograph of an area of coastline.

(i) Which **one** of the following is a natural feature which can be seen in Fig. 3.1?

Circle your answer.

lagoon lighthouse spit wave cut platform [1]

(ii) Suggest why the coastline shown in Fig. 3.1 is **not** straight.

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.....[2]

(iii) Explain how the following processes may have eroded the coastline in the area shown in Fig. 3.1.

Hydraulic action .....

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Corrasion (abrasion) .....

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Corrosion .....

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.....[3]

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[Turn over

(iv) Describe the problems which coastal erosion may cause for people in the area shown in Fig. 3.1.

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.....[4]

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(b) Study Fig. 3.2, which is a map showing areas of coral reefs and mangrove swamps on the island of Carriacou in the Caribbean.

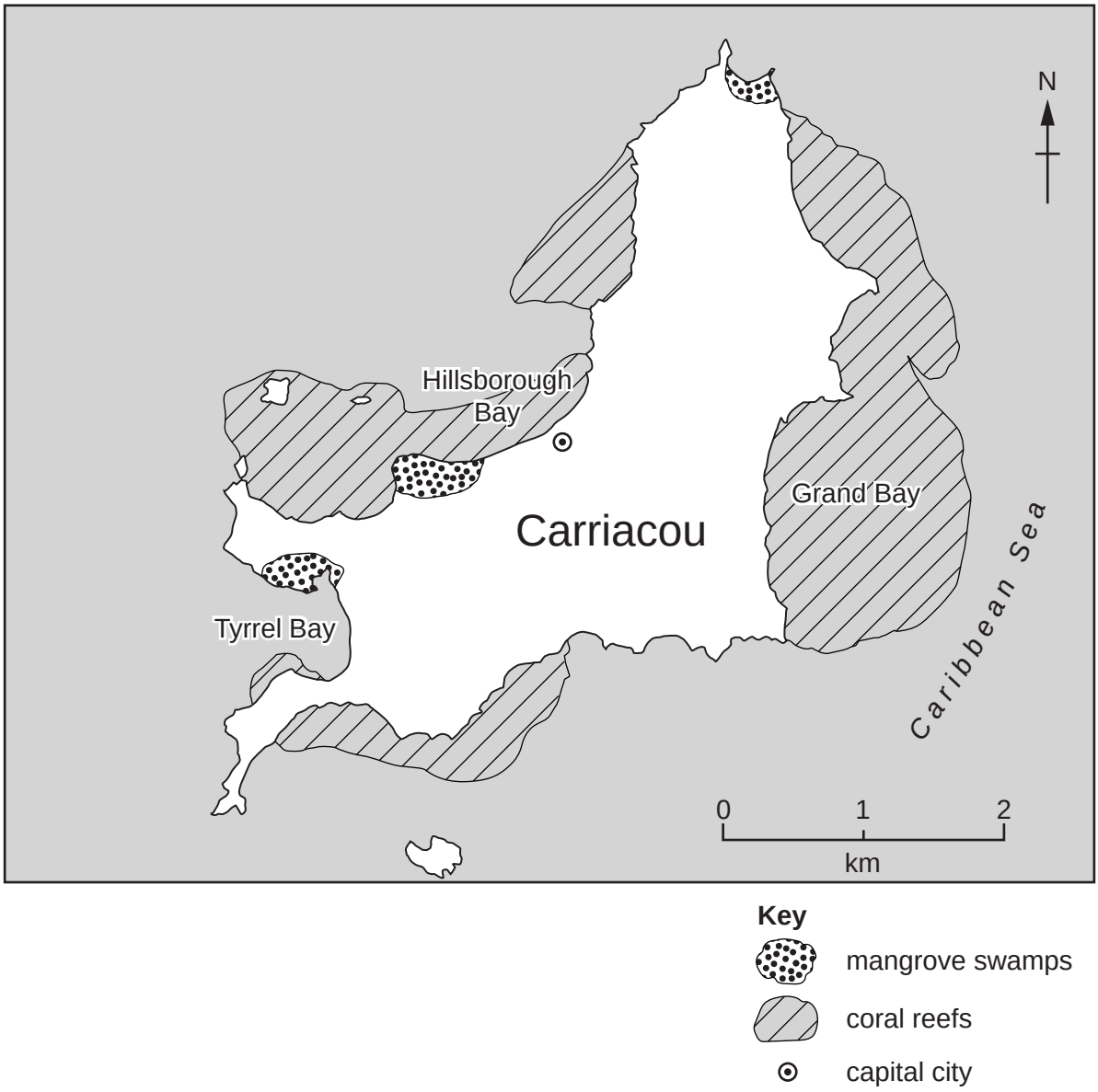

Fig. 3.2

(i) Using Fig. 3.2 **only**, compare the distribution of coral reefs and mangrove swamps.

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.....[3]

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(ii) Describe the conditions needed for the development of coral reefs.

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(c) Name an area of coastline you have studied. State a hazard experienced there and explain what has been done to reduce the risk from it.

Name of area of coastline .....

Hazard .....

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[Total: 25]

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4 **(a)** Study Fig. 4.1 (Insert), which is a photograph of a school weather station.

(i) Which **one** of the following is the best definition of *weather*?

Tick (✓) your answer in the box below.

	Tick (✓)
The condition of the atmosphere at a given time and place	
The averages of temperature and precipitation during each month	
The average climate of an area during the year	
Hazards caused by wind and rain during the year	

[1]

(ii) Name **two** instruments used to collect information about wind which can be seen in Fig. 4.1.

1 .....

2 ..... [2]

(iii) Using information from Fig. 4.1 **only**, give **three** reasons why this is not a perfect location for a weather station.

1 .....

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2 .....

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3 .....

.....[3]

(iv) Explain why the instruments used to collect information about temperature and humidity are kept in a Stevenson screen.

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(b) Study Fig. 4.2, which shows a map of tropical rainforests in Africa.

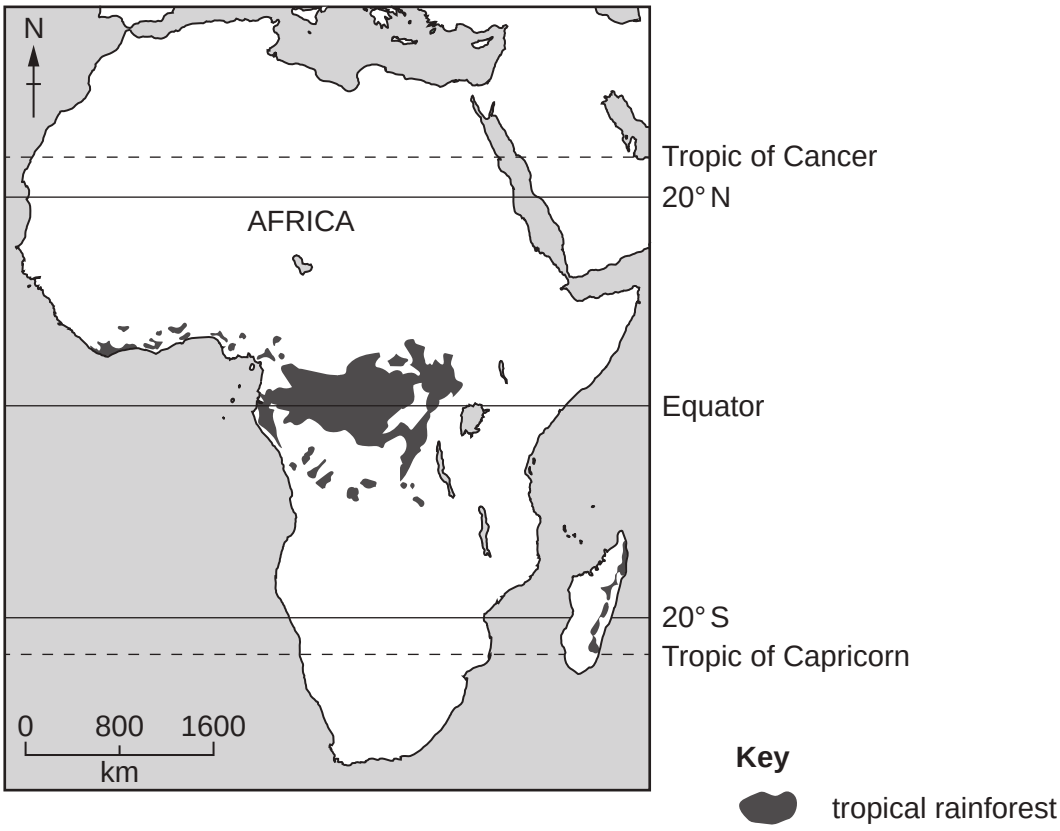

Fig. 4.2

(i) Describe the distribution of tropical rainforests in Africa.

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.....[3]

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(ii) Explain why tropical rainforests have a hot and wet climate.

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(c) For a named area of tropical rainforest, describe the impacts of deforestation on the local natural environment and the local people.

Name of area of rainforest .....

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[Total: 25]

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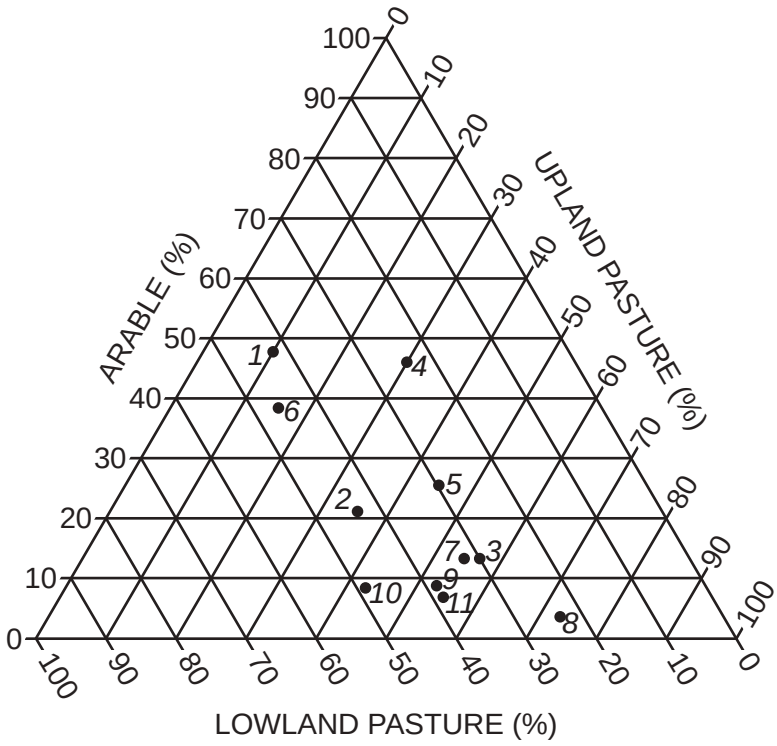
Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about agricultural land use in different areas in central Scotland.



Key

1 Fife
2 Kinross
3 Clackmannan
4 East Lothian
5 Midlothian
6 West Lothian
7 Stirling
8 Dunbarton
9 Lanark
10 Renfrew
11 Ayr

Fig. 5.1

(i) **Complete the graph** by plotting a cross to show the average percentages for central Scotland.

Use the following figures:

Arable	25%
Lowland pasture	40%
Upland pasture	35%

[1]

(ii) Define the following terms:

Arable .....

.....

Pasture .....

.....[2]

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(iii) Using Fig. 5.1, identify **three** differences between the agricultural land use in Fife and the average for central Scotland.

1 .....

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2 .....

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3 .....

.....[3]

(iv) Farmers in central Scotland are commercial farmers. Explain why most farmers in MEDCs are commercial farmers.

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(b) Study Figs. 5.2 and 5.3 (Insert), which show two different farms.

(i) Describe **three** similarities between the farms shown in Figs. 5.2 and 5.3.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Explain how physical factors (climate, relief and soil) affect agricultural land use.

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(c) For an example of a farm or agricultural system, at a named location, describe the farming system.

Farm or agricultural system .....

Name of location .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1, which shows information about the use of energy in China and the USA between 1990 and 2040 (projected).

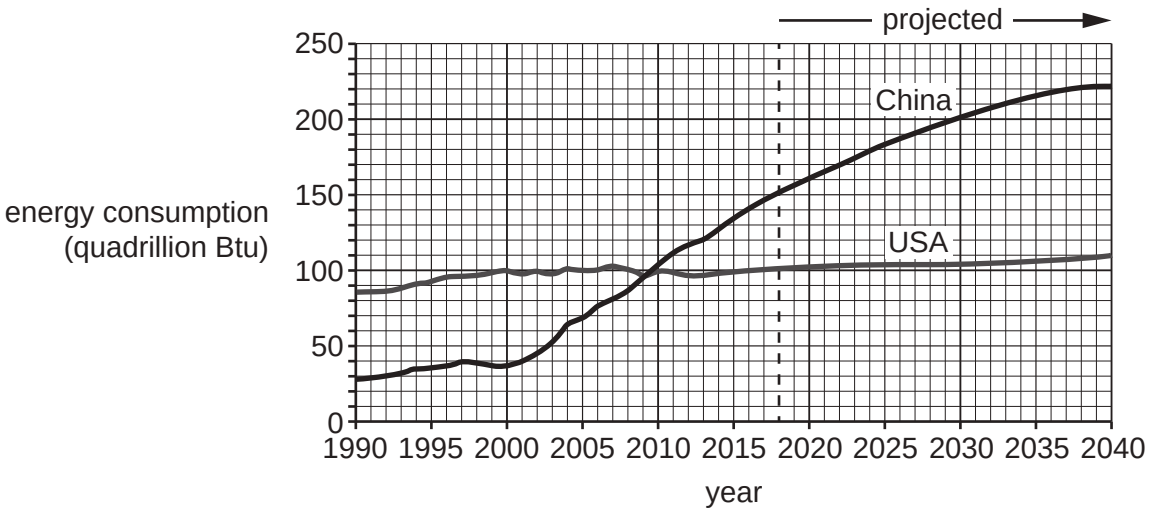

Fig. 6.1

(i) In which year was the same amount of energy used in China and the USA?

..... [1]

(ii) Using Fig. 6.1 **only**, compare the increases in the use of energy in China and the USA which are predicted to occur between 2018 and 2040.
Use statistics to support your answer.

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.....[2]

(iii) Suggest reasons why the amount of energy being used in China and the USA is increasing.

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(iv) Explain why the use of large amounts of energy in countries such as China and the USA may cause coastal flooding in some parts of the world.

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(b) Study Fig. 6.2, which shows information about air pollution in Asia.

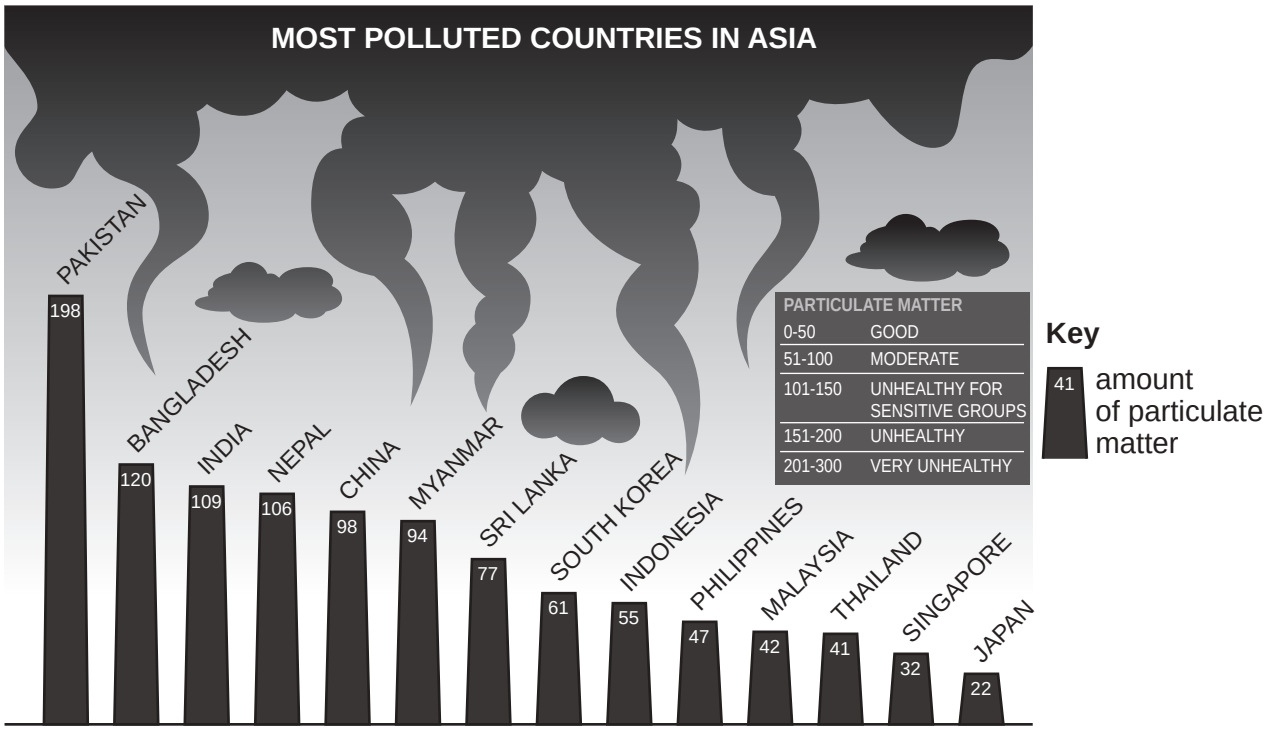

Fig. 6.2

(i) Identify from Fig. 6.2:

– the country with the most polluted air .....

– a country where the air quality is moderate .....

– the country where air pollution is least likely to cause many problems

..... [3]

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(ii) Describe the impacts of high levels of air pollution on the natural environment.

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.....[5]

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(c) For a named country or area you have studied, describe the methods used to supply water.

Name of country or area .....

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[Total: 25]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY **0460/22**

Paper 2 **February/March 2018**

INSERT

1 hour 30 minutes

5317218974-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Fig. 3.1 for Question 3 and Fig. 5.1 for Question 5.

The Insert is **not** required by the Examiner.

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Fig. 3.1 for Question 3

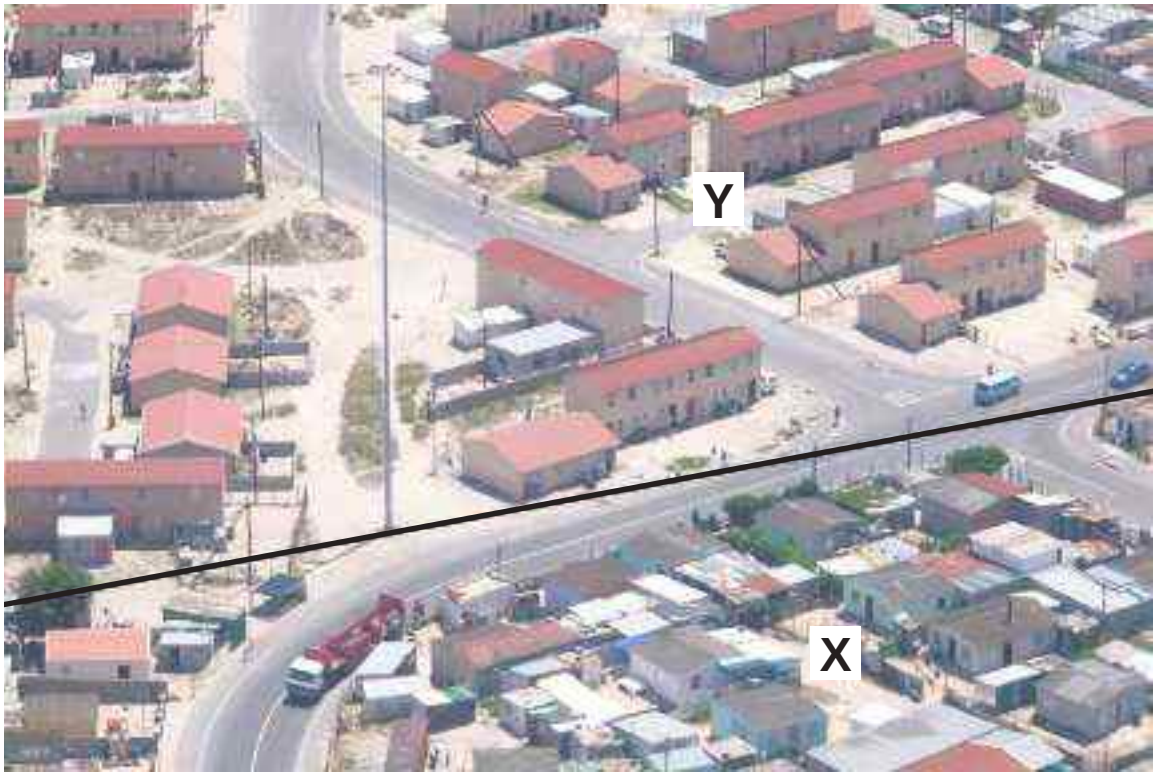

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Fig. 5.1 for Question 5



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GEOGRAPHY **0460/22**

Paper 2 **March 2018**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	power line,	**1**
1(a)(ii)	swimming,	**1**
1(a)(iii)	state road,	**1**
1(a)(iv)	236 (metres),	**1**
1(a)(v)	hotel,	**1**
1(a)(vi)	cultivation,	**1**
1(a)(vii)	built-up area,	**1**
1(b)(i)	Y,	**1**
1(b)(ii)	V,	**1**
1(b)(iii)	W,	**1**
1(b)(iv)	Z,	**1**
1(c)	084948,	**1**
1(d)(i)	3200,	**1**
1(d)(ii)	runs SW/NE, keeps to low/foot of valley side/avoids high, keeps to gentle/avoids steep, tunnel(s), through settlements, winding/bends, through forest and cultivation,	**3**
1(e)(i)	R,	**1**
1(e)(ii)	P,	**1**
1(e)(iii)	Q,	**1**
1(e)(iv)	S,	**1**

Question	Answer	Marks
2(a)	medium,	**1**
2(b)(i)	mostly high,	**1**
2(b)(ii)	mostly low,	**1**
2(b)(iii)	mostly low and medium,	**1**
2(c)(i)	2010US$ correctly plotted for 1995,	**1**

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Question	Answer	Marks
2(c)(ii)	2000 to 2010,	**1**
2(c)(iii)	5000 and 3732,	**1**
2(d)	education/life expectancy have not risen rapidly/as rapidly as incomes, money not spent on education etc.,	**1**

Question	Answer	Marks
3	<u>Foreground</u> small, single story/low/short, crowded/high density, few windows, flat/gentle roofs, slum/shanty/squatter/huts/sheds, variety of styles e.g. multi-coloured, unplanned/disorganised/randomly arranged, <u>Background</u> Large, two storey, less dense, windows, red/orange/yellow, sloping/pitched roofs, uniform, planned/organised, (single story) extensions, joined in blocks, Reserve 3 marks for each. Allow comparatives.	**8**

Question	Answer	Marks
4(a)(i)	3,	**1**
4(a)(ii)	4,	**1**
4(a)(iii)	1/5/6,	**1**
4(a)(iv)	3/4,	**1**
4(a)(v)	2,	**1**
4(b)(i)	magma <u>chamber</u>,	**1**
4(b)(ii)	strato/composite,	**1**

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Question	Answer	Marks
4(b)(iii)	shield,	**1**

Question	Answer	Marks
5(a)	scrub/bushes/small trees/short vegetation/low, scattered/sparse/bare ground/few plants/barren, few leaves, green (vegetation), some with no leaves, small leaves, grass, more along valley/river course/low ground/flat/bottom of hill, sparser/smaller on hill/valley side/steep, in a line,	**5**
5(b)(i)	long/tap roots,	**1**
5(b)(ii)	small/hairy/waxy/thick/no leaves/sunken stomata,	**1**
5(b)(iii)	shallow/widely spreading roots,	**1**

Question	Answer	Marks
6(a)	Smaller angle 81°–85°, Correct use of key,	**2**
6(b)(i)	<u>Investment by transnationals</u> greater development of area/infrastructure, less need for government investment, greater government income from taxes, <u>Cruise ships</u> jobs onshore, trade for restaurants etc., <u>Hotels</u> jobs (as waiters etc.), <u>Tours of coast and reefs</u> jobs as guides/drivers etc., Accept other relevant points. Points must be linked to Fig. 6.2.	**2**

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Question	Answer	Marks
6(b)(ii)	Investment by transnationals profits go abroad, can move business elsewhere, Hotels work may be seasonal, Foreign workers remittances sent abroad, no jobs for locals, Accept other relevant points. Points must be linked to Fig. 6.2.	**2**
6(b)(iii)	Investment by transnationals/Cruise ships/Tours of coast and reefs may encourage/greater awareness of conservation, tree planting, Accept other relevant points.	**1**
6(b)(iv)	Investment by transnationals/Cruise ships/Tours of coast and reefs damage to reefs, loss of environments by building hotels specific pollution, Accept other relevant points.	**1**

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5317218974

GEOGRAPHY **0460/22**

Paper 2 **February/March 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:25 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Fig. 3.1 for Question 3 and Fig. 5.1 for Question 5.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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This document consists of **17** printed pages, **3** blank pages and **1** Insert.

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[Turn over

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1 Study the map extract for Haukeland, Norway. The scale is 1:25 000.

(a) Fig. 1.1 shows some of the features in the north of the map extract around the lake of Haukelandsvatnet. Study Fig. 1.1 and the map extract, and answer the questions below.

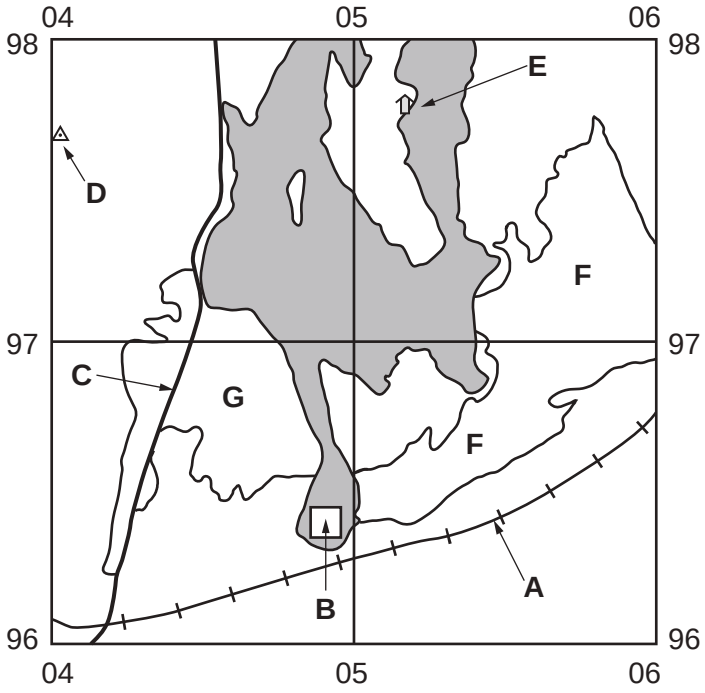

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**; .....[1]

(ii) activity **B**; .....[1]

(iii) the type of road at **C**; .....[1]

(iv) the height of the land at **D**; ..... metres [1]

(v) feature **E**; .....[1]

(vi) the land use at **F**; .....[1]

(vii) the land use at **G**. .....[1]

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(b) Fig. 1.2 shows the position of some features in the south east of the map extract. Two contours have been marked.

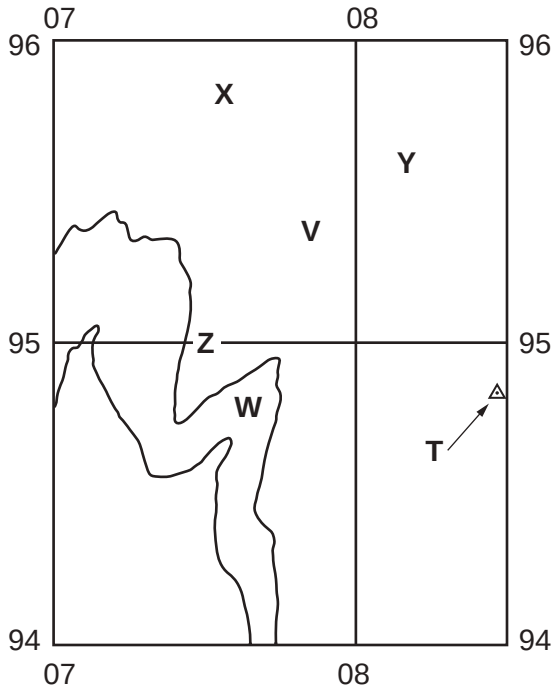

Fig. 1.2

Which letter, **V**, **W**, **X**, **Y** or **Z**, shows the position of a:

(i) lake; ..... [1]

(ii) marsh; ..... [1]

(iii) valley; ..... [1]

(iv) ridge? ..... [1]

(c) Give the six-figure grid reference of the feature at **T** on Fig. 1.2.

..... [1]

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[Turn over

(d) Look at the railway which runs from the western edge of the map to the station at Haukeland (Haukeland Stasjon) at 045969.

(i) Measure the distance in metres along this part of the railway. Tick **one** correct answer below.

	Tick (✓)
2000	
2400	
2800	
3200	

[1]

(ii) Describe the route of this part of the railway.

.....

.....

.....

.....

.....

.....

.....

.....

.....[3]

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(e) Fig. 1.3 is a cross section along northing 960 from 050960 to 080960.

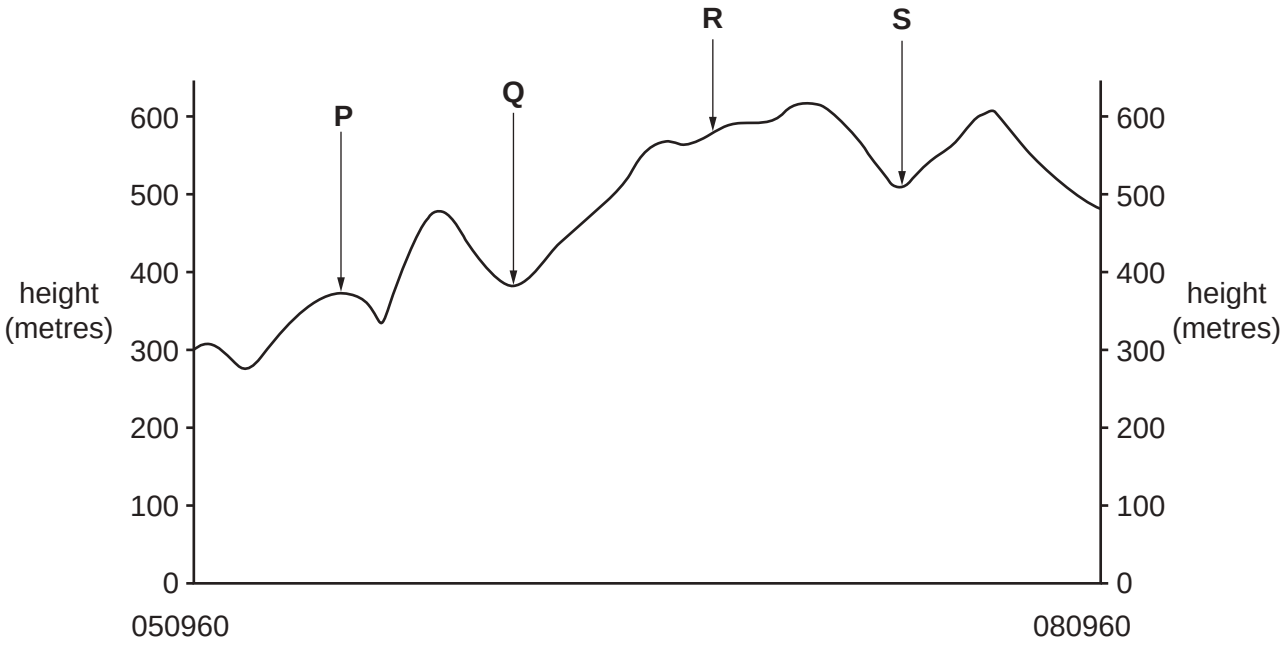

Fig. 1.3

Which letter, **P**, **Q**, **R** or **S**, shows the position of a:

(i) footpath; ..... [1]

(ii) forest; ..... [1]

(iii) river flowing north; ..... [1]

(iv) river flowing south? ..... [1]

[Total: 20]

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2 The United Nations publishes the Human Development Index (HDI) which shows the level of development of each country. This is shown on Fig. 2.1.

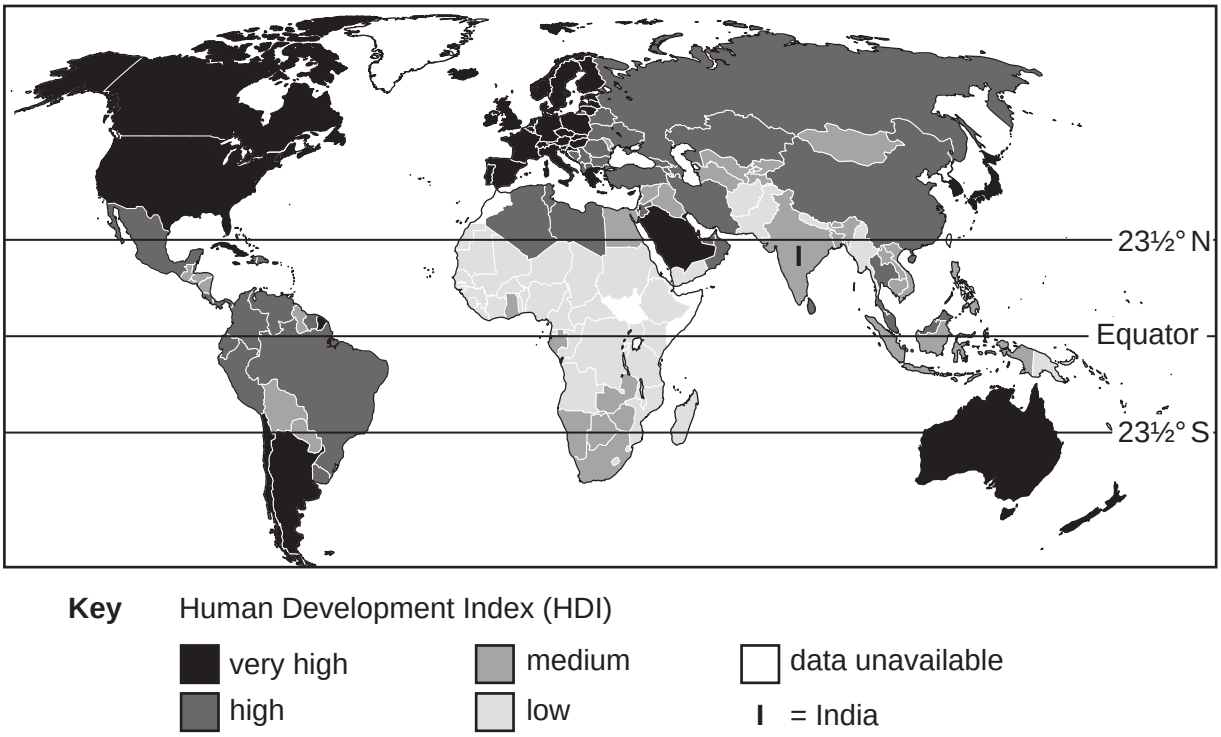

Fig. 2.1

(a) Using Fig. 2.1, state India's HDI. ..... [1]

(b) **(i)** Which **one** of the following statements describes the HDI of countries in **Asia**? Tick **one** box below.

	Tick (✓)
mostly high	
mostly very high	
none are low	

[1]

(ii) Which **one** of the following statements describes the HDI of countries in **Africa**? Tick **one** box below.

	Tick (✓)
all are low	
mostly low	
none are high	

[1]

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(iii) Which **one** of the following statements describes the HDI of countries **in the tropics** (between $23\frac{1}{2}$ °N and $23\frac{1}{2}$ °S)? Tick **one** box below.

	Tick (✓)
mostly high	
none are high	
mostly low and medium	

[1]

(c) Fig. 2.2 shows how incomes have risen in India between 1980 and 2012. This is shown by Gross National Income per capita (GNI).

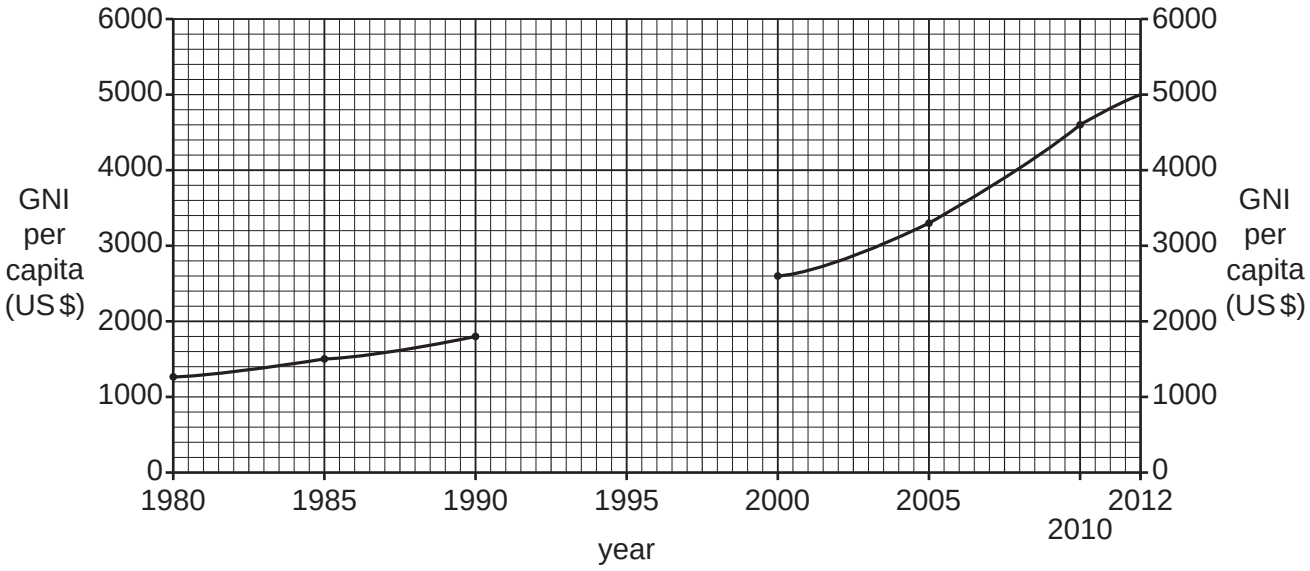

Fig. 2.2

(i) India's GNI per capita in 1995 was 2100 US$. **Plot this information** to complete the graph on Fig. 2.2. [1]

(ii) During which period did incomes in India increase the most? Tick **one** box below.

	Tick (✓)
1980 to 1990	
1990 to 2000	
2000 to 2010	

[1]

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(iii) Use Fig. 2.2 to complete the table below to show the increase in India's GNI per capita between 1980 and 2012.

	GNI per capita (US$)
2012	.....
1980	1268
increase	.....

[1]

(d) The Human Development Index (HDI) is a composite index based on:

- incomes (GNI per capita)
- education
- life expectancy.

Between 1980 and 2012, India's HDI has not risen as rapidly as incomes. Suggest why.

.....

.....

.....[1]

[Total: 8]

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3 Fig. 3.1 (Insert) is a photograph which shows two housing areas in Cape Town, South Africa. One area is in the foreground and the other area is in the background.

For each area, describe the houses.

Houses in the foreground of the photograph (area **X**)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Houses in the background of the photograph (area **Y**)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[Total: 8]

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4 Study Fig. 4.1, which shows plates, plate margins and directions of plate movement.

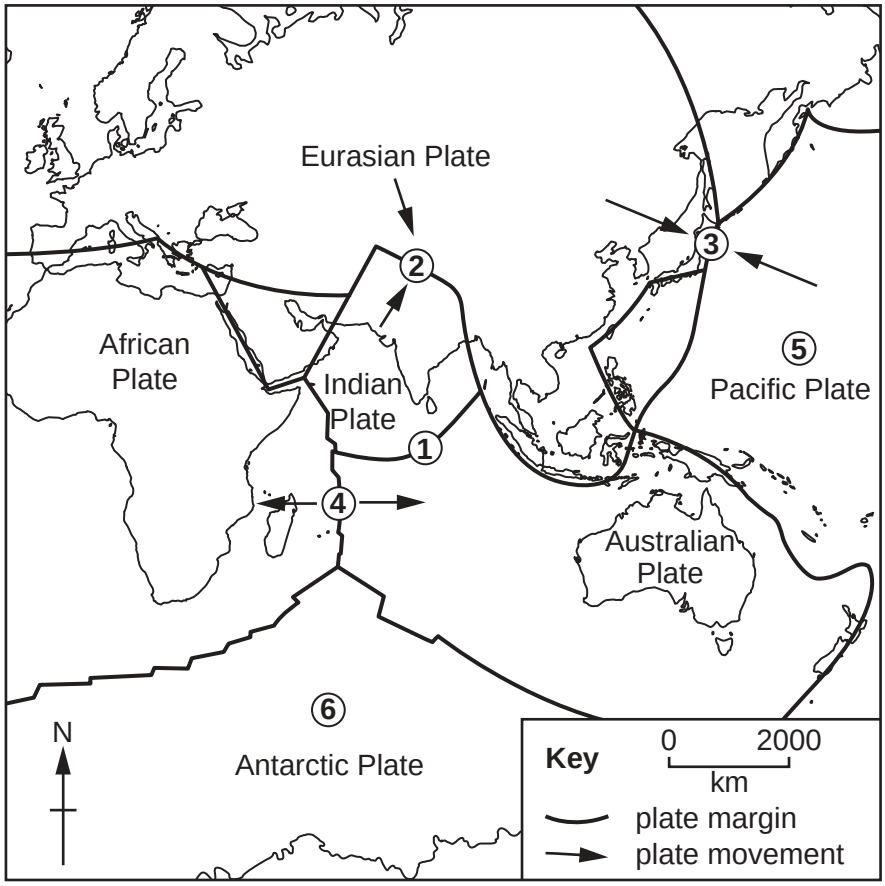

Fig. 4.1

(a) Six places, **1 – 6**, are marked on the map. For each of the following questions write **one** number in each box. You may use any of the numbers **1 – 6** once, more than once or not at all.

Which number on the map shows a place where:

(i) a plate is being destroyed; [1]

(ii) sea floor spreading is taking place; [1]

(iii) there are no major earthquakes; [1]

(iv) there are volcanoes; [1]

(v) there is a chain of fold mountains? [1]

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(b) Name each of the following:

(i) the reservoir of molten rock beneath an active volcano;

.....[1]

(ii) a type of volcano formed from layers of lava and ash;

.....[1]

(iii) a type of wide, gently sloping volcano formed mainly from basalt lava.

.....[1]

[Total: 8]

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[Turn over

5 **(a)** Study Fig. 5.1 (Insert), which is a photograph which shows a hot desert area in Africa. Using evidence from Fig. 5.1 **only**, describe the features and the distribution of the vegetation shown in the photograph.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

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(b) Explain how the vegetation of hot deserts has adapted to:

(i) reach water deep underground;

.....

.....

.....[1]

(ii) reduce water loss by transpiration;

.....

.....

.....[1]

(iii) catch rain before it evaporates.

.....

.....

.....[1]

[Total: 8]

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6 **(a)** Table 6.1 shows the employment structure of the Maldives, a group of islands with a large tourist industry.

Table 6.1

Sector	Employment (%)
primary	4
secondary	23
tertiary	73

Use information from Table 6.1 to **complete Fig. 6.1** below. [2]

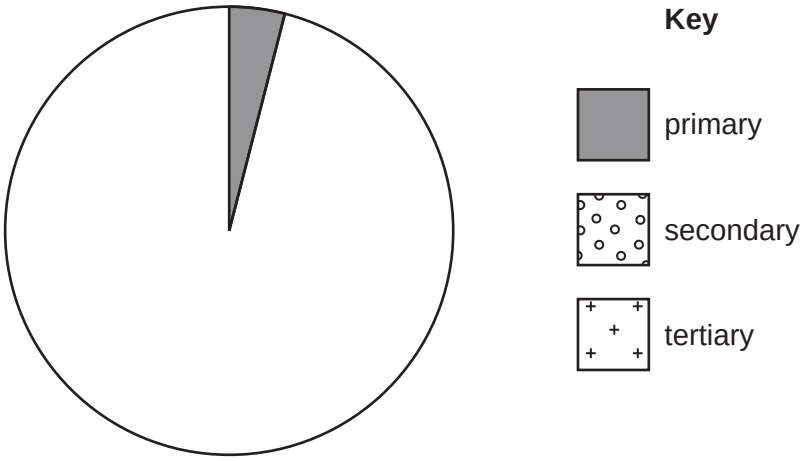

Fig. 6.1

(b) Fig. 6.2 shows features of the development of the tourist industry on a tropical island.

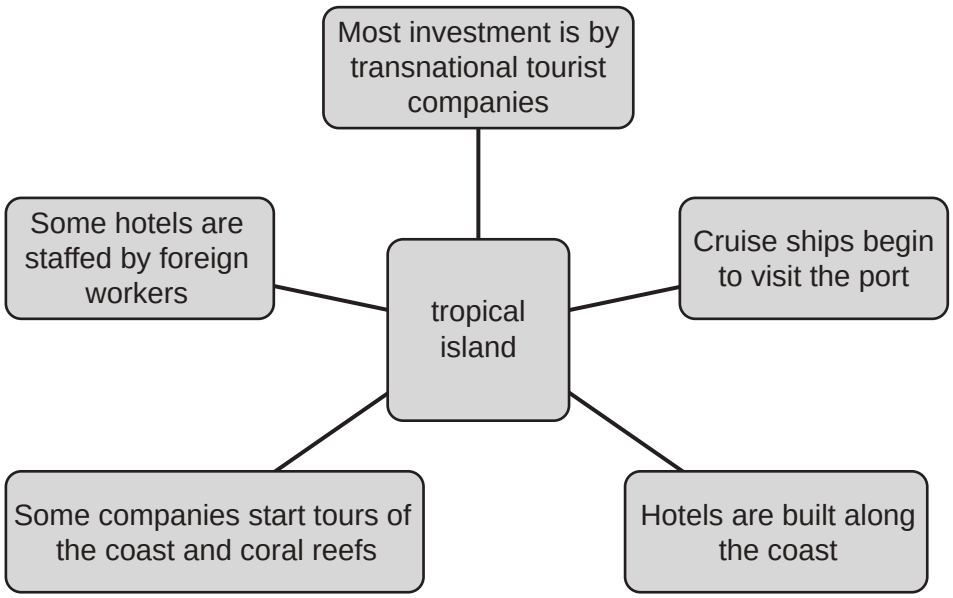

Fig. 6.2

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Tourism is likely to have advantages and disadvantages for the island and its people. **Using information from Fig. 6.2** explain in your own words:

(i) **two** possible economic advantages;

1 .....

.....

2 .....

.....[2]

(ii) **two** possible economic disadvantages;

1 .....

.....

2 .....

.....[2]

(iii) **one** possible environmental benefit;

.....

.....[1]

(iv) **one** possible environmental problem.

.....

.....[1]

[Total: 8]

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Additional Pages

If you use the following lined page to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **February/March 2018**

INSERT

1 hour 30 minutes

2109711711 75-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Figs. 1.4 and 1.5 and Tables 1.1, 1.2, 1.3 and 1.4 for Question 1, and Figs. 2.1 and 2.5 and Tables 2.1, 2.2 and 2.3 for Question 2.

The Insert is **not** required by the Examiner.

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Table 1.1 for Question 1

Measurements at site 5

Distance from left bank (m)	Depth (m)
0	0.06
0.5	0.10
1	0.13
1.5	0.22
2	0.23
2.5	0.23
3	0.21
3.5	0.20
4	**0.20**
4.5	**0.13**
5	0.13
5.5	0.12
6	0.09
Mean (average)	0.16

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Table 1.2 for Question 1

Results of the six sites

Site number	Distance from source (km)	Width (m)	Mean (average) depth (m)	Cross sectional area (m^2)
1	1.9	3.27	0.09	0.29
2	4.9	3.71	0.17	0.63
3	11.5	8.25	0.30	2.48
4	14.5	13.25	0.28	3.71
5	16.5	**6.00**	**0.16**	0.96
6	19.4	5.06	0.35	**1.77**

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Fig. 1.4 for Question 1



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Fig. 1.5 for Question 1

Power's Scale of Roundness

Description	very angular	angular	slightly angular	slightly rounded	rounded	very rounded
Roundness score	1	2	3	4	5	6

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Table 1.3 for Question 1

Results of site 3

Pebble number	Length of pebble long axis (mm)	Pebble roundness score
1	20	3
2	17	5
3	35	4
4	43	2
5	24	3
6	38	2
7	45	3
8	23	3
9	74	2
10	75	4
11	58	4
12	52	4
13	24	4
14	33	3
15	101	5
16	122	3
17	58	4
18	32	4
19	34	3
20	35	4
Average	47.15	3.45

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Table 1.4 for Question 1

Mean (average) pebble length and pebble roundness

Site Number	Mean (average) pebble length (mm)	Mean (average) pebble roundness score
1	82.45	2.75
2	72.75	2.95
3	47.15	3.45
4	56.12	3.65
5	**43.95**	**3.58**
6	32.75	3.70

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Fig. 2.1 for Question 2

Migration questionnaire

Age group:

16–30 ☐ ..... ☐ ..... ☐ 61–75 ☐

Gender: Male ☐ Female ☐

1. What is the most important reason why you migrated to Cairo?

higher wages ☐

regular work ☐

marriage ☐

more exciting lifestyle ☐

support family back home ☐

accompany wife/husband/partner ☐

2. Did you migrate to Cairo from a rural area or an urban area?

rural area ☐

urban area ☐

Thank you for your help and time.

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Table 2.1 for Question 2

Results of Question 1 in the questionnaire: What is the most important reason why you migrated to Cairo?

Most important reason for migration	Percentage of males	Percentage of females
higher wages	36	10
regular work	32	12
marriage	3	30
more exciting lifestyle	4	3
support family back home	18	**4**
accompany wife/husband/partner	7	**41**

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Table 2.2 for Question 2

Results of Question 2 in the questionnaire: Did you migrate to Cairo from a rural area or an urban area?

Type of area which people migrated from	Percentage of males	Percentage of females
rural	66	52
urban	**34**	48

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Table 2.3 for Question 2

Migrants going from Egypt to other areas of the world

Area	Number of migrants
Saudi Arabia	977 000
Libya	**431 029**
Jordan	**287 353**
Kuwait	229 882
United Arab Emirates	201 147
North America	373 559
Europe	316 088
Australasia	57 734
Total	2 873 792

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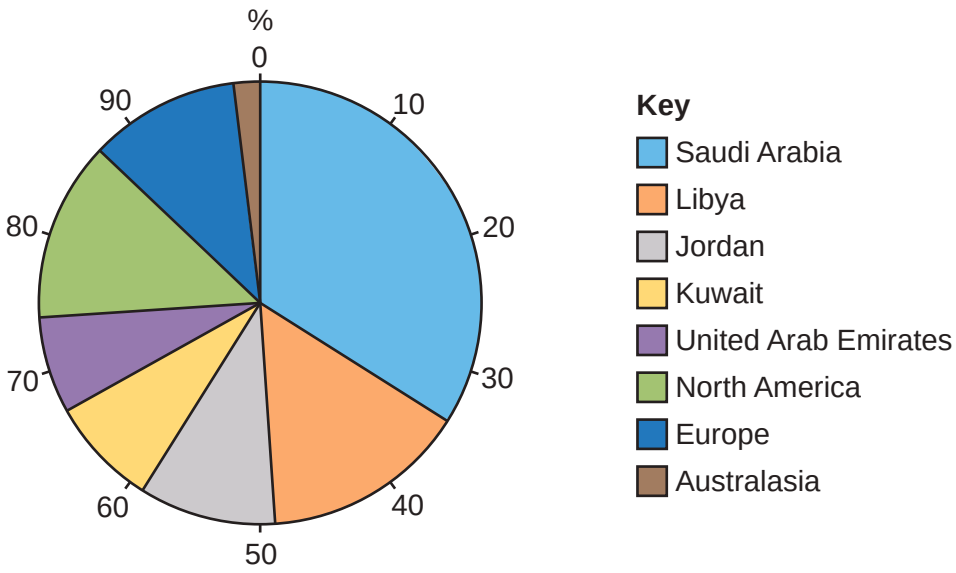
Fig. 2.5 for Question 2

Main areas to which Egyptians migrated



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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **March 2018**

MARK SCHEME

Maximum Mark: 60

Published

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	Correct rows are 3,4,5 The river is not too deep to be able to stand safely in it (1) The sites are spread out along the course of the river (1) The water is clean and unpolluted (1) (1 + 1 + 1)	**3**
1(b)	MAX 2 marks for width and 2 for depth. **Width** of channel: Poles placed on each bank/side (1) Measure across river / from bank to bank / between poles OR side to side (1) Tape measure stretched/taut/perpendicular/at right angles to bank (1) Measure where river touches the bank (1) **Depth** of channel: Rest ruler/rod on river bed (1) Ruler/rod vertical (1) Measure where water level is (1) Equally spaced depth measurements across river (1) 2 × (1 + 1)	**4**
1(c)	Completion of cross section, Fig. 1. Plotting 2 correct points = 1 mark each (4/0.2 and 4.5/0.13) (1 + 1)	**2**
1(d)(i)	*The width and mean depth of the river increase and decrease downstream.*	**1**
1(d)(ii)	Plotting site 5 on Fig. 2. Site 5 at 6.0 width and 0.16 depth.	**1**
1(d)(iii)	Plotting site 6 on Fig. 3. Site 6 and 1.77 area.	**1**
1(d)(iv)	Hypothesis decision of 'Partly true' is given; do not credit if stated. Do not credit word 'anomaly' unless identified. Evidence Increases from site 1 to site 4 (1) Decreases at site 5 (1) Increases again to site 6 (1) Decreases at 5 and 6 overall (1) Credit up to 2 marks for paired data from table comparing two sites e.g. Site 1/at 1.9 km csa is 0.29 sq m. but increases at Site 4/14.5 km to csa 3.71 sq m(1). (1 + 1 + 1 + 1)	**4**

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Question	Answer	Marks
1(d)(v)	Examples Increased discharge / volume / flow / more water downstream (1) Tributaries join main river (1) Bed and banks are eroded (1) Channel eroded by abrasion/corrosion/hydraulic action (1) Bedrock may be weaker so increases rate of erosion (1) Specific human interference with river channel e.g. dredging/flood prevent (1) (1 + 1 + 1)	**3**
1(e)(i)	Put pebble into 'teeth'/ jaw / mouth of callipers (1) Adjust/close callipers to hold/touch pebble (1) Use scale of callipers / look at reading on scale/ measure gap between 'teeth' with ruler (1) (1 + 1)	**2**
1(e)(ii)	Pebbles 2 and 15 – need both for the mark.	**1**
1(e)(iii)	Plotting two bars at site 5 on Fig. 5. 43.95 mean length (allow 44 on line) and 3.58 mean roundness score. Ignore shading. (1 + 1)	**2**
1(e)(iv)	*Pebbles are shorter and more rounded downstream.*	**1**
1(e)(v)	Paired data from 2 sites from table. Need ref. to sites / distance downstream. e.g. At site 1/1.9 km mean length is 82.45 mm and roundness score is 2.75 and at site 6/19.4 mean length is 32.75 mm and roundness score is 3.7	**1**
1(f)	Examples Measure width at more than one point at each site and calculate average (1) Measure depth at smaller intervals/less than 0.5 m across channel (1) Sample more than 20 pebbles/more pebbles at each site (1) Systematic sampling/ take pebbles at equal intervals across channel (1) More students use roundness scoring chart to check results (1) Measure at more sites along the river (1) Investigate volume or weight / measure more dimensions (1) Measure at equal / regular intervals along/downstream river course (1) Do a pilot study to practise method (1) Use pebbleometer/electronic callipers (1) (1 + 1 + 1 +1)	**4**

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Question	Answer	Marks
2(a)(i)	Internal migration: movement of people within a country (1) International migration: movement of people from one country to another / between countries (1) (1 + 1)	**2**
2(a)(ii)	One mark each for definition of Push and Pull: NOT examples of push / pull factors **Push**: people want to leave / want to move out / go from …OR Force people to leave … OR Negative factors. **Pull:** attract / bring people to / to move into / attract … OR Make people want to live in … OR Positive factors (1 + 1)	**2**
2(b)(i)	Tick needed in Rows 1 and 4. *Only people who had migrated will be able to answer the questions.* (1) *The students will not continue to ask their questions if the person is a tourist* (1) (1 + 1)	**2**
2(b)(ii)	Ideas such as: Choose a variety of people / choose people of different age or gender/equal men/women (1) Don't just ask people you know (1) Introduce yourself / explain purpose of survey (1) Have a system for choosing people such as every 10th person / random / have a sampling method (1) Accept if people don't want to answer or fill it in / don't argue / be polite / thank them/don't disturb or force them to answer /avoid if busy (1) Don't approach people in a big group / work in pairs / don't work alone /use public places(1) Don't block pavement / doorway (1) Go to different parts (of the CBD) / don't all go to the same area/go to most populated places/go to busy places (1) Don't ask people under 16 (1) (1 + 1 + 1)	**3**
2(b)(iii)	31 – 45 (1) 46 – 60 (1) If give stats that work but not correct intervals award 1 max e.g. 31–40, 41–60. (1 + 1)	**2**
2(c)(i)	Completion of divided bar graph, Fig. 7 (support family and accompany partner) 1 mark for dividing line at 59 from left/41 from right. 1 mark for two correct shadings. (1 + 1)	**2**

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Question	Answer	Marks
2(c)(ii)	Hypothesis decision is given as support; marks only for evidence. Evidence One main reason for males is higher wages but for females is to accompany partner / husband (1) Another main reason for males is regular work and for females is marriage (1) Comparison of paired data to show importance of different reasons to 1 mark max. and reserve. Stats may be grouped if give two reasons. e.g. highest males higher wages = 36% but female highest to accompany partner = 41%. (1) e.g. highest males higher wages = 36% but female higher wages only 10%. (1 + 1 + 1)	**3**
2(d)(i)	Completion of horizontal bar at 34 plus correct shading on Fig. 8 (males from urban areas).	**1**
2(d)(ii)	Hypothesis 2 is **correct/true/agree with** – 1 mark reserve For both males and females there are more migrants from rural areas (1) Credit 1 mark for paired data which compares rural and urban e.g. males 66/34% and females 52/48%. (1) If decision is false/not true/partly true give 0 and do not mark rest. (1 HA + 1 + 1)	**3**
2(d)(iii)	Examples To check if there are answers from a range of age groups (1) To see if there is any relationship between age group and reasons for migration (1) To see if there is any relationship between age group and reasons for move from rural or urban area (1) (1 + 1)	**2**
2(e)(i)	**Definition:** Collected from other sources / collected by others / not collected by self already available / second hand / already been processed (1) **Example:** books / internet / data table / newspaper / document / map / Wikipedia(1) (1 + 1)	**2**
2(e)(ii)	Completion of flow line map, Fig. 9. Arrows must start in Egypt; ignore shading. Arrows to Libya (431,029) and Jordan (287,353). (1 + 1)	**2**

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Question	Answer	Marks
2(e)(iii)	Credit only positives for method chosen; not criticism of other technique. **Fig. 2.4 : Flow line map** Shows direction of migration / where people are going to (1) Shows /can see comparison between destination areas (1) Shows number of migrants / how many / exact number / total number (1) OR **Fig. 2.5: Pie chart:** Shows / compares proportions (1) Can read percentages from graph (1) (1 + 1)	**2**
2(e)(iv)	<u>Examples</u> Most/more/majority migrants go to areas / countries nearby / next to (1) Highest number go to Saudi Arabia (1) Most/more/majority go to LEDCs (1) Most/more go to the East (1) As distance increases the numbers migrating decreases (1) (1 + 1)	**2**

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2160717175

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **February/March 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.4 and 1.5 and Tables 1.1, 1.2, 1.3 and 1.4 for Question 1, and Figs. 2.1 and 2.5 and Tables 2.1, 2.2 and 2.3 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages, **1** blank page and **1** Insert.

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1 Students in southern England did fieldwork at six sites on the River Meon.

The two hypotheses which the students tested were:

Hypothesis 1: *The cross sectional area of the river increases downstream.*

Hypothesis 2: *There is a relationship between the length and roundness of pebbles on the river bed.*

(a) Which **three** of the following factors would be important to consider when choosing these fieldwork sites? Tick (✓) your choices below.

Factor	Tick (✓)
Each site is on a meander in the river	
The river current must be fast flowing	
The river is not too deep to be able to stand in safely	
The sites are spread out along the course of the river	
The water is clean and unpolluted	
The sites are all on the river flood plain	

[3]

(b) To investigate **Hypothesis 1**, the students measured the width of the river and its depth at points across the channel at each site.

Describe how they made these measurements.

width .....

.....

.....

.....

depth .....

.....

.....

.....[4]

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(c) The results of the students' measurements at site 5 are shown in Table 1.1 (Insert).
Use these results **to complete the cross section** of the river at site 5, shown on Fig. 1.1 below.
[2]

Cross section of the river at site 5

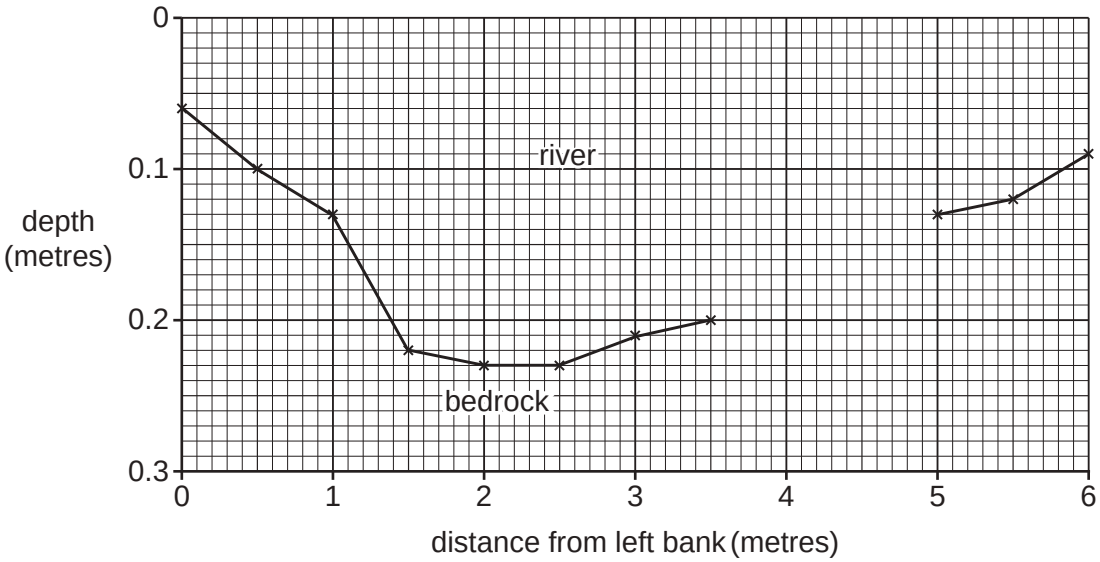

Fig. 1.1

(d) The students recorded the width and calculated the mean (average) depth of the river at each site. Using these results, they also calculated the cross sectional area of the river at each site. These results are shown in Table 1.2 (Insert).

(i) Using Table 1.2, tick **one** statement below which describes the change in width and mean (average) depth of the river between the six sites. Tick (✓) your choice.

	Tick (✓)
The width of the river increases at each site downstream	
The mean depth of the river increases at each site downstream	
The width and mean depth of the river increase and decrease downstream	

[1]

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(ii) Use the results of site 5 in Table 1.2 **to complete Fig. 1.2**, below. [1]

Relationship between width and mean (average) depth at the six sites

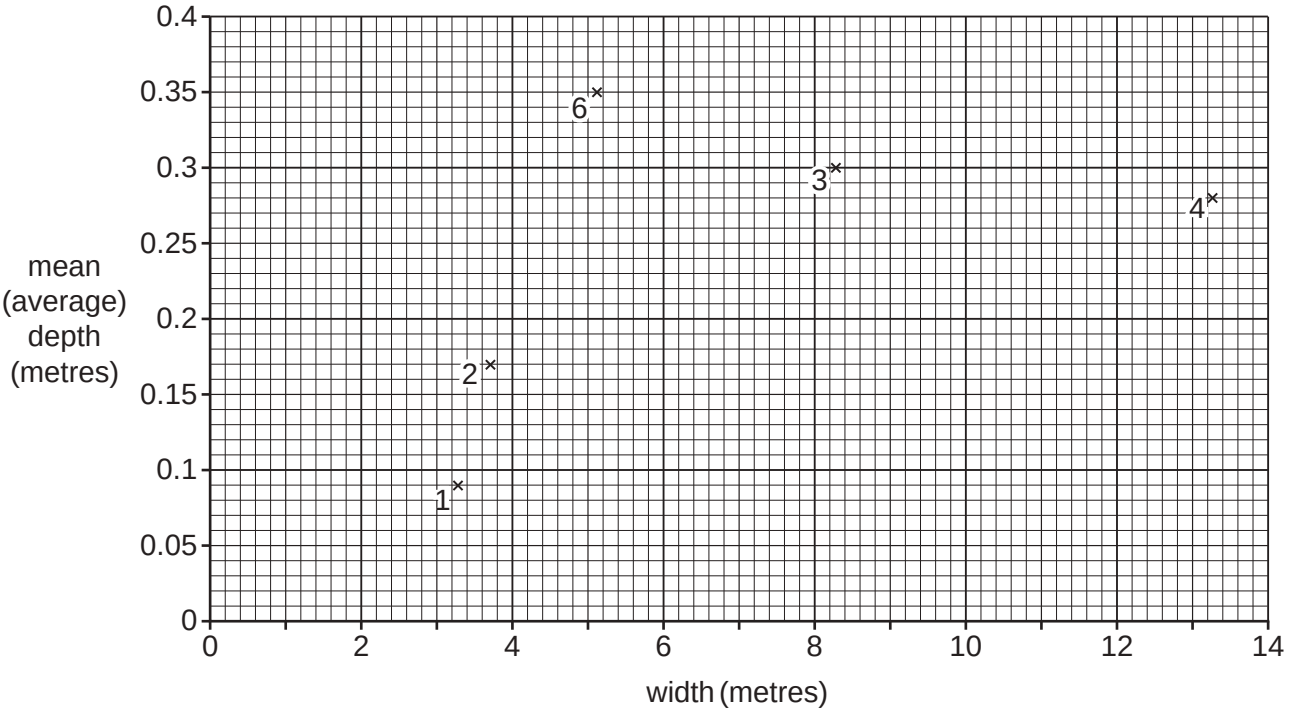

Fig. 1.2

(iii) Use the results in Table 1.2 **to plot the area** of the river cross section at site 6 on Fig. 1.3 below. [1]

Cross sectional area of the six sites

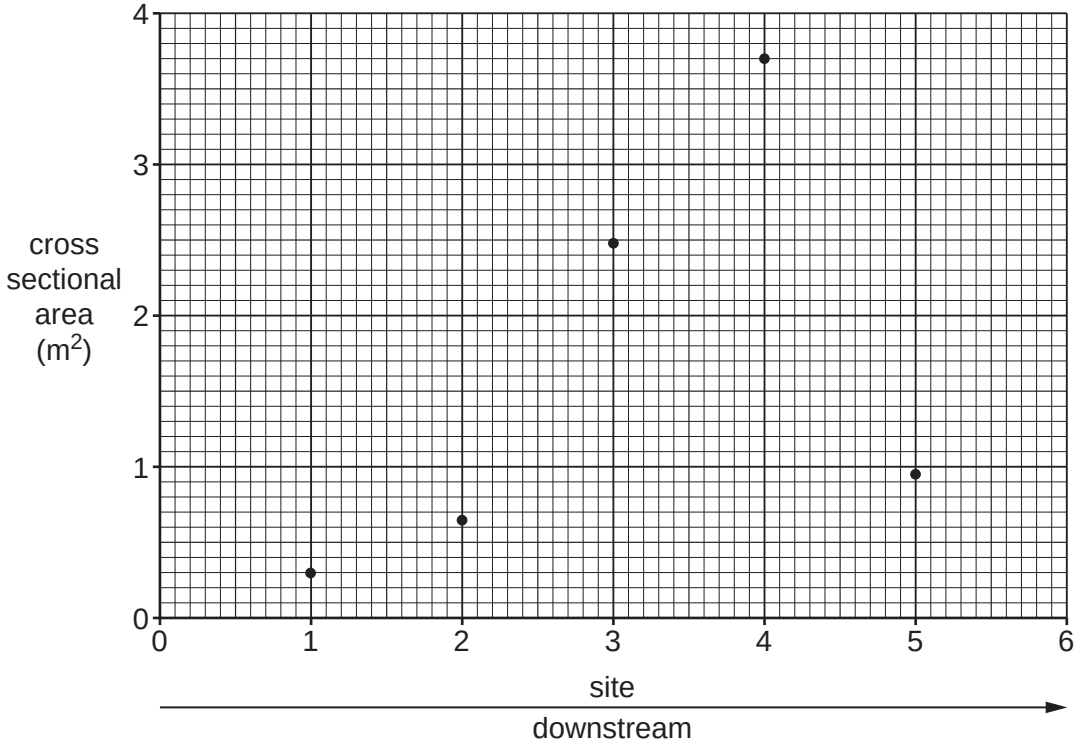

Fig. 1.3

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(iv) The students' conclusion about **Hypothesis 1**: *The cross sectional area of the river increases downstream* was that it was partly true.
Use evidence from Table 1.2 and Fig. 1.3 to support their conclusion.

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.....[4]

(v) Explain why the width and depth of a river usually increase downstream.

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.....[3]

(e) The students then made some measurements to investigate **Hypothesis 2**:
There is a relationship between the length and roundness of pebbles on the river bed.

(i) At each site the students selected 20 pebbles at random from the bed of the river. They then measured the length (long axis) of the pebbles using callipers which are shown in Fig. 1.4 (Insert). Describe how the students measured the length of a pebble.

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.....[2]

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[Turn over

(ii) The students also classified each pebble into one of the six categories of the Power's Scale of Roundness which is shown in Fig. 1.5 (Insert).

The results of their classification of the pebbles at site 3 are shown in Table 1.3 (Insert). Which **two** pebbles at site 3 are classified as rounded?

Pebble numbers ..... and ..... [1]

(iii) The mean (average) pebble length and pebble roundness results for each site are shown in Table 1.4 (Insert). **Plot the results of site 5** on Fig. 1.6 below. [2]

Mean (average) pebble length and pebble roundness

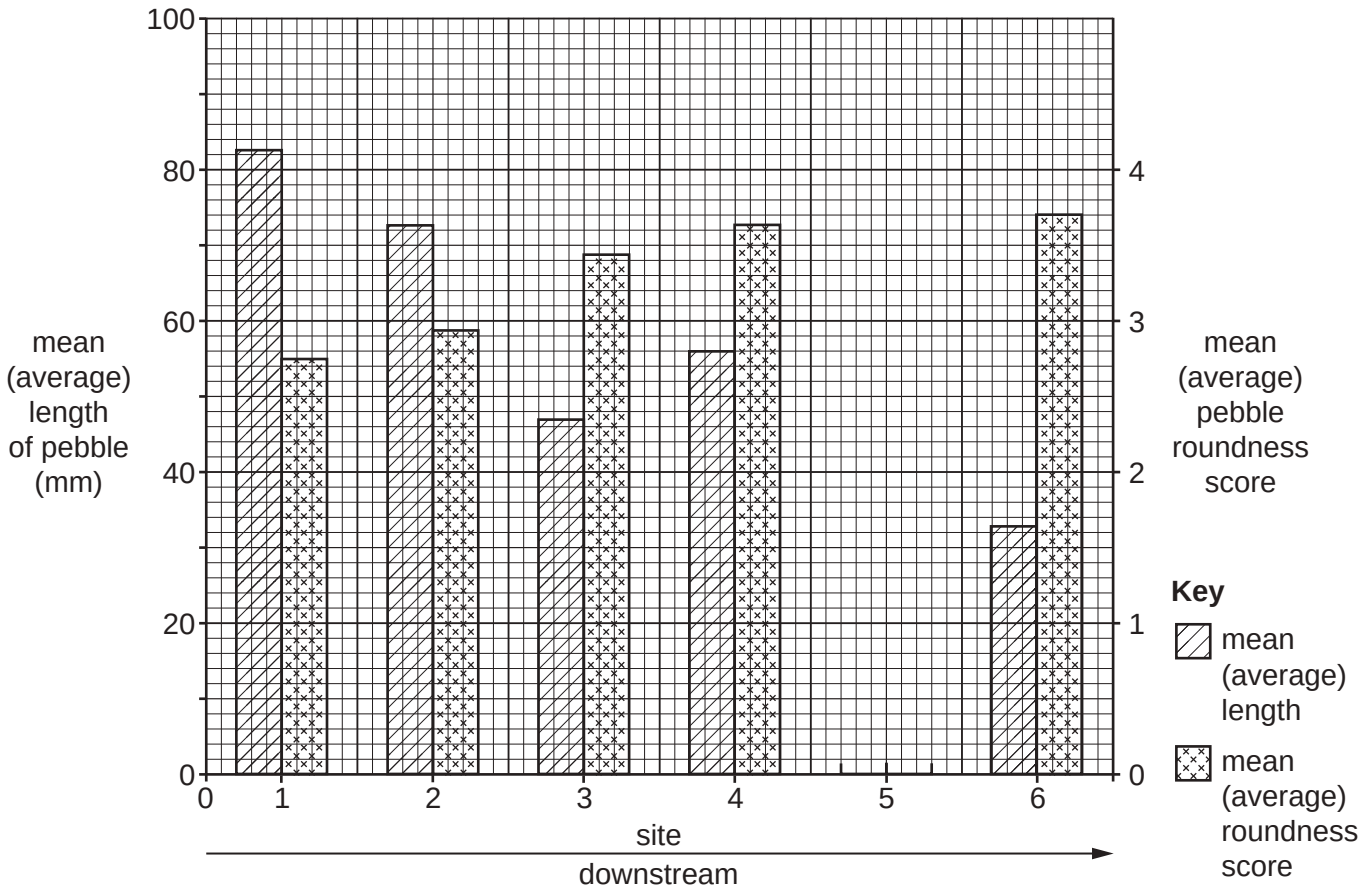

Fig. 1.6

(iv) Which conclusion in the table below is most accurate for **Hypothesis 2**:
There is a relationship between the length and roundness of pebbles on the river bed?
Tick your answer (✓). [1]

Conclusion	Tick (✓)
Pebbles are longer and more rounded downstream	
Pebbles are shorter and more rounded downstream	
There is no relationship between pebble length and roundness	

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(v) Support your conclusion with data from two sites.

.....

.....[1]

(f) Suggest how the students could have improved their data collection methods.

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.....[4]

[Total: 30]

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2 A class of students in Cairo, Egypt were studying population migration. They decided to do a fieldwork investigation about migration in their country.

(a) Before they began their fieldwork they revised key terms to do with migration.

(i) Define the following terms:

internal migration .....

.....

international migration. .....

.....[2]

(ii) Push and pull factors affect migration. Explain what is meant by a push factor **and** a pull factor.

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.....[2]

The students decided to test the following hypotheses:

Hypothesis 1: *The reasons for migration to Cairo which are important to Egyptian males are different to the reasons which are important to Egyptian females.*

Hypothesis 2: *More migrants to Cairo come from rural areas in Egypt than from urban areas.*

(b) To test these hypotheses their teacher gave the students a questionnaire to use. This is shown in Fig. 2.1 (Insert).

(i) The teacher suggested that the students should ask the question 'Have you migrated within Egypt?' before giving the questionnaire to a person.
Which **two** of the following explain why the teacher made this suggestion?
Tick (✓) your choices below.

	Tick (✓)
Only people who had migrated will be able to answer the questions.	
By asking this question the students will get the answer to the two hypotheses.	
People might refuse to answer the questionnaire because they are busy.	
The students will not continue to ask their questions if the person is a tourist.	
People may be frightened about answering questions from a group of strangers.	

[2]

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(ii) Suggest **three** other pieces of advice the teacher would have given the students about how to use the questionnaire.

1 .....

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2 .....

.....

3 .....

.....[3]

(iii) Two age groups are missing from the questionnaire in Fig. 2.1. Add the **two** missing age groups to the table below.

Age group
16–30
61–75

[2]

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(c) (i) Table 2.1 (Insert) shows the results of Question 1 in the questionnaire.
Use these results **to complete Fig. 2.2 below** to show the reasons why females moved to Cairo from other parts of Egypt. [2]

Answers to Question 1 in the questionnaire

What is the most important reason why you migrated to Cairo?

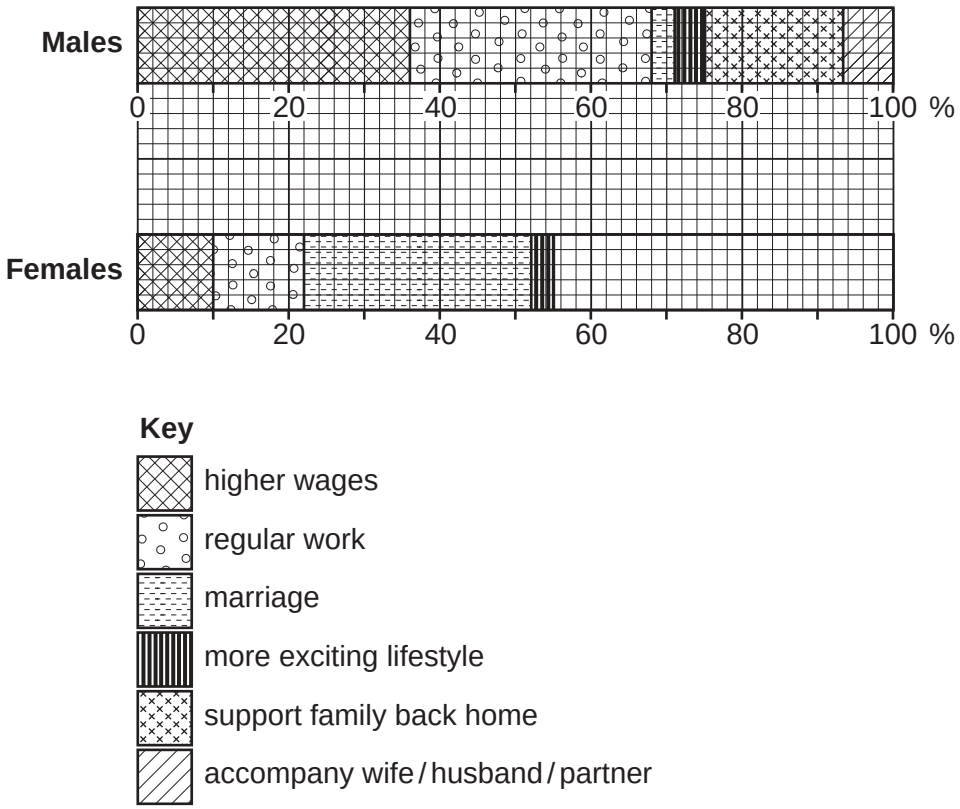

Fig. 2.2

(ii) The students made the conclusion that their results did support **Hypothesis 1:** *The reasons for migration to Cairo which are important to Egyptian males are different to the reasons which are important to Egyptian females.*
Support their conclusion with data from Fig. 2.2 and Table 2.1.

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.....[3]

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(d) (i) Table 2.2 (Insert) shows the results of Question 2 in the questionnaire.
Use these results **to plot** the percentage of males migrating from urban areas in Fig. 2.3 below. [1]

Answers to Question 2 in the questionnaire

Did you migrate to Cairo from a rural area or an urban area?

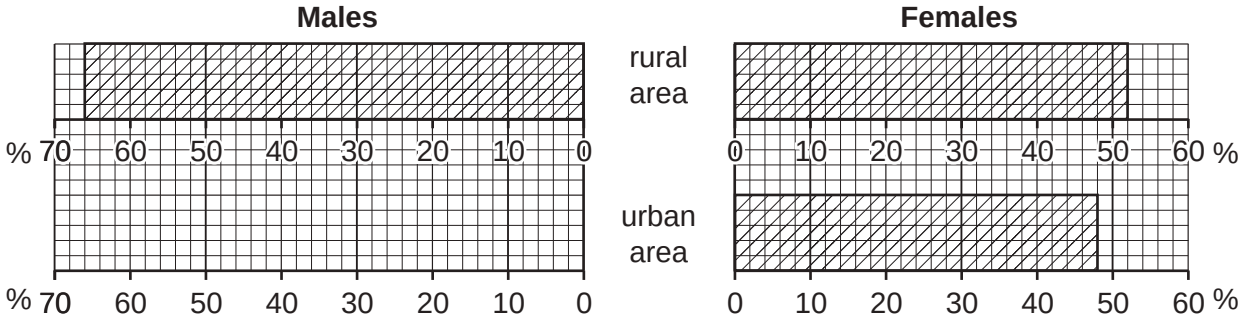

Fig. 2.3

(ii) What conclusion would the students make about **Hypothesis 2:** *More migrants to Cairo come from rural areas in Egypt than from urban areas*?
Use evidence from Fig. 2.3 and Table 2.2 to support your decision.

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.....[3]

(iii) How could the students use the information from the questionnaire (Fig. 2.1) about which age group people were in?

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.....[2]

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(e) (i) One student used a source of secondary data to research the numbers of people who had migrated from Egypt to other areas of the world.
What is meant by *secondary data*? Give **one** example of a source of secondary data.

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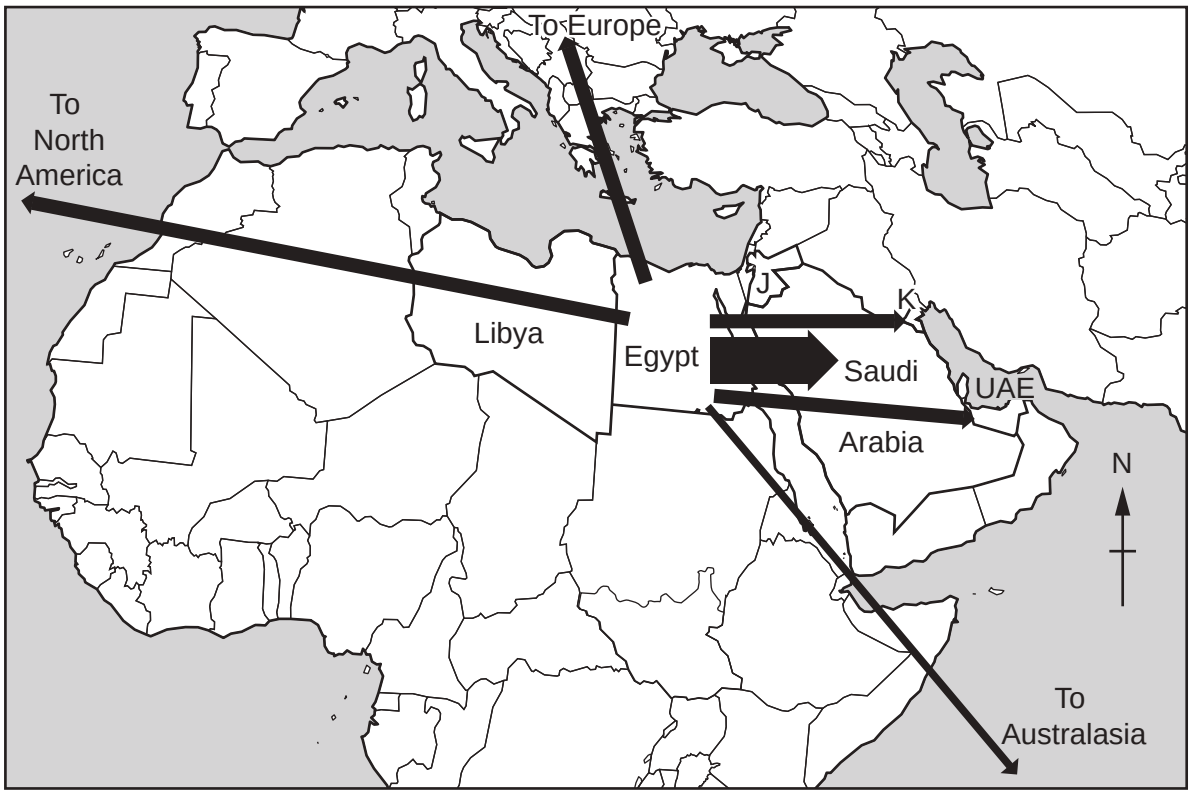
.....[2]

(ii) The results of the student's research are shown in Table 2.3 (Insert). Use the results to complete Fig. 2.4 below by plotting the number of migrants to Libya and Jordan. [2]

Main areas to which Egyptians migrated



Key

J = Jordan
K = Kuwait
UAE = United Arab Emirates

Scale

number of migrants

less than 200 000
200 000–400 000
400 001–600 000
more than 600 000

Fig. 2.4

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(iii) Fig. 2.5 (Insert) is a different method of showing the results in Table 2.3. Which **one** of the methods shown in Figs. 2.4 and 2.5 do you think best shows the results? Give **two** reasons to support your choice.

Fig. .....

1 .....

.....

2 .....

.....[2]

(iv) Identify **two** main trends of migration from Egypt which are shown in Figs. 2.4 and 2.5.

1 .....

.....

2 .....

.....[2]

[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Cambridge Assessment International Education

Grade thresholds – June 2018

Cambridge IGCSE™ Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the June 2018 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 11	75	52	45	39	33	26	19	12
Component 12	75	51	43	35	30	25	20	16
Component 13	75	46	38	30	25	20	15	10
Component 21	60	41	34	28	24	20	17	14
Component 22	60	42	36	30	27	24	20	16
Component 23	60	40	34	29	26	22	18	14
Component 3	60	50	42	35	28	22	17	12
Component 41	60	38	32	26	22	18	14	10
Component 42	60	41	35	29	24	19	14	9
Component 43	60	39	33	28	23	18	13	8

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AX	03, 11, 21	180	158	136	115	96	77	59	41
AY	03, 12, 22	181	158	135	112	95	79	64	49
AZ	03, 13, 23	172	149	126	104	87	71	55	39
BX	11, 21, 41	166	146	126	106	89	73	56	39
BY	12, 22, 42	171	149	127	106	91	76	61	46
BZ	13, 23, 43	159	138	117	97	82	67	51	35
CY	12, 22, 83	181	158	135	112	95	79	64	49

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/11**

Paper 1 **May/June 2018**

INSERT

1 hour 45 minutes

5552194808-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Fig. 2.1 for Question 2, Figs. 4.1, 4.2, 4.3 and 4.4 for Question 4, and Fig. 6.2 for Question 6.

The Insert is **not** required by the Examiner.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **6** printed pages and **2** blank pages.

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Fig. 2.1 for Question 2

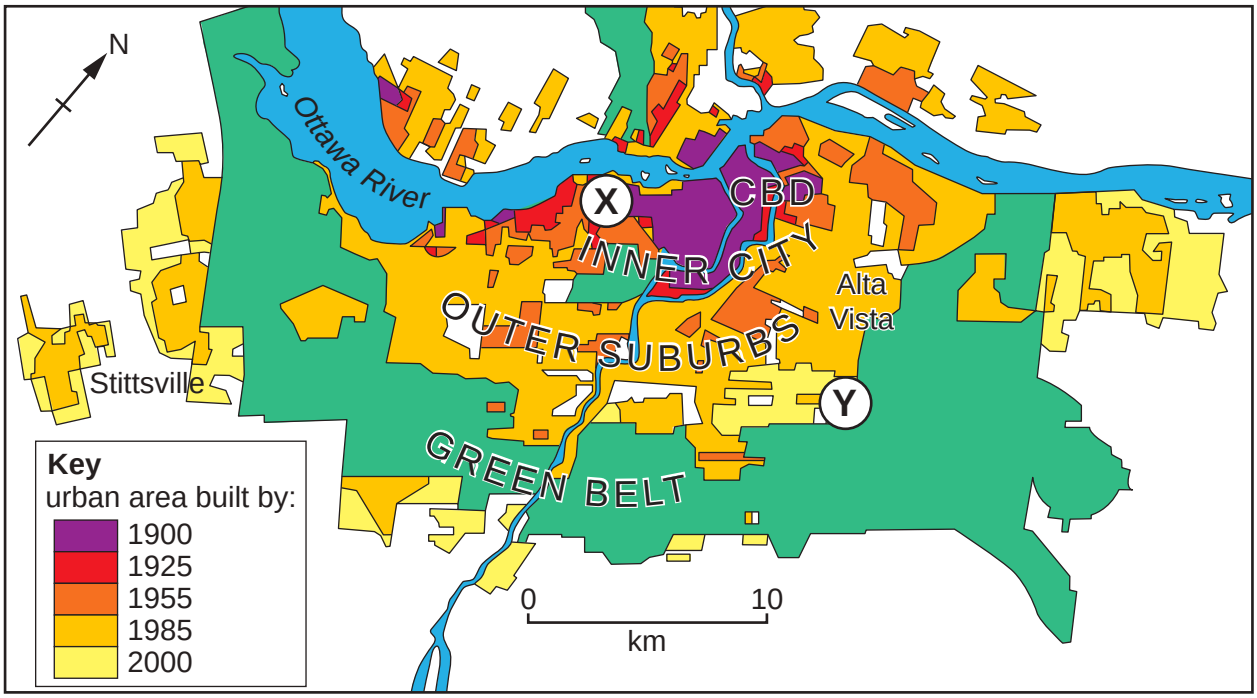

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Fig. 4.1 for Question 4

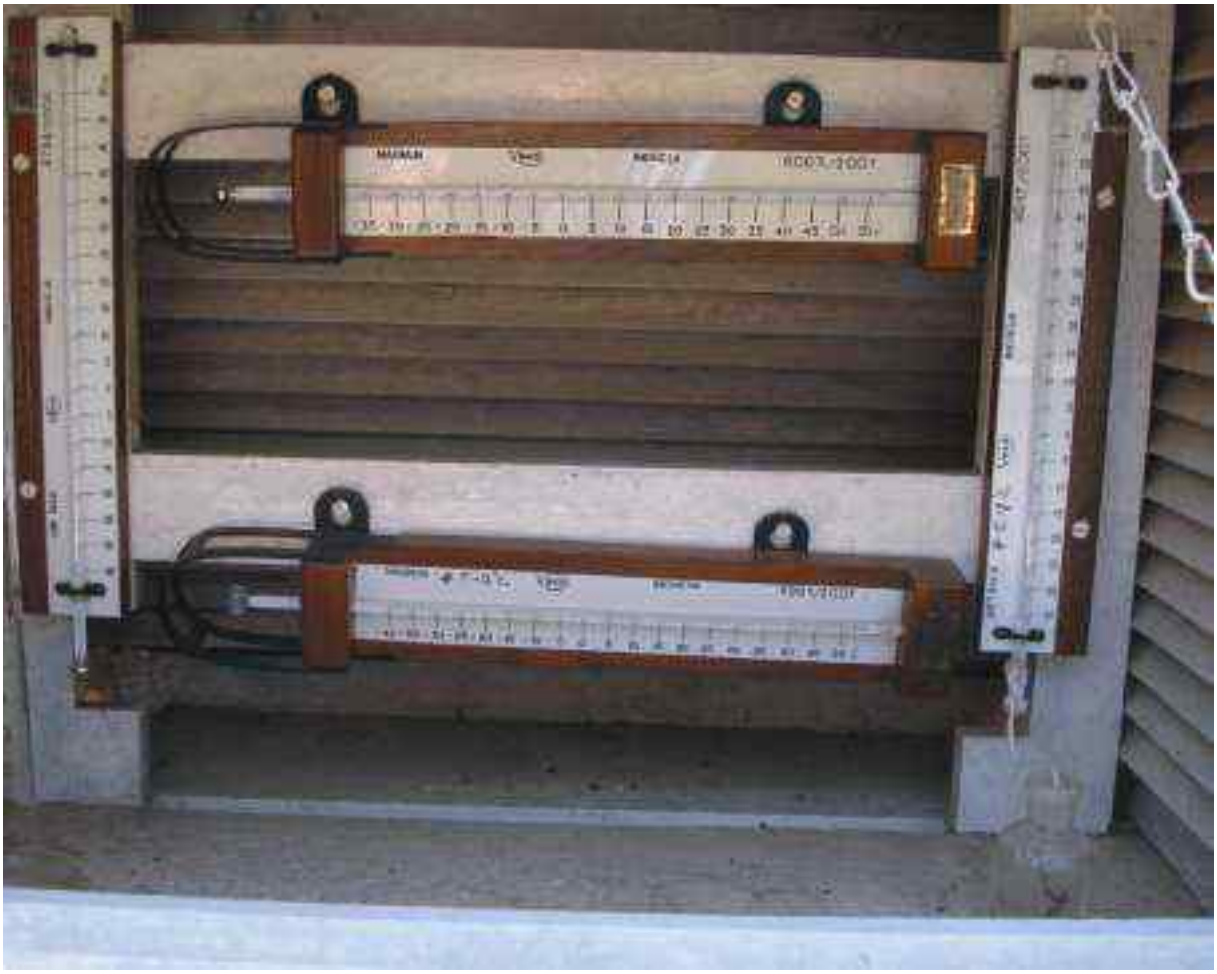

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Fig. 4.2 for Question 4



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Fig. 4.3 for Question 4



Fig. 4.4 for Question 4



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Fig. 6.2 for Question 6



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GEOGRAPHY **0460/12**

Paper 1 **May/June 2018**

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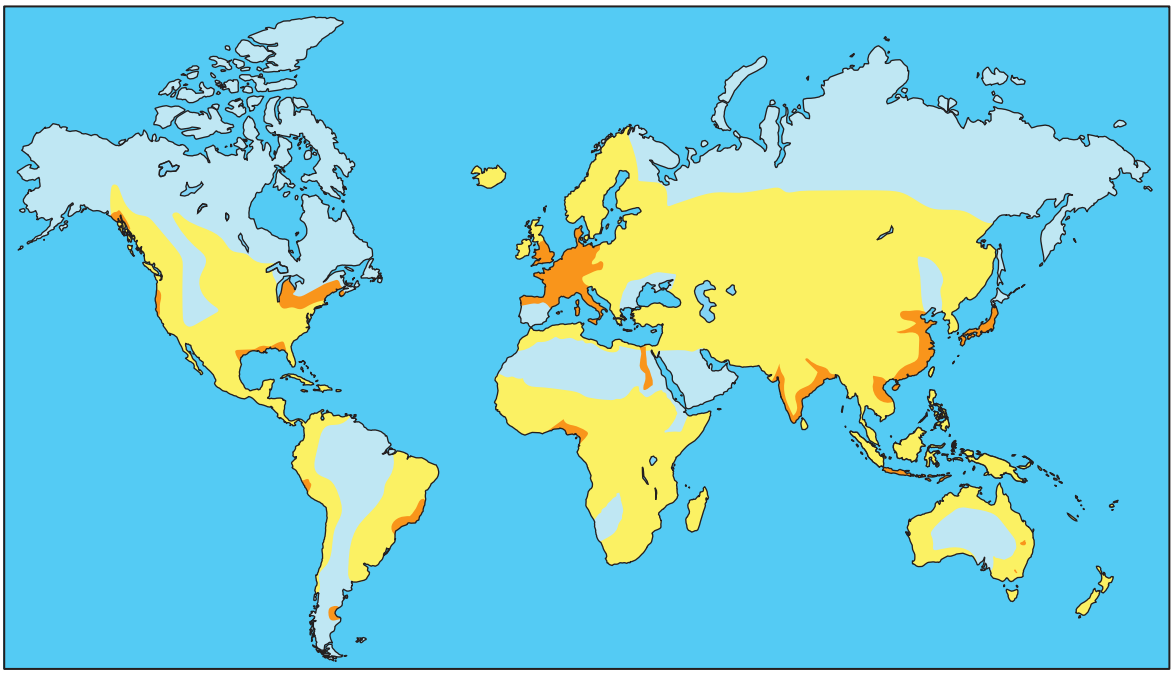
Fig. 1.1 for Question 1

Global population density



Key

densely populated

moderately populated

sparsely populated

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Fig. 1.2 for Question 1



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Fig. 1.3 for Question 1



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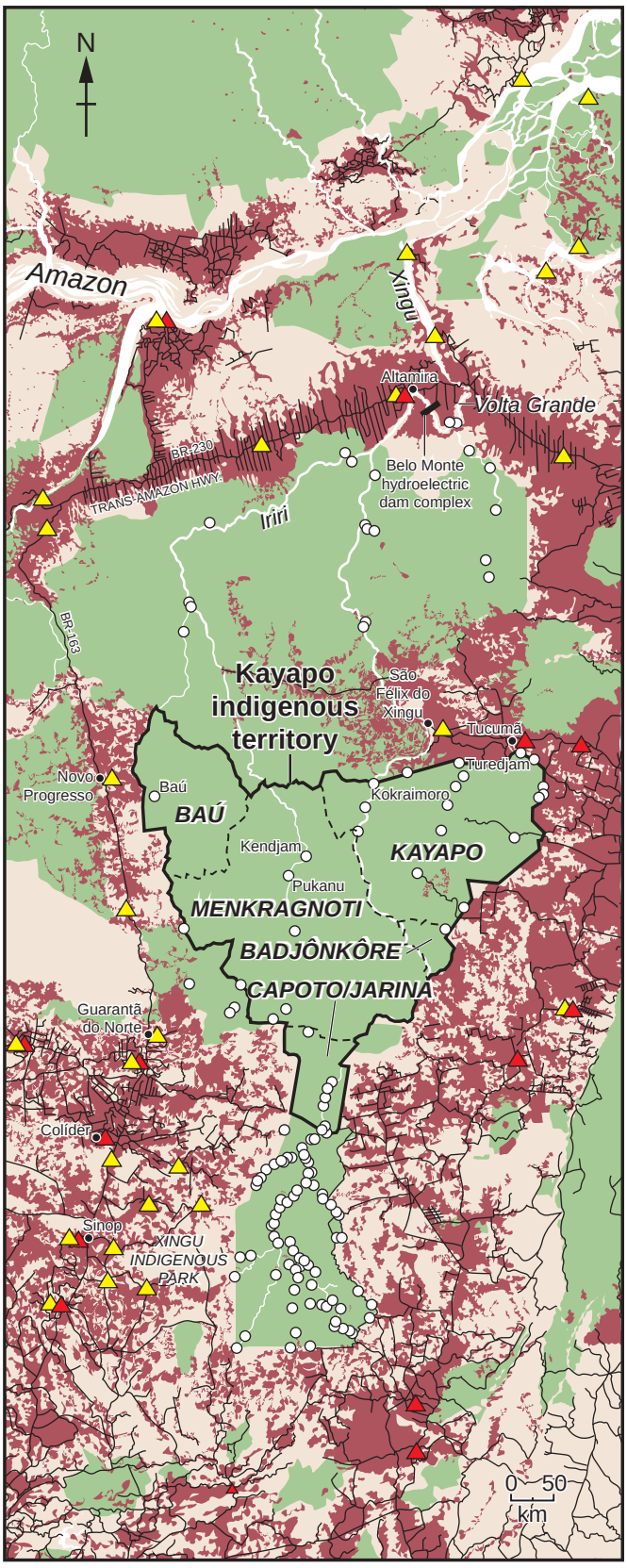
Fig. 4.2 for Question 4



Key

- protected forest
- forest
- deforested area
- village
- sawmill for wood
- cattle slaughterhouse
- road
- towns

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Fig. 6.1 for Question 6

Lake Chivero National Park

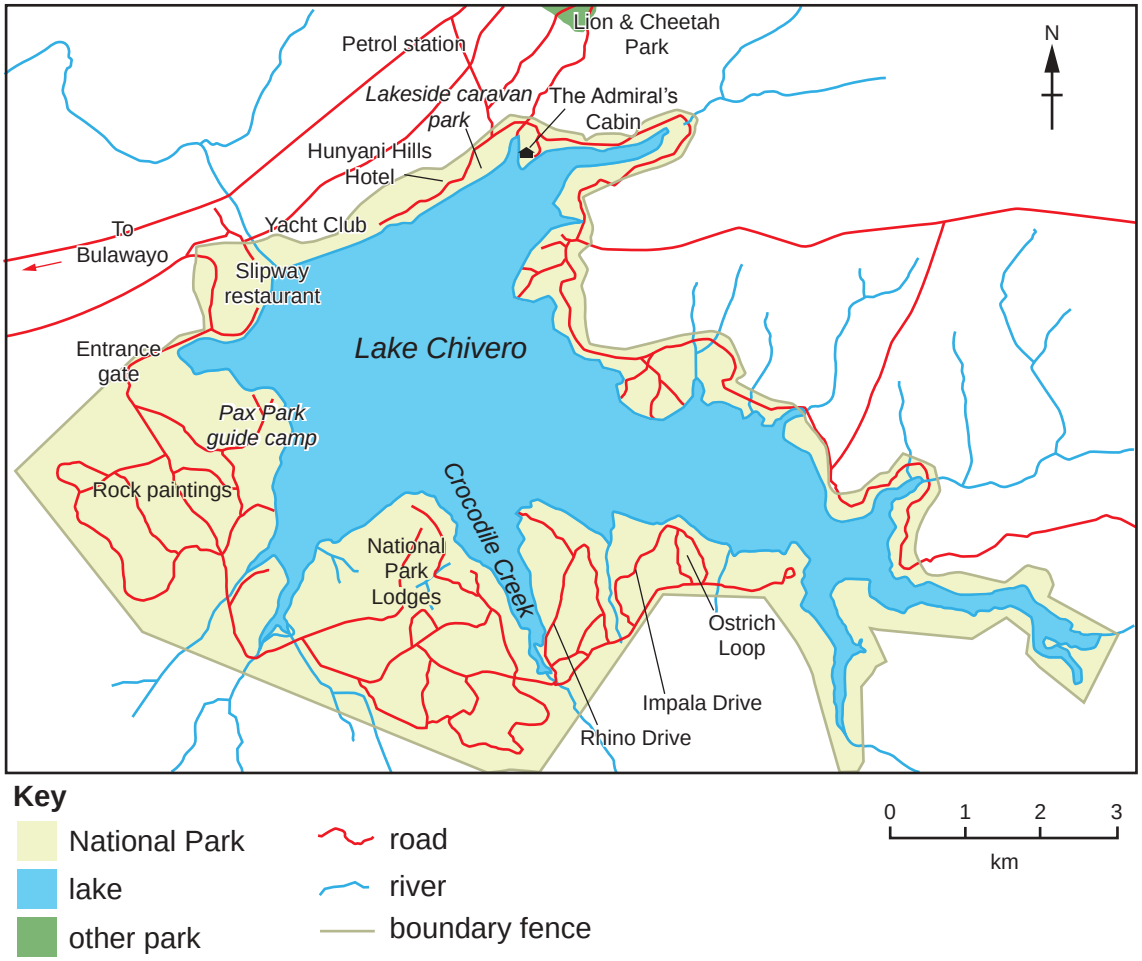

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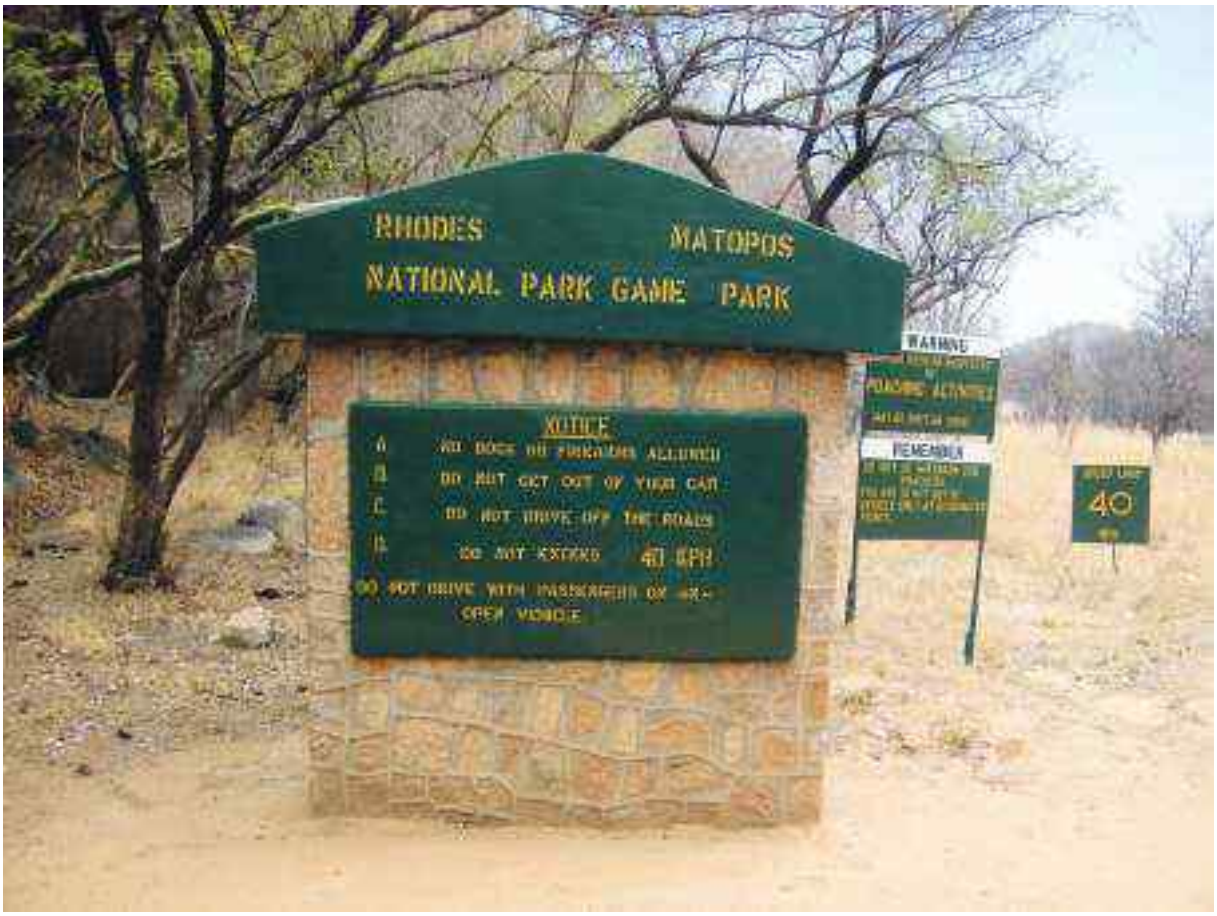
Fig. 6.2 for Question 6



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GEOGRAPHY **0460/13**

Paper 1 **May/June 2018**

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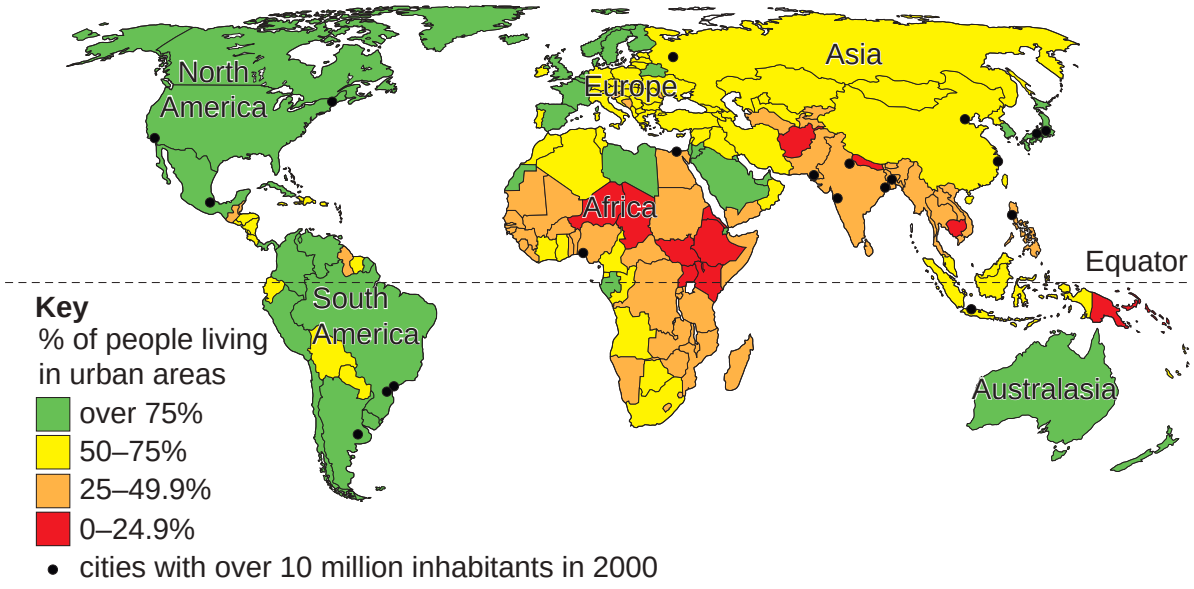

Fig. 2.2 for Question 2



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Fig. 3.2 for Question 3



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Fig. 3.3 for Question 3



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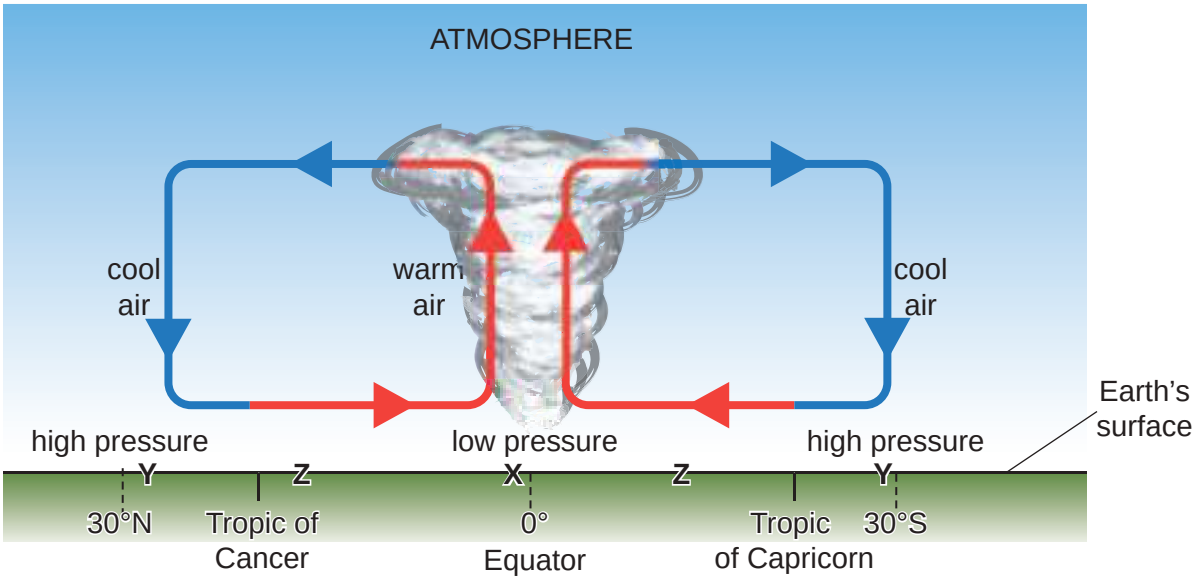

Fig. 4.2 for Question 4



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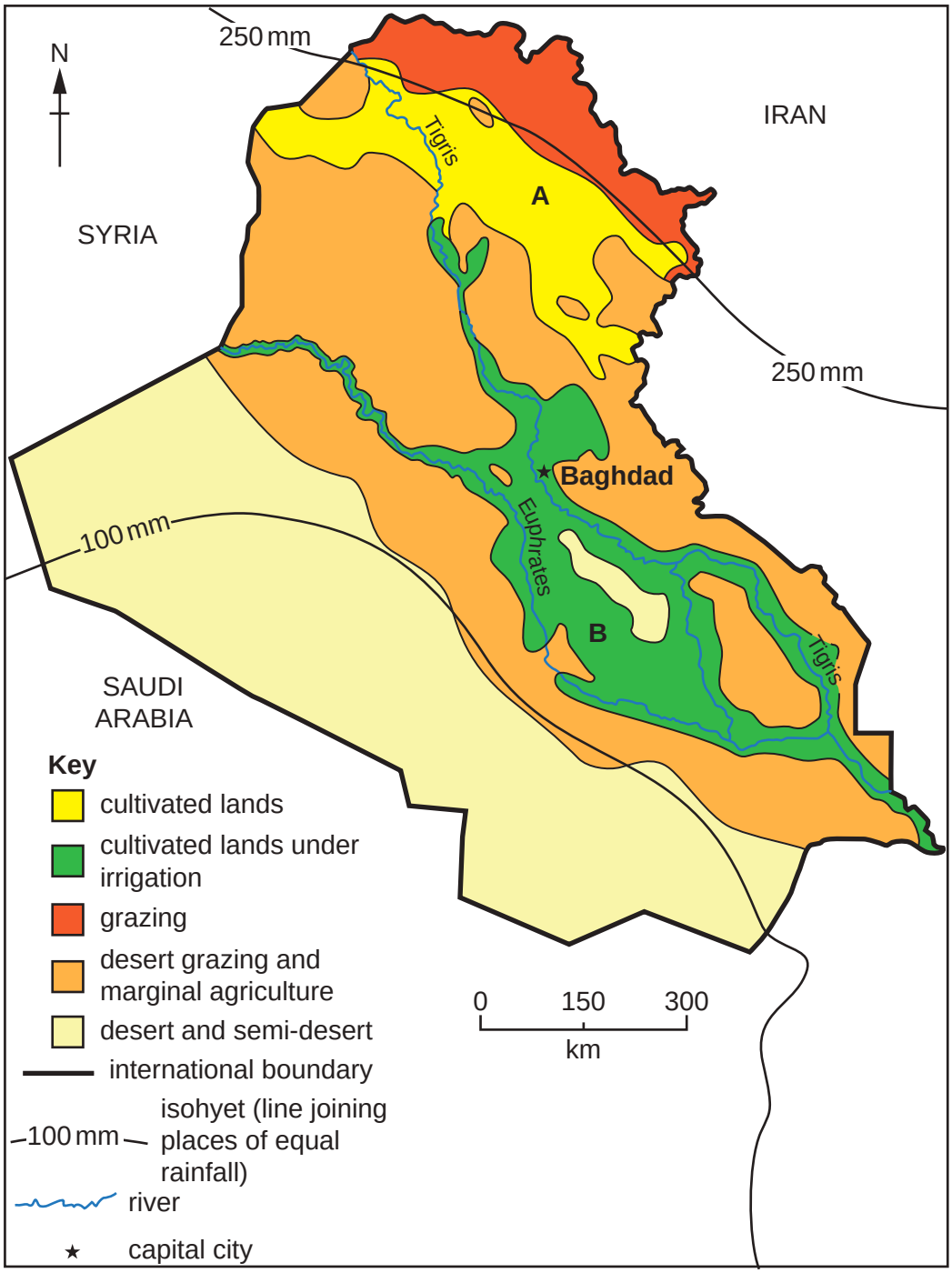

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Fig. 5.2 for Question 5



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Paper 2 **May/June 2018**

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Fig. 2.1 for Question 2

Iran – population

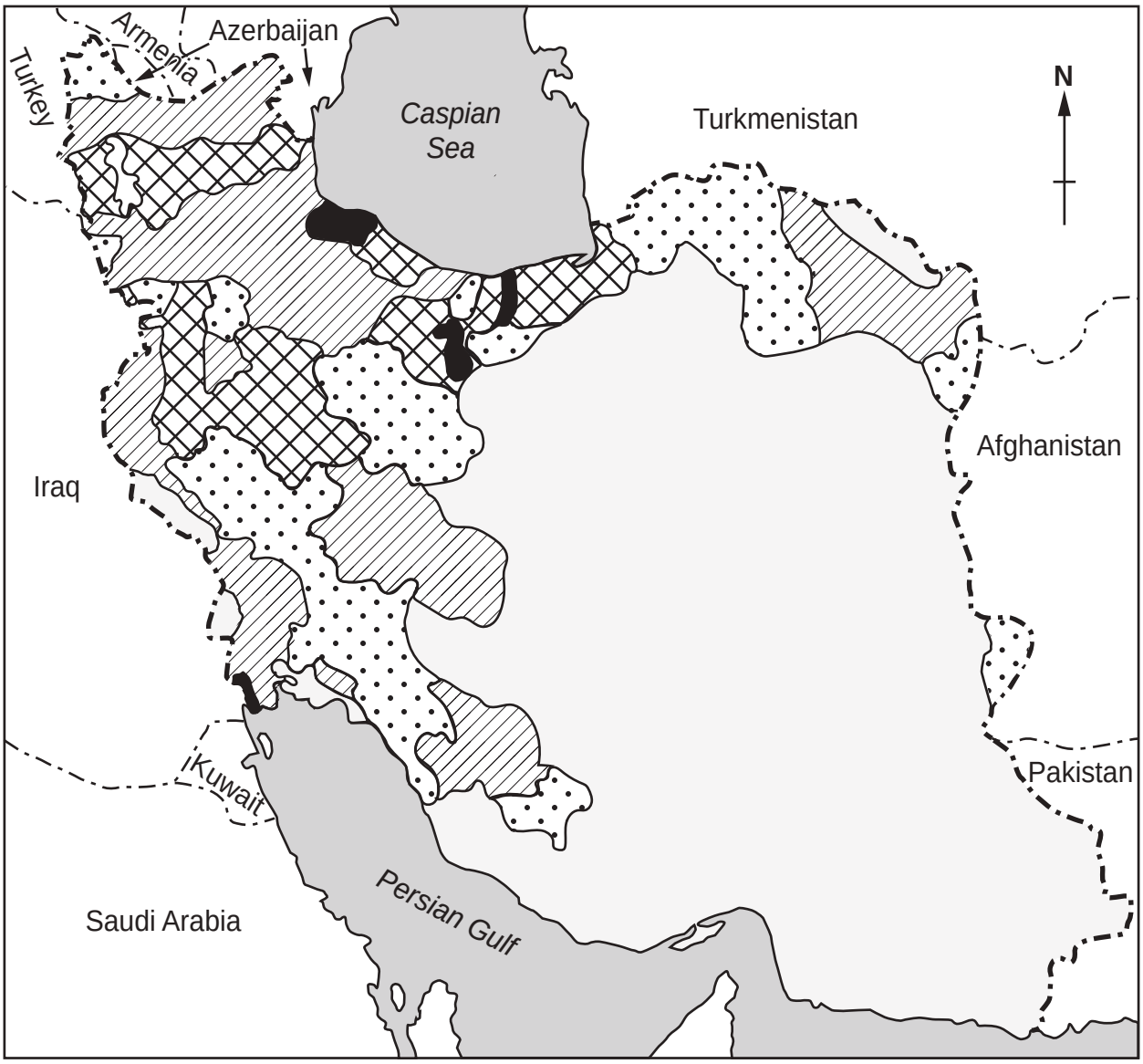

Fig. 2.1

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Fig. 4.1 for Question 4



Fig. 4.1

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Fig. 6.1 for Question 6



Fig. 6.1

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Fig. 6.2 for Question 6



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GEOGRAPHY **0460/22**

Paper 2 **May/June 2018**

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Fig. 3.1 for Question 3



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Fig. 3.2 for Question 3



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Paper 2 **May/June 2018**

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Fig. 4.1 for Question 4



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Fig. 4.2 for Question 4



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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2018**

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Fig. 1.1 for Question 1

Destructive waves



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Fig. 1.2 for Question 1

Constructive waves



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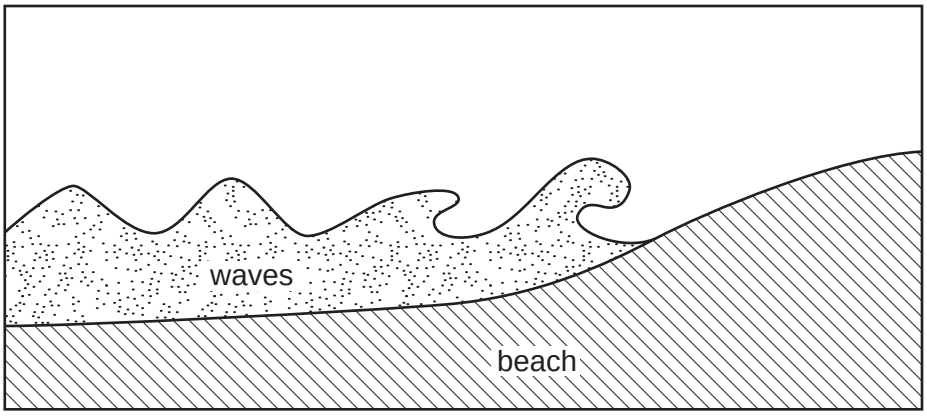
Fig. 1.3 for Question 1

Destructive waves



Constructive waves

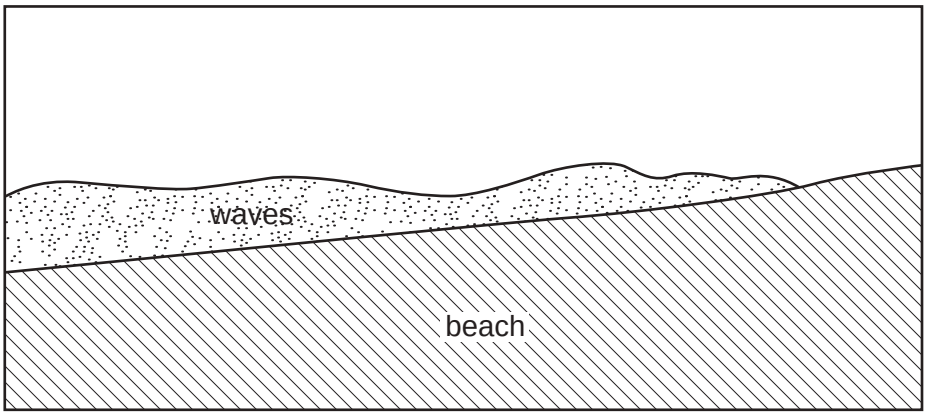


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Fig. 1.5 for Question 1

Beach profiles

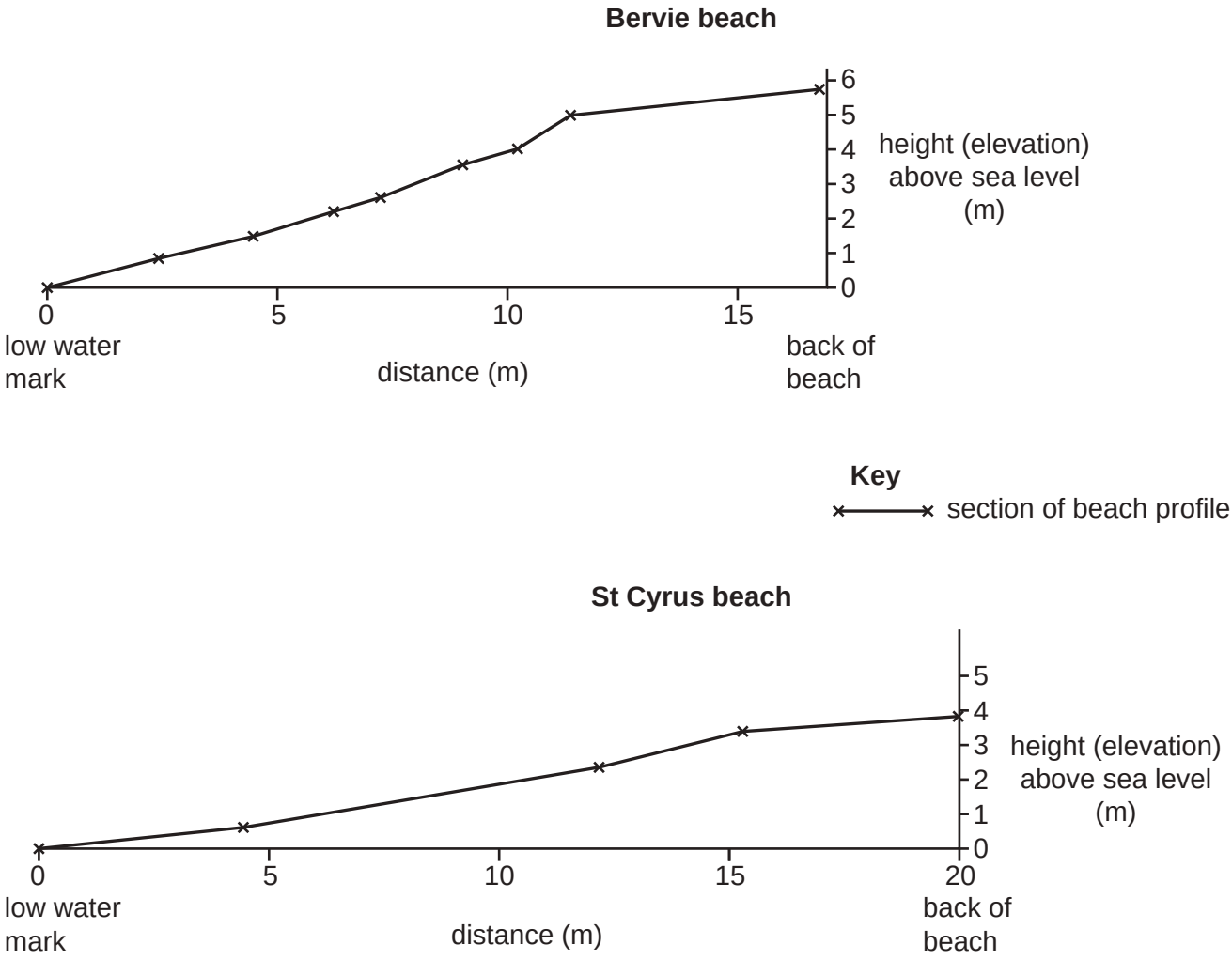

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Fig. 1.6 for Question 1

Quadrat on Bervie beach



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Table 1.2 for Question 1

Beach material at Bervie beach

Site	Types of beach material and size (%)		
	Sand (less than 2 mm)	Shingle (2–20 mm)	Pebble (21–100 mm)
1	0	76	24
2	8	56	36
3	2	60	38

Table 1.3 for Question 1

Beach material at St Cyrus beach

Site	Types of beach material and size (%)		
	Sand (less than 2 mm)	Shingle (2–20 mm)	Pebble (21–100 mm)
1	**88**	**12**	**0**
2	84	10	6
3	80	13	7

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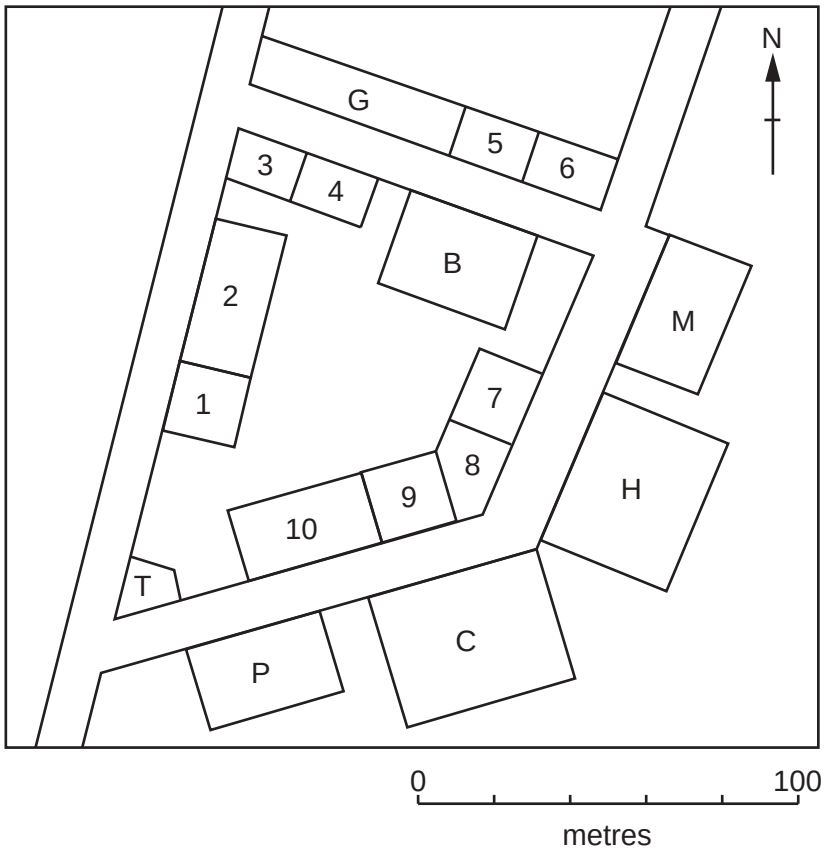
Fig. 2.1 for Question 2

Part of the students' land use map



Key to buildings

T	Tourist information office	1	Bookshop
P	Pub/bar	2	Outdoor clothes shop
C	Church	3	Cycle repair and hire
H	Hotel	4	Café
M	Museum	5	Butcher's shop
B	Bank	6	Florist's shop
G	Art gallery	7	Bakery
		8	Gift shop
		9	Restaurant
		10	Fashion clothes shop

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Table 2.1 for Question 2

Students' classification of shops and services

Shop or service	Number	Percentage
for tourists only	56	61
for local residents only	12	**13**
for tourists and local residents	24	**26**
Total	92	100

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Fig. 2.3 for Question 2

Resident questionnaire

I am a student at the local college. I am doing this questionnaire as part of my Geography coursework. Please will you answer the following questions?

1. Are you a resident of the town?

   Yes ☐ No ☐

If the answer is 'no' do not ask the following questions.

2. What benefits do you think tourists bring to the town? You may tick more than one benefit.

   - Create jobs ☐
   - Spend money in the shops ☐
   - Streets are cleaned regularly ☐
   - Buy locally made products ☐
   - Make the town well-known ☐

3. What problems do tourists cause for you? You may tick more than one problem.

   - Traffic congestion on local roads ☐
   - Noise and disturbance ☐
   - Litter outside the house and in the garden ☐
   - Overcrowded footpaths (pavements) ☐
   - Car parks are full ☐
   - Jobs are seasonal and there is work only in summer ☐

Thank you for your time

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Table 2.2 for Question 2

Residents' answers to questionnaire

Question 2: What benefits do you think tourists bring to the town?

Benefit	Number of answers
Create jobs	100
Spend money in the shops	98
Streets are cleaned regularly	33
Buy locally made products	**50**
Make the town well-known	47
Total number of answers	328

Question 3: What problems do tourists cause for you?

Problem	Number of answers
Traffic congestion on local roads	100
Noise and disturbance	72
Litter outside the house and in the garden	74
Overcrowded footpaths (pavements)	46
Car parks are full	29
Jobs are seasonal and there is work only in summer	**65**
Total number of answers	386

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Table 2.3 for Question 2

Results of traffic survey at one site

Method of travel	Time of survey					
	08:00–08:30	10:00–10:30	13:00–13:30	16:00–16:30	18:00–18:30	20:00–20:30
Car	114	20	46	13	106	48
Tourist coach	16	47	20	36	20	1
Local bus	26	9	10	3	20	7
Lorry / van	24	13	25	12	4	2
Bicycle	8	4	30	6	26	18
Taxi	6	4	10	4	18	17
Motorbike	6	3	7	3	6	7

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Paper 4 Alternative to Coursework **May/June 2018**

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Table 1.1 for Question 1

Results of fieldwork

Central Ladprao Plaza

Order	Number of shops selling goods and services
High	114
Middle	173
Low	88
Total	375

La Villa

Order	Number of shops selling goods and services
High	7
Middle	13
Low	25
Total	45

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Fig. 1.4 for Question 1

Shopping questionnaire

Excuse me; I'm a student at Bangkok International School. Please could you answer the following questions to help me with my geography fieldwork?

Shopping centre: ……

1. What is the main reason you are shopping here today?

☐	Near home	☐	Near work
☐	Large department stores	☐	Good parking
☐	Large variety of shops and services	☐	Good value for money
☐	Attractive indoor shopping environment		

2. How did you travel here today?

☐	Bus	☐	Taxi or motorbike taxi
☐	Car	☐	Underground train
☐	Monorail	☐	Walk

3. Which district of Bangkok do you live in?

.....

4. How far did you travel to the shopping centre?

..... km

Thank you very much for your help and time.

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Table 1.2 for Question 1

Answers to Question 1 in the questionnaire

Central Ladprao Plaza

Main reason for shopping	Percentage (%) of answers
Large variety of shops and services	35
Near work	22
Large department stores	16
Attractive indoor shopping environment	12
Good parking	9
Near home	4
Good value for money	2

La Villa

Main reason for shopping	Percentage (%) of answers
Large variety of shops and services	4
Near work	8
Large department stores	1
Attractive indoor shopping environment	10
Good parking	12
Near home	**45**
Good value for money	**20**

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Table 1.3 for Question 1

Answers to Question 2 in the questionnaire

Central Ladprao Plaza

Method of travel	Number of answers
Bus	8
Car	15
Monorail	0
Taxi or motorbike taxi	14
Underground train	11
Walk	2

La Villa

Method of travel	Number of answers
Bus	11
Car	**7**
Monorail	20
Taxi or motorbike taxi	6
Underground train	0
Walk	6

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Table 2.2 for Question 2

Results of measurements at site 2

Pebble number	Length (cm)
1	16.4
2	6.8
3	**13.4**
4	10.5
5	5.7
6	2.3
7	7.5
8	3.0
9	4.2
10	2.6
Average	**7.2**

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2018**

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Fig. 1.1 for Question 1

Rain gauge and measuring cylinder

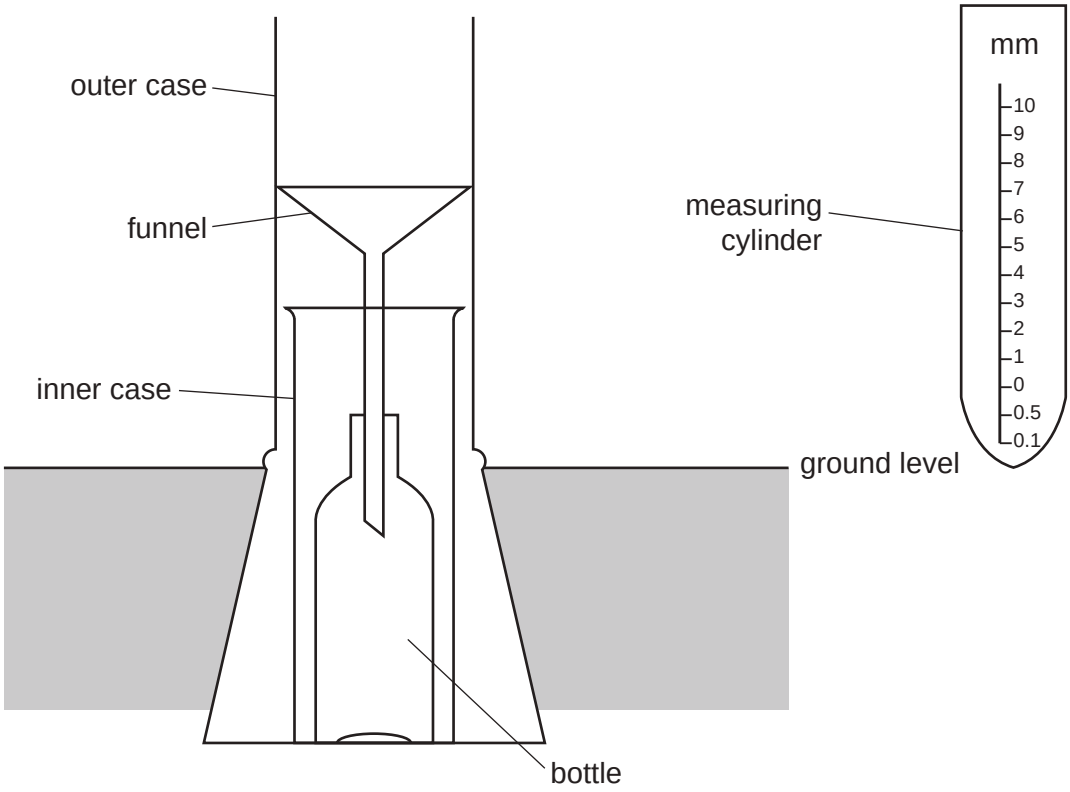

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Table 1.1 for Question 1

Atmospheric pressure data collected by students in February of the current year and from February of the previous year

Data collected by students in February	
Date	Atmospheric pressure (mb)
1st	1003
2nd	1003
3rd	985
4th	977
5th	980
6th	990
7th	987
8th	982
9th	990
10th	990
11th	987
12th	989
13th	976
14th	984
15th	1007
16th	996
17th	1008
18th	1012
19th	999
20th	1003
21st	1008
22nd	1008
23rd	993
24th	997
25th	992
26th	995
27th	994
28th	988

Data collected in February of the previous year	
Date	Atmospheric pressure (mb)
1st	1000
2nd	1007
3rd	1006
4th	1015
5th	1026
6th	1031
7th	1036
8th	1040
9th	1035
10th	1034
11th	1003
12th	1021
13th	1025
14th	1000
15th	1013
16th	1013
17th	1036
18th	1022
19th	1039
20th	1008
21st	1001
22nd	1000
23rd	997
24th	1002
25th	1013
26th	1010
27th	1020
28th	1010

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[Turn over

Fig. 1.6 for Question 1

Results of measurements of wind direction and average daily temperature

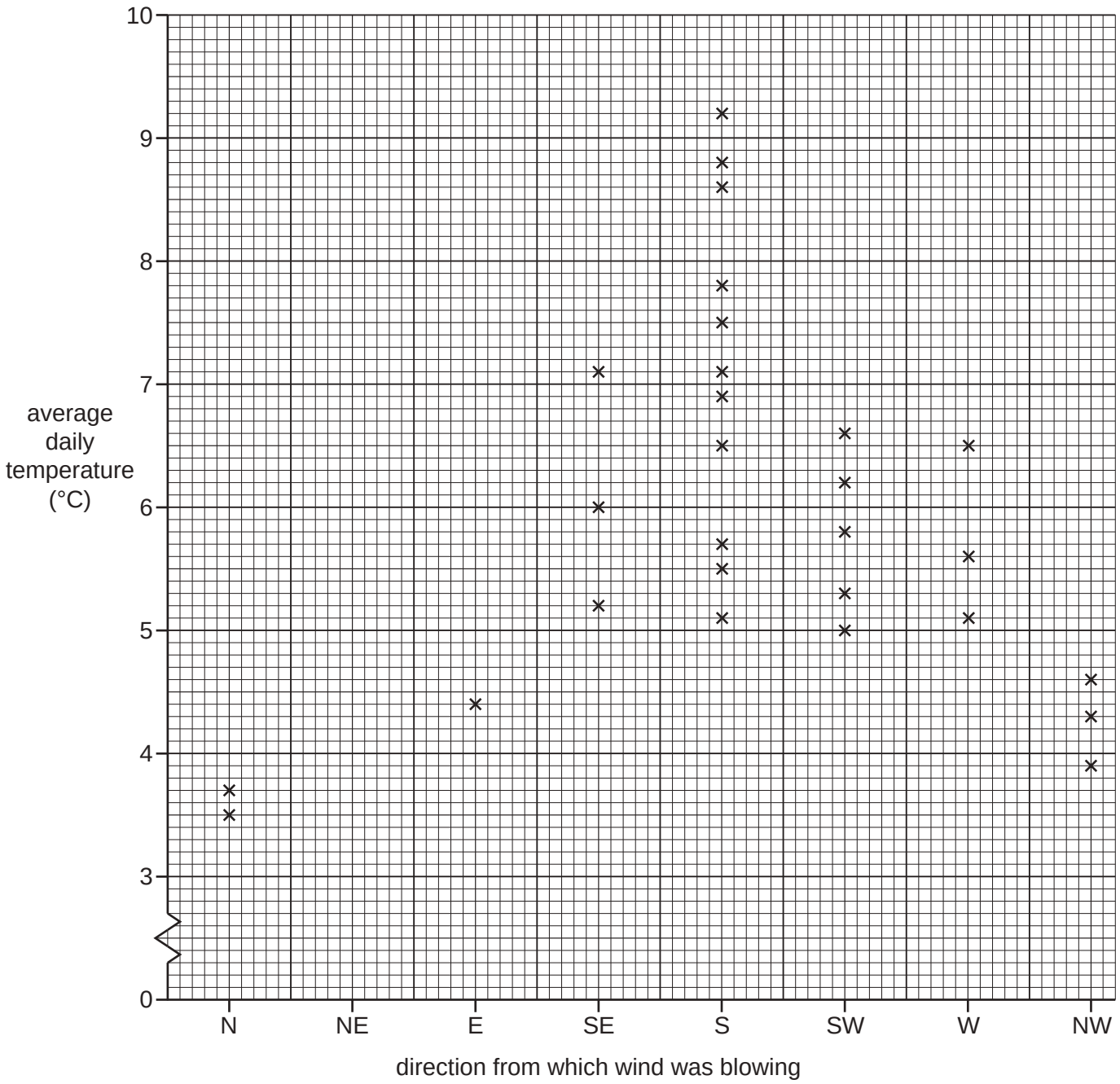

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Fig. 2.1 for Question 2

Extract from a student's notebook

Measuring the pH of water

pH is a measure of the acidity of water. The pH score decreases as water becomes more acidic. More acidic water is more likely to be polluted.

1 Collect a sample of water in a clean container.

2 Put the probe of the pH meter into the water.

3 Read the digital display.

4 Take three samples of water and test each one.



Measuring the clarity of water

This is a test to measure how clear the water is.

1 Put the measuring tape attached to the disk into the water.

2 Slowly lower the measuring tape into the water.

3 When the disk can no longer be seen record the measurement on the tape at the water surface. This shows how deep the disk is in the water.

4 Repeat the test three times and record each result.



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Table 2.2 for Question 2

Results of pH measurements

	pH reading			
	test 1	test 2	test 3	Average
site 1	6.1	6.0	6.2	6.1
site 2	5.8	5.6	5.9	**5.8**
site 3	5.4	5.5	5.5	5.5

Table 2.3 for Question 2

Results of water clarity measurements

	depth of clear water (cm)			
	test 1	test 2	test 3	Average
site 1	39	38	38	38.3
site 2	33	34	38	**35.0**
site 3	13	19	18	16.7

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Fig. 2.4 for Question 2

Environmental quality recording sheet

	Positive description	**+2**	**+1**	**0**	**–1**	**–2**	**Negative description**
Buildings	in good condition						in poor condition
	well-designed / attractive						poorly designed / ugly
	well maintained						poorly maintained
	no vandalism or graffiti						extensive vandalism or graffiti
Open space	large private gardens						no private gardens
	lots of trees, bushes or grass						no trees, bushes or grass
	parks are well maintained						parks are poorly maintained
	no litter and debris						much litter and debris
Traffic	no traffic congestion						roads are badly congested
	little traffic noise						very noisy from traffic
	no air pollution from traffic fumes						air is badly polluted from traffic fumes
	safe for people to cross roads						dangerous for people to cross roads
General	roads and pavements are well maintained						roads and pavements are poorly maintained
	few road signs or advertising boards						lots of road signs and advertising boards
	lakes and streams are clean						lakes and streams are dirty
	lots of insects and wildlife can be seen						no evidence of insects and wildlife

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Fig. 2.8 for Question 2

Completed environmental quality recording sheet for undeveloped site

	Positive description	**+2**	**+1**	**0**	**–1**	**–2**	**Negative description**
Buildings	in good condition	NO BUILDINGS					in poor condition
	well-designed / attractive						poorly designed / ugly
	well maintained						poorly maintained
	no vandalism or graffiti						extensive vandalism or graffiti
Open space	large private gardens			✓			no private gardens
	lots of trees, bushes or grass	✓					no trees, bushes or grass
	parks are well maintained	✓					parks are poorly maintained
	no litter and debris	✓					much litter and debris
Traffic	no traffic congestion	✓					roads are badly congested
	little traffic noise	✓					very noisy from traffic
	no air pollution from traffic fumes	✓					air is badly polluted from traffic fumes
	safe for people to cross roads	✓					dangerous for people to cross roads
General	roads and pavements are well maintained			✓			roads and pavements are poorly maintained
	few road signs or advertising boards	✓					lots of road signs and advertising boards
	lakes and streams are clean	✓					lakes and streams are dirty
	lots of insects and wildlife can be seen	✓					no evidence of insects and wildlife

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GEOGRAPHY **0460/11**

Paper 1 **May/June 2018**

MARK SCHEME

Maximum Mark: 75

Published

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Question	Answer	Marks
1(a)(i)	The number of births per 1000 per year	**1**
1(a)(ii)	Peru….Argentina…..Brazil…..Chile All 4 in correct order = 2 marks 2 or 3 in correct order = 1 mark 2 marks	**2**
1(a)(iii)	18.3–6 1 mark 12.3 (or 18.3–6.0) – 2.5 1 mark 9.8 (per 1000) 1 mark 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: Variation in birth rates/some countries have high birth rates/more people are born/have more children; Variation in death rates/some countries have high death rates/more people die; Some countries will have more immigration than emigration/more people move in; Some countries will have more emigration than immigration/more people move out; so net migration varies/could be positive or negative etc. 1 @ 1 mark Note: Not reasons for high birth rates or reasons for migration. Based on Figure 1.1.	**4**
1(b)(i)	Ideas such as: There will be large amounts of immigration/attracts large amounts of migrants; United States offers lots of pulls/attractions to immigrants; E.g. employment, political freedom etc. (MAX 2); Relatively small amounts of emigration; Net migration is positive/more people come into the USA than leave; Immigrant communities may have high birth rates; Low death rates or reasons for low death rate/long life expectancy; 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as in many countries in Africa there are: high birth rates/more births; poor access to contraceptives/cannot afford contraceptives; lack of education about birth control; some religions are against contraception; little education about adverse impacts of large families; dependence on agriculture/children work on farms; high IMR/to ensure some children survive; traditional attitudes encourage large families/to carry on family name/polygamy; to look after parents when they are old; many women don't have careers/role of women is traditional; children work for money form early age; children collect water, wood, look after siblings; decreasing death rates; improving health care; longer life expectancy; setting up care structure for old (or examples) pension schemes being set; abortions not available; lack of government population policy; lack of education for women etc. 1 @ 1 mark or development	

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Question	Answer	Marks
1(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the problems caused by overpopulation. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe and explain the problems caused by overpopulation. (**Note: Max 5 if no named or inappropriate example**) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements which describe and explain the problems caused by overpopulation including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: • Employment • Food supply • Provision of health care • Provision of housing/shelter • Water supply • Sanitation • Provision of education etc. <u>Place specific reference is likely to consist of:</u> Named parts of the chosen country, Population data etc.	**7**

Question	Answer	Marks
2(a)(i)	Border of city and countryside/the edge of the city/green belt/outskirts of the city/boundary of the city/where the city ends/where the countryside starts/boundary of the city	**1**
2(a)(ii)	Difference X is likely to be: Older; Higher density; Terraced housing compared with detached/more flats and apartments; Lower cost; Less likely to have a garden/drive; Note: Needs to compare. Must state X or Y. 2 @ 1 mark	**2**

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Question	Answer	Marks
2(a)(iii)	Ideas such as: Grew outwards/grown into rural areas/towards Stittsville or Alta Vista; Grew to south/east/west or grew to south/east/west of river; Most growth from 1985 onwards; Infilling occurred in 1985; Some recent growth past green belt; 5km across by 1906 but 25 km across by 1985 (6× increase) Small amount of growth north of the river etc. 3 @ 1 mark	**3**
2(a)(iv)	Problems such as: Lack of open space/green land/playing fields/pressure on greenbelt land; Traffic problems/traffic congestion; Pressure on public transport/public transport is overcrowded; Pressure on education/schools; Pressure on healthcare/hospitals; Air pollution/noise/water pollution/visual pollution; Deforestation/destruction of vegetation; Impact on ecosystems/reduced biodiversity; Increased risk of flooding; Animals killed; Loss of habitat; Loss of farmland/reduced food production 4 @ 1 mark	**4**
2(b)(i)	Earnings – higher in Stittsville Housing – more detached/less terraced/less high rise in Stittsville Employment – more people employed/less unemployment in Stittsville; Note: Needs to compare. 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: Developments in transport/improvement in road network People can commute daily to work/increased car ownership; Rural urban fringe is quieter/less noisy/calmer/more peaceful/more peaceful; Less dangers from traffic/less traffic congestion; Rural urban fringe is safer/has less crime; So there are less risks when bringing up their families; Areas near centre are overcrowded/more spacious in rural urban fringe; lower cost land in rural urban fringe; less air pollution in rural urban fringe/fresh air; elderly move away from central areas when they retire; more space for housing; access to countryside for recreation or example/visual appeal; more modern housing/newer housing; larger housing; people working from home; 5 @ 1 mark or development	**5**
2(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the characteristics of the CBD <u>Level 2</u> (4–6 marks) Uses named example. Statements which describe and explain the characteristics of the CBD (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate which describe and explains the characteristics of the CBD with some place specific reference. <u>Content Guide:</u> Answers are likely to refer to ideas such as: Density of land use; Types of services; Order of services, Frequency of use, Sphere of influence, Order of services; Accessibility etc., <u>Place specific reference is likely to consist of:</u> Locational details, Specific details of the services, Named businesses etc.	**7**

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Question	Answer	Marks
3(a)(i)	Shaking of the ground caused by plate movement	**1**
3(a)(ii)	Buildings/flats/apartments damaged/collapse; Roads damaged/collapse/transport disrupted; 2 @ 1 mark	**2**
3(a)(iii)	It is on a plate boundary; Plates move alongside each other; conservative plate boundary/transform plate boundary (RESERVE MARK) Friction occurs/the plates get stuck; Pressure builds up; Pressure release/sudden jerk/friction released; Vibrations transmitted to surface etc. Note: MAX 2 if no reference to sideways movement 3 @ 1 mark	**3**
3(b)(i)	Ideas such as: Differences in magnitude/intensity/Richter Scale measure; Closeness to capital city/large areas of population/high population density; Depth of focus; aftershocks; on land or at sea/whether they will cause tsunamis; how well prepared people are/evacuation routes Note: no need to compare 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: Poorer quality of buildings/infrastructure; Not built using ‘earthquake proofing’; Examples of ‘earthquake proofing’ (MAX 2); Not likely to have planned evacuation procedures/routes; And education re. precautions/about earthquakes; Such as drills; Poorer level of medical care; Lack finance to rebuild; Rescue teams will be poorly prepared/lack equipment/will have to wait for international aid; Poor quality roads for rescue; Inability to cope with after effects – e.g. lack of food, water etc. 4 @ 1 mark	**4**

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Question	Answer	Marks
3(b)(iii)	Ideas such as: Work in the area; Their children are being educated in the area; They have lived there for many years/they were born there; They do not want to leave friends and family; It would be too expensive to move; They would not be able to sell their houses; Population pressure/there is nowhere else to go; They don't happen very often; People are prepared to take the risk; They have faith in precautions; They are unaware of the risk 5 @ 1 mark or development	**5**
3(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain the causes of a volcanic eruption. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain the causes of a volcanic eruption. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: Convection currents Plate boundary Relative movement of plates subduction destruction/melting of crust pressure build up etc. <u>Place specific reference is likely to consist of:</u> Locational details, named plates specific details of eruption etc.	**7**

Question	Answer	Marks
4(a)(i)	Thermometers	**1**

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Question	Answer	Marks
4(a)(ii)	Maximum and minimum temperature; (Relative) humidity 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as it is: made of wood; painted white; on legs/stilts/1.25 metres above ground level; had louvres/vents/air can pass through/openings; double insulated; has a door; has a roof; 3 @ 1 mark	**3**
4(a)(iv)	Issues such as: Shelter from trees/vegetation/in the open; Proximity of buildings; Slope of land; Surface material/concrete or grass; Security etc. Note: No need to compare 4 @ 1 mark	**4**
4(b)(i)	Ideas such as the cloud in Figure 4.3: thicker; lower; completely covers sky but 4.4 only partial/more cloud cover; more likely to bring rain; 4.3 is cumulonimbus/strato-cumulus/stratus but 4.4 is cirrus; Darker/grey rather than white Note: Must compare 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: Near Equator air is rising at deserts it is descending at the desert/there is more convectional rainfall at the Equator; Low pressure at Equator/higher pressure at deserts; Large amounts of evaporation at Equator/less at deserts; Large amounts of transpiration at Equator/less at deserts; Deserts are more distant from water bodies; Winds to deserts are more likely to have blown over large areas of land etc. Note: Needs to compare but MAX 3 if no comparison. If the answer does not compare, assume Equatorial. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe impacts of deforestation on the global natural environment. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe impacts of deforestation on the global natural environment (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements, including specific details. <u>Content Guide:</u> Answers are likely to refer to: Impact on patterns of rainfall/drought; Impact on global temperatures/global warming Reduction in oxygen Increase in carbon dioxide levels Greenhouse effect Melting of ice sheets, Rising sea levels; Destruction of environments in polar areas or other parts of the world; Extinction of species in other parts of the world <u>Place specific reference is likely to consist of:</u> Named places affected, named species, specific details of impacts etc.	**7**

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Question	Answer	Marks
5(a)(i)	Circle on Fig.5.1	**1**
5(a)(ii)	There is a positive relationship/say what the relationship is; However, it is not perfect/they are anomalies/weak/not a straight line 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: (With a higher GNP) more money can be spent on education/can afford to send children to school/more schools built/more teachers/more adult education; Education is compulsory in most countries with high GNP; So skills are learned/people become more qualified; People are more productive/can earn more money; Farming becomes less important so children can attend school; Better healthcare so children can attend school; Less time spent collecting wood and water so children can attend school; 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: (The percentage of working population in each sector) can be compared with other countries; (The change in percentage of working population in each sector) can be compared over time; Primary sector is smaller as a country becomes more developed; Secondary sector grows as country becomes developed; Secondary sector decreases as it becomes even more developed; Tertiary sector grows as a country becomes more developed; Quaternary sector grows when countries have very high GNP etc. 4 @ 1 mark	**4**
5(b)(i)	Ideas such: Variations are relatively small/goes between 0.806–0.889; Areas with the high HDI are La Pampa, Cordoba, Santa Cruz and Tierra del Fuego or centre or south; Areas with the low HDI are Formosa. Santiago del Estero and Chaco, Misiones or north or border of Paraguay; Areas with moderate HDI are in the west/Chile border/coastal areas or other valid description (not named states) Note: Accept valid statistics as an alternative to highest and lowest area. 3 @ 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	Ideas such as: Some areas have more natural resources; E.g. oil, coal etc.; Soil fertility varies within the country; Climate variations result in variation in food production; some areas are more accessible than others; Coastal or inland location E.g. ports are likely to develop as a result of overseas trade; Core area will develop more than periphery due to greater investment; Area close to capital city/cities/urban area will develop more; (Migration will result in) overpopulation in some areas thus poverty; Flat land; Variations in healthcare and education; Civil war/conflict; Natural disasters; Industry and TNCs; More employment opportunities; Tourism; Government policy/corruption Note: Accept points that focus on variation between countries. 5 @ 1 mark or development	

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Question	Answer	Marks
5(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe a transnational company and/or its global links. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe a transnational company and/or its global links. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements which describe a transnational company and its global links, including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: Products produced/services offered Sources of raw materials Where production occurs markets transport of raw materials/products 'home' country/base etc. <u>Place specific reference is likely to consist of:</u> Locational details/named areas/countries Statistics etc.	**7**

Question	Answer	Marks
6(a)(i)	An industry/factory where components/materials are put together	**1**
6(a)(ii)	Ideas such as: There are relatively few workers/job not done by people; There is machinery/assembly line/robots etc. 2 @ 1 mark	**2**
6(a)(iii)	Input = things/what is needed for production to take place Processes = things which are done to convert raw materials to products Output = finished products Note: not individual examples – look for definition 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(i)	Ideas such as: Motorway access/road/main road/highway; Road/Motorway junction; Rail access; Housing nearby will provide workforce; Flat land; Sufficient space/room for expansion; Local market; Separate from housing (needs a reason) 3 @ 1 mark	**3**
6(b)(ii)	Reasons could include reference to: Lack of space/need to expand; Cost of land; Government incentives/disincentives or examples; Consideration of areas where labour is cheaper/in LEDC; Growth of new markets/closer to bigger market Move away from competitors; To reduce transport costs; Move to be close to suppliers/natural resources/other branches of company; Near to a port and airport; Complaints from residents about noise; Agglomeration 4 @ 1 mark	**4**
6(b)(iii)	Ideas such as: Smoke/emissions of gases/air pollution; Water/river pollution loss of/damage to natural vegetation/deforestation; birds/insects/animals killed /poisoned; extinction of species; impact on ecosystems/food chains; noise scares wildlife; habitat loss; acid rain industrial waste 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe methods used to supply energy. Level 2 (4–6 marks) Uses named example. More developed statements which describe methods used to supply energy. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Methods are likely to include: Fossil fuels (specified types of) Renewable energy (specified types of) Nuclear power etc. Place specific reference is likely to consist of: Locational details; Names of places/species within chosen country Specific details of methods	**7**

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GEOGRAPHY **0460/12**

Paper 1 **May/June 2018**

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Question	Answer	Marks
1(a)(i)	Many/large numbers/lots of people live in a small area/per square kilometre/in relation to size of area;	**1**
1(a)(ii)	1166 (million) Divided by 30.22 (million) 1 mark = 38.58 (per sq. km) 1 mark	**2**
1(a)(iii)	Ideas such as : It is uneven; Areas of highest density are on west (coast)/small part of W.Africa/in Nile Valley/north east; Areas which are sparsely populated are in north/south west/Sahara/Kalahari Deserts; Areas which are moderately populated are the remainder/most of the continent/around the equator/much of centre and south/east/northern coast; 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: Areas of low/flat land are densely populated/attract lots of people to live there/are easy/difficult to build on (or other reason)/high land is sparsely populated; Areas where amounts of rainfall are low/deserts/arid areas/high rainfall are sparsely populated/attract few people to live there; Areas with extremely low temperatures/Arctic are sparsely populated/temperate areas attract lots of people; Areas with dense vegetation/rainforests have few people living there; Rivers/water sources/aquifers attract people/swampy attract few people; Fertile soils attract/infertile are sparsely populated; Note: Looking for natural factors 4 @ 1 mark	**4**
1(b)(i)	Ideas such as Male has: Buildings which are closer together; More high rise buildings/buildings with more storeys/larger buildings; Less areas of vegetation/open space/buildings in Male and open space in Maamendhoo etc. Note: Must be comparative 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as: Lack of/pressure on resources; Lack of employment/work; Poverty; Pressure on/lack of food supply/high food prices/less land for agriculture; Pressure on/lack of health care/hospitals; Poor access to housing/shelter/overcrowded housing/high price of housing; Lack of water supply; Inadequate sanitation; Pressure on education services; Traffic congestion/a lot of traffic; Atmospheric pollution/water pollution/noise pollution; Pressure on electricity/energy/fuel supplies; Waste disposal; Lack of open space/greenery; 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain the causes of migration from a country. e.g. better paid jobs/example of job =L1 Level 2 (4–6 marks) Uses named example. More developed statements which explain the causes of migration from a country. e.g. better paid jobs and so can afford to send children to school Note: Can accept valid statistics as 1× L2 for this question (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Country chosen can be any a country which migrants move from. Note: Named country must be where they move from Answers are likely to refer to pushes or pulls such as: • Lack of employment • Poverty • Poor food supply • Poor provision of health care • Lack of water supply • Natural disasters • Wars/conflict • Persecution • Poor provision of education • Crime • Border controls Etc. Note: Accept pushes and pulls but do not double credit. Place specific reference is likely to consist of: Named parts of the chosen country of origin, statistical data etc.	**7**

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Question	Answer	Marks
2(a)(i)	Some people are rich whilst others are poor/there are variations in wealth/standards of living/opportunities/appropriate examples e.g. housing or cars;	**1**
2(a)(ii)	Ideas such as: Air pollution could make breathing difficult/causes asthma; Noise pollution could make it hard for people to concentrate/sleep/cause stress/headaches; Water pollution could cause water borne disease/cholera; Visual pollution could stop people selling homes/spoiling views; etc. Note: Both the type of pollution and the problem for people must be stated. 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: Population growth in cities/migration to cities/many people live there/high population density; Road network was not designed for large numbers of cars/roads are too narrow/not enough roads; Growth in car ownership/many people use cars; Many people commute/travel to centre at same time of day/rush hour/many workplaces centrally located; Inadequate public transport/cycle lanes/other examples; Roadworks/accidents; Many HGVs/delivery vehicles; 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Lack of housing stock/not enough houses; Migration (to cities); Many people live in squatter settlements/build own houses; People cannot afford housing/poverty/lack of employment/housing or land expensive; Lack of building space; Old housing stock/in need of renovation/not maintained by landlords; etc. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Housing demolished/less houses; Housing built; School built; Industry built; Roads blocked off/road closures; Adventure playground built; Car parks created; More open space; Etc. Note: Do not need before and after here. 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	People may have lived in houses for many years; People have to move out; Some people do not want change/new people cause problems; Loss of community spirit; More traffic/traffic congestion; Danger for children going to nearby schools; More noise pollution from industry/schools; Air pollution from industries; Visual pollution from e.g. new buildings; New housing could be too expensive; Loss of jobs/change in employment; People feel land should have been used for something else or give example; Etc. Note: Accept problems as much as conflict. 5 @ 1 mark or development	**5**
2(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain the causes of internal migration. e.g. higher paid job=L1 <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain the causes of internal migration. Note: Can accept valid statistics as 1× L2 for this question (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to pushes or pulls such as: • Employment • Food supply • Provision of health care • Water supply • Natural disasters • Wars/conflict • Persecution • Provision of education etc. <u>Place specific reference is likely to consist of:</u> Named parts of the chosen country, statistical data etc.	**7**

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Question	Answer	Marks
3(a)(i)	17 km	**1**
3(a)(ii)	Cliff; Wave cut platform; 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: Alternating hard and soft rocks/discordant coastline; Hard rocks are more resistant to erosion/soft rocks are less resistant to erosion; Hard rocks form headlands/soft rocks form bay etc. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as: Bays are sheltered ; Refraction of waves may occur; Shallow water (friction caused by); Constructive waves/low energy waves; Deposition occurs/sediment builds up; 4 @ 1 mark	**4**
3(b)(i)	A = Sea wall B = Revetment C = Groyne 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: It/they reduce the power of the waves; Sea walls strengthen the cliffs Sea walls deflect waves; Gabions absorb wave energy; Gabions stabilise cliff; Revetments cause waves to break/stop waves breaking on beach; Erosion on revetment rather than on cliff; Groynes prevent removal of beach material/trap beach material; Groynes prevent longshore drift; Note: Not just a description of the methods but how they actually protect the coast. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the conditions required for the development of coral reefs. Level 2 (4–6 marks) More developed statements which describe the conditions required for the development of coral reefs. Level 3 (7 marks) Note: 4 × L2 or 3 × L2 plus 1 × L1. Does not need place specific detail. Comprehensive and accurate description of the conditions required for the development of coral reefs, including relevant statistical detail. Content Guide: Ideas such as: Warm water; Water temperatures between 18–32 °C ; Shallow water; Not more than 50/60 metres deep; Clean/clear water; Free from sediment/diesel fumes/not polluted; Plentiful supply of oxygen in water; Plentiful supply of nutrients Such as plankton; Calm water; No strong currents/waves; PH is alkaline/basic; PH/8 or above ; Salty water; 35 g salt per1000 g water;	**7**

Question	Answer	Marks
4(a)(i)	1050 mm	**1**
4(a)(ii)	Temperature range of 17 °C = C Annual average of 3 °C = B 2 @ 1 mark	**2**

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Question	Answer	Marks
4(a)(iii)	Graph D = 1 mark (reserved) Reasons such as: High temperatures/above 20 °C/around 27or 28 °C; Low temperature range/same all year round; High rainfall; Rainfall all year round/above 140 mm per month; No seasons etc. Note: Wrong letter/no letter = no marks for answer. 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: On/near Equator/low latitude ; Overhead sun/high insolation/high angle of/direct sun; Rising air/convection/convectional rainfall; Low pressure; Large amounts of/more evaporation; Large amounts of/more transpiration etc. 4 @ 1 mark	**4**
4(b)(i)	Ideas such as : Sawmills; Roads; Cattle grazing/ranching/slaughterhouse; Settlements/towns/villages; Hydro electric dam 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as protection of the rainforest will: Prevent extinction of species/death of animals/people; Prevents loss of habitat; Conserve ecosystems/maintain biodiversity; Ensure that food chains are not broken; Prevent flooding; Prevent soil erosion/infertile soil; Prevent desertification; Ensure locals keep producing food/ensures more food for locals; Ensure locals have building materials/homes/do not have to move to cities/rely on it to survive; Enable locals to continue hunter-gatherer lifestyles; Not destroy valuable medicines/undiscovered species; Prevent introduction of Western diseases; Tourism retained; Note: Reserve one mark on natural environment/people Accept value of protection and also problems caused by not protecting. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe impacts of deforestation on the global natural environment and/or people who live in other parts of the world. Level 2 (4–6 marks) More developed statements which describe impacts of deforestation on the global natural environment and/or people who live in other parts of the world. Note: Can accept valid statistics as 1× L2 for this question Level 3 (7 marks) Comprehensive and accurate statements, which describe impacts of deforestation on the global natural environment and people who live in other parts of the world, including reference to places. Content Guide: Answers are likely to refer to: Impact on patterns of rainfall/drought; Impact on global temperatures/global warming; Reduction in oxygen; Increase in carbon dioxide levels; Greenhouse effect; Melting of ice sheets; Rising sea levels; Destruction of environments in polar areas; Extinction of species in other parts of world e.g. polar bears; Loss of medicines; Changing patterns of crops; Spread of pests e.g. mosquitoes etc.	**7**

Question	Answer	Marks
5(a)(i)	Best fit line on Fig.5.1	**1**
5(a)(ii)	There is a positive relationship/as one increases the other increases/use four figures to illustrate; However it is not perfect/anomalies/use figures to illustrate anomalies; 2 @ 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Ideas such as: (With a higher GDP) more money can be spent on education/can afford to send children to school; Education is compulsory in most countries with high GNP; So skills are learned/people more qualified Earn more money/People become more productive; As a country develops farming becomes less important so children can attend school; As a country develops there is better access to health services so children can attend school; Note: Accept reverse ideas 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: It is a composite index/combines different indicators; Life expectancy at birth; Expected/mean years of schooling; GDP/GNI; An overall score is calculated between 0 and 1; The higher the score the more developed they are; Etc. 4 @ 1 mark	**4**
5(b)(i)	Ideas such: More (energy is used) in North America; More variation in Africa; Much of Africa is below 0.6/1 **and** North America is over 3/3.4 **or** 5/6 times more in North America; Etc. 3 @ 1 mark	**3**
5(b)(ii)	Less/more people live there/varying population size; Some countries have more energy resources; e.g. oil, coal etc.; Some countries/people can't afford energy/can't afford to develop energy supplies; Lack of technology; Energy/electricity supply is available throughout the country; Using more electronic devices/home appliances; Some countries are more industrialized/have more factories; Eg manufacturing industry is likely to use large amounts of energy; Some countries use more transport/have more cars; Eg car ownership is higher in MEDCs/more delivery by HGVs; Some countries use more energy travelling by plane/for leisure travel; Specified reference to impact of climate e.g. impact of air conditioning; etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the importance of different types of energy sources. Eg oil=L1, coal=L1 etc. Level 2 (4–6 marks) Uses named example. Statements which describe and explain the importance of different types of energy sources. E.g. wind is renewable=L2; solar energy is cheaper in the long run; Note: Do not accept statistics as a L2 for this question, as it does not explain the importance and so is not a L2 statement. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe and explain using place specific references such as statistics. Note: Max. 2 × L2s for each energy source. Do not double credit explanations eg renewable. Content Guide: Methods are likely to include: Fossil fuels Renewable energy Nuclear power etc. Place specific reference is likely to consist of: Locational details; Names of places within chosen country	**7**

Question	Answer	Marks
6(a)(i)	The business of providing services such as transport, places to stay, or entertainment/making money from… people who are on holiday/visitors;	**1**
6(a)(ii)	Physical attraction = lake/wild animals (or example)/Crocodile Creek; Human attraction = rock paintings/lodges/restaurant/yacht club/campsite/hotel/cabin/Lion & Cheetah Park/Rhino Drive/Impala Drive; 2 @ 1 mark	**2**

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Question	Answer	Marks
6(a)(iii)	Ideas such as: Buildings have been built/examples e.g. restaurants/yacht clubs/hotels; Vegetation has been cleared; Fences erected; Roads/drives/tracks/bridges built Etc. 3 @ 1 mark	**3**
6(b)(i)	To protect wildlife from dogs; To stop animals being killed by traffic; To prevent the landscape/vegetation/wildlife from being destroyed by off-road vehicles; To prevent poachers from killing wildlife/protect wildlife from being shot; To prevent litter; To prevent animals being scared; 3 @ 1 mark	**3**
6(b)(ii)	Ideas such as: Jobs/employment/example of/earn money from; Income for local businesses/restaurants/farmers/shops/sales of products; Taxes/money/forex used to improve hospitals/schools etc Development of electricity supply/water supply; Improvement of transport network/roads; Cultural exchange/learn about other cultures; Increased price of land for landowners; Etc. 4 @ 1 mark	**4**
6(b)(iii)	Ideas such as: Loss of farmland; Loss of homes/living space/land more expensive/cannot afford to live there; Inflation/increase in prices; Seasonal employment; Low wages/exploitation of workers; Noise; Litter; Traffic congestion/lot of traffic; Air pollution leads to breathing difficulties; Sea pollution so fishermen cannot fish; Visual pollution spoils view; Vandalism/graffiti; Dilution of culture/Westernised/cultural insensitivity; Drunken/disrespectful/rude behaviour/racism of tourists; Lack of privacy/personal space; Can’t access private tourist areas; Less water supply for locals; Etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe methods used to supply water. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe methods used to supply water. Note: Do not accept statistics as a L2 for this question, as it does not describe the methods used and so is not a L2 statement. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Methods are likely to include: Reservoirs; Extraction from aquifer; Rivers; Wells; Desalination; Pipes; Tankers; Importing water/buying water; Water treatment plants; etc. Note: Is water supply not saving water <u>Place specific reference is likely to consist of:</u> Locational details; Names of places/species within chosen country Specific details of methods	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/13**

Paper 1 **May/June 2018**

MARK SCHEME

Maximum Mark: 75

Published

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	The total population at which GDP (per head) is at its high/highest level.	**1**
1(a)(ii)	Under-population = too few people (population) for the available resources/the number of resources is greater than the number of people Over-population = too many people (population) for the available resources/the number of people is greater than resources	**2**
1(a)(iii)	Ideas such as: High population growth/high population increase; High birth rates or reason for high birth rates/a lot of children born; Low or decreasing death rates or reason for decreasing death rate/long life expectancy; Large amount of immigration/high positive net migration; Few resources/resources become exhausted/increased demand for resources etc. 3 @ 1 mark	**3**
1(a)(iv)	Problems such as: lack of work/unemployment; poverty; pressure on health care; pressure on education services; lack of housing/growth of shanty towns/house prices rise; famine/lack of food/food prices rise; traffic congestion; lack of clean water/water shortage; shortage of electricity/fuel; deforestation; loss of habitat; soil infertility/soil exhaustion; air/water pollution; pressure on sanitation; 1 @ 1 mark	**4**
1(b)(i)	Ideas such as: Easier visas (for skilled immigrants); Lower taxation (to attracts immigrants); Give more benefits or incentives for larger families/people who have children/pronatalist policy etc. Note: Must be from Figure 1.3 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as: Many people could be living there/high population density/many people have moved there; There could be limited amounts of habitable land/large areas of land could be of little use; E.g. deserts/mountains; Few resources might be available/there are not lots of resources available; Such as coal/oil/minerals/fertile land etc.; High level of technology in the country (allows economy to develop) without much labour/capital intensive production; So all resources can be easily exploited be few people; 5 @ 1 mark or development	**5**
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the problems caused by a large percentage of dependent population. Level 2 (4–6 marks) Uses named example. More developed statements which describe the problems caused by a large percentage of dependent population (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to • High dependency ratios • Strain of supporting dependents • Increasing need for provision of health care • High cost of provision of services/goods for elderly • High cost of provision of schools/nurseries/goods for young • Pressure on government revenues • Need to pay pensions/child allowances • Difficulty of obtaining workforce • Defence of country is difficult etc. Place specific reference is likely to consist of: Named parts of the chosen country, statistical data etc. Note: Max 1 × L2 for using statistics for development. Development is of the description.	**7**

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Question	Answer	Marks
2(a)(i)	population shift from rural to urban areas/increasing proportion (or percentage) of population living in urban areas or towns and cities	**1**
2(a)(ii)	Africa; Over 75% 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: Unevenly distributed/clustered; Mainly northern hemisphere/more in the northern hemisphere/more north of the Equator; (Mainly) LEDCs/less developed countries/LICs/poor countries; Most in Asia/a lot in Asia; Mainly coastal etc. 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Large amounts of inward migration (from countryside)/lots of people moving in; People seeking employment/higher wages/industrial development; Education; Health care; Bright lights/entertainment; Follow family and friends; Electricity; Water supply; Or trying to escape drought/natural disaster; Persecution/war/civil war; High birth rates/high natural increase or valid reason for; Falling death rates or valid reason for etc. Credit pulls and/or pushes but no double credit. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: X is higher than Y X is on steeper land/Y is on flatter land; Y is closer to river/lake/water/sea; Y is closer to mosque/church etc. Note: The answer must compare and candidates need to state X or Y 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: Possible flooding from the river (in Y); Difficult access due to steep slopes (for X); Risk of landslides; Poor quality building materials/flimsy/easily destroyed by storms; Lack of electricity; Lack of (clean) water supplies/polluted water; Overcrowding/lots of people live in small areas/lack of privacy; Lack of open space; Crime levels high/muggings/burglaries/lack of security/drugs/gangs; Unmade/poor quality roads/difficult access; Disease spreads easily/water borne disease or example/sickness; Lack of a sewage system/poor sanitation/lack of hygiene; Risk of fire; Can be moved on/have no rights to the land; Inadequate waste disposal/vermin 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe what has been done to reduce the negative impacts of urbanisation. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe what has been done to reduce the negative impacts of urbanisation. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to pushes or pulls such as: • Self-help schemes • Building of low cost houses • Site and services schemes • Improvement of infrastructure or examples • Creation of employment • Reduce urbanisation by investing in the countryside • Better security measures • Provision of education/hospitals • Creation of jobs for people with low skills/or examples etc. <u>Place specific reference is likely to consist of:</u> Named parts of the chosen city, Locational detail statistical data details of schemes etc. Could be LEDC or MEDC focus.	**7**

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Question	Answer	Marks
3(a)(i)	An area of land drained by a river (and its tributaries)	**1**
3(a)(ii)	P = Infiltration Q = Groundwater flow/base flow 2 @ 1 mark	**2**
3(a)(iii)	A Ideas such as: Amounts of precipitation/rainfall will vary; Temperature will vary/evaporation; Amount/density of vegetation will vary/transpiration; In some seasons, there is snow melt. 3 @ 1 mark	**3**
	B Ideas such as **variation within** drainage basin of: Angle of slope; Rock type; Thickness/type of soil; Vegetation cover; Precipitation will vary; Land use will vary; 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: River in 3.2 is steeper; Valley sides in 3.2 are steeper; River in 3.2 has a more irregular long profile/3.2 has rapids/waterfall or and 3.3 does not; 3.3 has interlocking spurs but 3.2 does not; 3.3 has a more sinuous/winding course; 3.3 is wider/has flatter floor; 3.2 is more turbulent/has more white water Note: It is steeper (without reference to river or valley) is one mark overall for first two m/s lines. The answer needs to compare. Assume candidates are writing about 3.2 unless stated. 3 @ 1 mark	**3**
3(b)(ii)	Methods such as: Traction; Large boulders moved/rolled along the bed (dev); Saltation; Stones bounces along the river bed (dev); Suspension; Light materials carried within the water (dev); Solution; Material dissolved in the (dev); 4 @ 1 mark or development Note: Mark from either the name of the process or the description. Candidates must correctly identify the link to get the development mark (i.e. two marks for one process)	**5**

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Question	Answer	Marks
3(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain how an oxbow lake is formed. <u>Level 2</u> (4–6 marks) More developed statements which explain how an oxbow lake is formed. <u>Level 3</u> (7 marks) Comprehensive and accurate which explain how an oxbow lake is formed, including an accurate diagram or series of diagrams. <u>Content Guide:</u> Ideas such as: • Faster flow on outer bends • Erosion on outer bends • Neck of meander narrows/meander becomes more pronounced • Cuts through neck in time of flood; • Former meander sealed by deposition	**7**

Question	Answer	Marks
4(a)(i)	Y	**1**
4(a)(ii)	Rainfall: Desert is drier/has less rainfall; Temperature: Desert has larger (annual) temperature range; Desert has larger diurnal temperature range; Note: The answer needs to compare. Accept valid statistics. 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: The equatorial climate/desert is hot because the sun is overhead/high in the sky/at low latitudes The equatorial climate does not have seasons because the sun is overhead at all times/the desert has seasons because of the lower angle of the sun at different times of the year; Rainfall is high in equatorial regions due to low pressure/rainfall is low in desert regions due to high pressure; As the air is rising in equatorial regions/the air is falling in deserts; Note: Does not need to compare. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(a)(iv)	Ideas such as: Deserts are inland/a long way from the sea; So winds are dry by the time they reach them/winds have lost moisture; Influenced by trade winds; From north east in northern hemisphere/south east in southern hemisphere; And blow over large areas of land before reaching them/blow from land to sea/winds blow out from the deserts etc.; 4 @ 1 mark	**4**
4(b)(i)	Ideas such as: Sparse/not much vegetation/scattered; Low level/short/not tall; Bushes/small trees/shrubs; Fleshy leaves/thick leaves/succulents; Spines/thorns/thin leaves/spikes 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: (Long roots) reach to water table/underground rocks; (Wide root systems/widely spaced) to collect water from a larger area; (Fleshy stems) store water; (Thorns/spikes) prevent evaporation; (Thorns/spikes) protects from predators; (Seeds lie dormant) and germinate in times of rainfall; (Light colours) to reflect the sunlight; (waxy leaves) to prevent water loss; (Low lying) to protect against winds; 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why deforestation has taken place. Level 2 (4–6 marks) More developed statements which detail which explain why deforestation has taken place. (MAX 5 if no or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements, including reference to places. Content Guide: Answers are likely to refer to: Economic development Commercial agriculture Ranching Shifting cultivation Logging Mining Hydro-electric power generation Road building Settlement Increasing population etc. Note: Not a country. Borneo is OK or example where majority of country is rainforest. Statistics are not appropriate for development.	**7**

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Question	Answer	Marks
5(a)(i)	Grazing	**1**
5(a)(ii)	A = River/irrigation/sufficient rainfall/enough rainfall/250 mm of rainfall/a lot of rainfall B = Irrigation/close to river Note: no double credit for river 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: Farmers have to fight in army/reduced labour force/farmers killed; Crops destroyed/animals killed/farmland damaged; Unsafe to farm due to bombing/mines; Government investment in farming reduced due to war effort/spend all the money on the army/divert food for the army Unable to transport food;/unable to import food Market/shops destroyed; Increased food prices; People unable to work so cannot afford food; 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Lack of investment in agriculture (by government); Poor distribution network/poor road system; Many farmers produce cash crops/crops for export rather than food for people who live there; Aid is poorly distributed; People cannot afford food due to unemployment/currency devaluation; Unstable/corrupt government; Cannot afford to import food; High cost of inputs for farming or examples; 4 @ 1 mark	**4**
5(b)(i)	Ideas such: Crops/rice/land is cultivated/padi fields; Terraced land/in small steps; Bunds/embankments around field; Soil waterlogged/standing water in fields/flooded fields; Small fields/divided into many fields 3 @ 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	Ideas such as: fertilisers; natural manure; crop rotation; herbicides pesticides/insecticides; mechanisation; land reform; high yielding varieties keep fish in padi fields 5 @ 1 mark or development	**5**
5(c)	Levels marking <u>Level 1</u> (1–3 marks) Simple statements which describe/explain the land use of farm or agricultural system. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain land use of farm or agricultural system. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, which describe and explain land use of farm or agricultural system including some place specific reference. <u>Content Guide:</u> Description should refer to types of crops and/or livestock Explanation should refer to: Climate Relief Soil Access Demand Proximity of markets etc. <u>Place specific reference is likely to consist of:</u> Locational details; Specific details of sources of inputs/outputs	**7**

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Question	Answer	Marks
6(a)(i)	Coal/oil/(natural) gas/lignite/peat	**1**
6(a)(ii)	Ideas such as: Melting/shrinking/retreating glaciers (or example)/less glaciers; Arctic sea ice has thinned/the area of it has reduced; Sea level has risen/more water in the sea; Less ice on Mt Kilimanjaro 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Gives off greenhouse gases/carbon dioxide; Which build up in atmosphere/makes a blanket; Heat/sun's rays can pass through; Heat cannot escape/traps heat; (enhanced) greenhouse effect; So temperatures/global warming increases 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as: Threat to wildlife/extinction of species/reduced biodiversity/animals die; Impacts on food chains/destruction of ecosystems; Habitat loss; Flooding of coastal lowlands/areas/islands/cities; Loss of cultivable land/farmland/settlement/people are displaced; Increasing cost of coastal protection; Soils become swampy/saline; Less freshwater supply from glaciers/in mountainous areas; Loss of income from tourism on glaciers/in mountainous areas; 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: (General) reduction/decrease/it has declined; Especially reduction/decrease since 1960s/1970s/below average in 1970s/1980s; Fluctuation; (stated not implied) Increase/above average 1920s/1930s/1940s/1950s Note: Not a single year or anomalies 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Ideas such as: Cultivation in marginal areas; Over cultivation; Less humus to bind the soil; Leaves areas unprotected/subject to soil erosion/removal by wind; Deforestation/excessive fuel wood collection; Removes protective vegetation cover from the soil/less roots to bind soil; Overgrazing/trampling of cattle; Causes deterioration of pasture; Removal/extraction of water (from underground)/for industry/for agriculture Leads to death of vegetation; Use of manure as fuel 5 @ 1 mark or development	5
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe methods used to manage environmental risks of chosen economic activity. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe methods used to manage environmental risks of chosen economic activity. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Methods will vary depending on the economic activity chosen but are likely to include: Legislation National Parks Nature Reserves Specific measures e.g. fencing etc. <u>Place specific reference is likely to consist of:</u> Locational details; Names of places/species within chosen area Specific details of methods	7

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GEOGRAPHY **0460/21**

Paper 2 **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

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Question	Answer	Marks
1(a)(i)	state/country/district road,	**1**
1(a)(ii)	hotel/lodging,	**1**
1(a)(iii)	1200 (metres),	**1**
1(a)(iv)	648509 = 2, 648508 = 1	**2**
1(b)(i)	north west to south east,	**1**
1(b)(ii)	8400 metres,	**1**
1(c)(i)	1000 m–1050 m, summit between 75 and 85 mm from left,	**2**
1(c)(ii)	Voldalen between 45 and 60 mm from left,	**1**
1(c)(iii)	Midtvola between 70 and 87 mm from left, In each part of (b) use the ruler device to measure the answers. Arrows should end within about 1 cm of the profile. Measure to the point that the arrow projects to. There should be no ambiguity. Allow labels by names or question numbers.	**1**
1(d)	upland/mountains/high, steep slopes, heights 1200–1560 metres, many/small/narrow/V-shaped valleys, (max 2) spurs/ridges, several summits/peaks, at least 3	**3**
1(e)(i)	in low(er) land/avoids high(er)/avoids over 1000 m, in valley(s), in NE/N/E, NW and SE don't spoil response. cultivation within forest, cultivation on valley floor, cultivation lower/forest higher, (comparison) cultivation on gentle(r), forest on steep(er),	**3**
1(e)(ii)	follow valleys, keep low(er)/avoid high(er)/avoid over 800 m, on gentle(r)/flat qualified /avoids steep(er), on valley floor, on eastern side of valley, on steep land in south,	**3**

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Question	Answer	Marks
2(a)	the north is more densely populated than the south, the west is more densely populated than the east, the coastline of the Caspian Sea is more densely populated, For every tick more than 3 deduct one mark.	**3**
2(b)	Kuwait, Saudi Arabia,	**1**
2(c)	wetter areas more dense/drier areas less dense/positive correlation, areas with less than 100 mm sparse, (development) areas with over 400 mm dense, (development) For the two development points don't allow comparatives such as less dense, fewer people.	**2**
2(d)	high areas more densely populated/low areas less dense/positive correlation, no strong relationship, over 2000 m more dense, (development) sparsely populated lowland/along Persian Gulf/in centre, (development) densely populated lowlands/0–200 m around Caspian Sea/in north, (exception)	**2**

Question	Answer	Marks
3(a)(i)	A–B, (or F–E),	**2**
3(a)(ii)	higher on outside of bend/lower on inside of bend, higher where deepest/lower where shallow, higher below surface/lower at surface, lower on bed/banks/higher away from bed/banks, centre of the deepest part = 2 as alternative to the last two lines.	**2**
3(a)(iii)	correctly placed arrow, Outside of bend within 5 mm of line, between surface and deepest point.	**1**
3(b)(i)	potholes,	**1**
3(b)(ii)	flood plain,	**1**
3(b)(iii)	levees,	**1**

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Question	Answer	Marks
4(a)	cliff, collapsed area/slumped area/landslide, red/brown, boulders/rocks/blocks fallen/at bottom, cracks/joints/bedding planes, beach, gently sloping,	**5**
4(b)	erosion at base/undercutting, collapse, repeated process, cliff retreat, houses destroyed/at risk,	**3**

Question	Answer	Marks
5(a)	Kilosa,	**1**
5(b)	correct plot and shading of 7 litres for Lushoto,	**1**
5(c)	higher milk yields, in all four villages, much/several times higher in Kilosa/Handeni, make more money,	**2**
5(d)(i)	sells more milk than Mvomero and Kilosa but not Handeni/2nd highest sales, has most improved breed cattle/fewer local breeds, only one with more improved breeds than local breeds, feeds more crop remains/fodder crops, highest yield from local breeds,	**2**
5(d)(ii)	has large number of local breed cattle, (but not largest) sells least milk, gets lowest yield from improved breeds, uses little crop remains/fodder crops,	**2**

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Question	Answer	Marks
6(a)	dispersed, nucleated,	**2**
6(b)	low(er) ground/avoids high(er)/in valley/bottom of mountain, gentle slope/flat qualified (flat = 0)/avoids steep, away from/higher than lake/river/sea, away from rocky ground, in woodland/trees, in farmland/fields,	**4**
6(c)	tourism/holidays, mountain/lake scenery, tourism/tours, boats, farming, fields, mining/quarrying, In each case must have first point to score the second. spoil heaps, tourism, snow on mountains, fishing, boats/lake/river/sea, forestry, trees/woodland	**2**

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GEOGRAPHY **0460/22**

Paper 2 **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	state/country/county/district/E6 (road).	**1**
1(a)(ii)	(unmarked) footpath.	**1**
1(a)(iii)	lake/Bosen, Allow dam, reservoir, Bosen river and max/min lake elevation. Other lake names spoil.	**1**
1(a)(iv)	833 (metres).	**1**
1(a)(v)	391 354 = 2, 391 355 = 1.	**2**
1(b)(i)	summit height 1000–1100 m, summit 45–55 mm from left hand margin.	**2**
1(b)(ii)	railway 83–91 mm from left hand margin.	**1**
1(b)(iii)	footpath 98–104 mm from left hand margin, In each part of (b) use the ruler device to measure the answers. Arrows should end within about 1cm of the profile. Measure to the point that the arrow projects to. There should be no ambiguity. Allow labels by names or question numbers.	**1**
1(c)	gentle(r) slope/flat qualified, low(er)/below 400–500 m, sunny/SW facing slope, in valley, sheltered by mountains, state/country/county/district/main/E6 road(s)/railway, junction of valleys/routes/roads, river for water/transport, bridge point, forest for fuel/building material, industrial area/industry, quarry, tourism/any two of hotel/lodging, information, skiing, ‘sight’, fishing, swimming/paths for hiking/campsite/shooting.	**4**

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Question	Answer	Marks
1(d)	Credit the following comparisons between north and south. <u>Roads</u> overall: N more roads/S fewer roads/N more density/S less dense, state/country/county/district/main/public roads: in north but (almost) <u>none</u> in the south, private roads: in both N and S, private roads: more in south/fewer in N (= 2), variety of roads: more types in N/fewer types in S, E – W roads: in both N and S, bends: more in N/fewer in S, gradient of roads: N steeper/S gentler, gradient of roads: follow slope/keep level in both N and S. <u>Settlement</u> amount of settlement: N more/S less, allow population, (built up/buildings = 0) houses/cabin/shanty/farm/boatshed: in both N and S, (more houses in N = 1) pattern: both dispersed, east and west: N more in west/S more in east, hotel/lodging: in S and not in N. <u>Land use</u> cultivation: more in N/less in S,) If neither point given, allow 'N mainly forest: more in S/less in N,) cultivation <u>and</u> S mainly forest' = 1 nature conservation/reserve: in both N and S, <u>Relief</u> gradient: both steep, (within N and S gentle spoils but gentler does not) altitude: N higher/S lower/N 900–940 <u>m</u> S 860–880 <u>m</u>, Reserve 1 mark for each.	**6**

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Question	Answer	Marks
2(a)(i)	Correct plot of 0.36 billion in 2100, At the 9th subdivisions up from the base. Ignore position and shading.	**1**
2(a)(ii)	China.	**1**
2(a)(iii)	0.14 (billion.)	**1**
2(a)(iv)	2016 China and 2100 India.	**1**
2(b)	Nigeria, high(est) birth rate,	**2**
2(c)(i)	no – countries lose through migration/only USA will gain through migration, no – countries have negative migration, no – migration figures low/much lower than growth, no – countries with negative migration increase their populations, Don't allow if for a single country.	**1**
2(c)(ii)	death rate, infant mortality rate, life expectancy, natural population change,	**1**

Question	Answer	Marks
3(a)	CBD/shopping centre = 1 Also allow commercial, city centre, zone 1, inner city, inner zone, transition zone/twilight zone. tall buildings/high rise/multi-storey/skyscrapers, high density buildings, some lower/not very high, traffic congestion/much traffic/many parked cars, many pedestrians, glass fronts/windows, many/ground floor shops, offices, adverts/billboards, petrol station, building site, telecommunications, = 4.	**5**
3(b)	large area, Allow open space/space for expansion flat/gentle land, many roads, wide/main roads/motorway/highway, street lights, many other firms in the area (agglomeration), similar buildings may mean sites provided in advance, market/labour from urban area/nearby (in background), away from residential therefore less noise/air pollution/traffic, etc.	**3**

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Question	Answer	Marks
4(a)(i)	X focus, Y epicentre.	**2**
4(a)(ii)	fault, fracture/break, displacement/movement/slipped, build up/release of pressure/tension/stress/energy,	**1**
4(b)(i)	people in bed/at home/asleep (therefore affected by building collapse), darkness (therefore rescue difficult).	**1**
4(b)(ii)	mud-bricks weak (therefore easily destroyed), allow a variety of expressions for 'weak.'	**1**
4(c)	more than 2000 years ago, before 3CE/AD,	**1**
4(d)(i)	line drawn between the 5 and 6 values.	**1**
4(d)(ii)	plaster fell from walls, damage slight, Building points from intensity 8 and 9 spoil. Non-building points, points from intensity 5 and 'walls crack' don't spoil.	**1**

Question	Answer	Marks
5(a)(i)	wind vane/weather vane.	**1**
5(a)(ii)	Six's/maximum-minimum thermometer(s).	**1**
5(a)(iii)	hygrometer/wet and dry (bulb) thermometer(s)/psychrometer.	**1**
5(b)	west, (allow north west.)	**1**
5(c)(i)	5 ºC.	**1**
5(c)(ii)	10 ºC.	**1**
5(c)(iii)	–5 ºC, In (c), if no units used deduct 1 mark in part **(i)**. Use of units once validates the rest. Allow a tolerance of ± 0.5 ºC in each part of **(c)**.	**1**
5(d)	no – the temperatures are not the same, no – temperatures would be the same if the air was saturated.	**1**

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Question	Answer	Marks
6(a)	coast/ports/lake for import/export, export market in surrounding countries/named surrounding country, raw materials local/within country, lakes for water supply, limestone therefore cement/steel, agricultural materials therefore food processing (or example.)	**3**
6(b)	competition from imported manufactured goods, needs to import oil, lacks mineral resources, large distances between places.	**1**
6(c)	port/coastal, allow near the sea receive (crude oil) imports, no further transport (of crude oil) needed.	**2**
6(d)(i)	20%.	**1**
6(d)(ii)	50%, Allow a tolerance of ± 2% in each part of **(d)**.	**1**

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GEOGRAPHY **0460/23**

Paper 2 **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	(unmarked) footpath,	**1**
1(a)(ii)	254,	**1**
1(a)(iii)	state (also allow country, country and district),	**1**
1(a)(iv)	dominant	**1**
1(a) (v)	industrial, (buildings don't spoil)	**1**
1(b)(i)	forest, (group of trees spoils but trees doesn't)	**1**
1(b)(ii)	private road 71–75 mm from left hand margin, (allow 41–44 mm)	**1**
1(b)(iii)	unmarked footpath 52–56 mm from left hand margin,	**1**
1(b)(iv)	Daltveitelva river 102–106 mm from left hand margin, Use the ruler device to measure the answers. Arrows should end within about 1 cm of the profile. Measure to the point that the arrow projects to. There should be no ambiguity. Allow labels by names or question numbers.	**1**
1(c)(i)	south east to north west,	**1**
1(c)(ii)	opposite direction to V shape of contours/V shape of contours points to higher ground, the heights of two contours crossing the river or one contour and the lake level 348 m, angle of the tributary/angle of a tributary in the S/SE,	**1**
1(d)	high/hill(s)/mountain(s)/upland, ridge/spur, 319 m, 340–360 m, steep, gentle(r)/flat qualified summit(s), steeper in SW/scarp in SW, valley(s), small stream/small river, flows towards south east, marsh, low drainage density/only one river, Reserve one mark for each part.	**5**
1(e)(i)	2200 to 2300,	**1**
1(e)(ii)	022114 = 2 023114 = 1	**2**
1(e)(iii)	44–48,	**1**

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Question	Answer	Marks
2(a)(i)	bar drawn to 165 000 and shaded,	**1**
2(a)(ii)	Morocco,	**1**
2(a)(iii)	730 000,	**1**
2(a)(iv)	698 000–700 000, Carry error from part **(iii)** forward. Subtract 30 000 to 32 000 from the answer to **(iii)**.	**1**
2(b)(i)	from a low(er) income country/to a high(er) income country, comparative data to illustrate difference in incomes between Ecuador/Colombia and Spain, E.g. 29 940 + 6040 or 7780, or 29 940 + 6910, or 29 940 + 6000–8000, or over 20 000 difference, etc. Units don't matter. common language/Spanish speaking,	**3**
2(b)(ii)	was not a member of the EU in 2001, member of EU in 2014 but not 2001, joined EU in 2007,	**1**

Question	Answer	Marks
3(a)	highest–Lelystad, middle–Emmeloord, middle–Dronten,	**3**
3(b)(i)	biggest settlement/Emmeloord in the middle/smaller ones on outer area, equally spaced, lower order settlements/villages within easy reach of Emmeloord, at road junctions,	**1**
3(b)(ii)	radial/radiating/focus on Emmeloord/Emmeloord route centre, circular/ring road/a square, spider's web/wheel,	**2**
3(c)	near(er) railway, near(er) airport, near(er) Lelystad's services/shops,	**1**
3(d)	more shops/services/goods, better shops/services/goods, cheaper goods/services/goods, work in Lelystad, higher order goods available, Accept other suggestions.	**1**

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Question	Answer	Marks
4(a)(i)	stack/island, arch, headland, cliff, stump, If written as formation extract relevant points.	**3**
4(a)(ii)	lines of weakness/joints/cracks,	**1**
4(b)(i)	yellow/gold/brown, sand, curved/crescent, long, gently sloping/flat qualified, footprints/uneven,	**2**
4(b)(ii)	**Either:** bay, sheltered/low energy environment/calm, Linked to bay, Fig. 4.2, or following on from wording of the question) **Or:** headland, exposed to waves/high energy environment – linked to headland or Fig. 4.1,	**2**

Question	Answer	Marks
5(a)	E, A, C, F, B,	**5**
5(b)(i)	at ridge/constructive plate margin/divergent plate margin/where magma rises,	**1**
5(b)(ii)	magma rises to surface/magma cools/magma solidifies/volcano erupts, (subduction spoils)	**1**
5(b)(iii)	dragged by convection current,	**1**

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Question	Answer	Marks
6(a)	headquarters/administration in Europe/an MEDC, very large organisation/lots of factories, (ignore location) factories in many/most countries/world-wide,	**2**
6(b)(i)	employment/income for <u>people</u>, raises standard of living/improved quality of life/or example e.g. health, housing, leads to setting up of more industry/multiplier effect, foreign exchange for the country, improves skills/education of workforce, improves technology in the country, (may lead to) infrastructure development/improvements/example of, may supply social facilities/schools/clinics/medical care for workers, people have access to the product/products for local market, may lead to development of mineral wealth/energy/commercial agriculture/company buys local raw materials, country becomes known/prestige, boosts economy/GDP/GNP/income of <u>country</u>, tax income,	**3**
6(b)(ii)	factory could close at any time, job/income lost, water/air/noise pollution/waste from factory/specified adverse environmental effect, loss of agricultural land, employs relatively few local people, usually low wages, poor workers' rights/or example, few local people occupy skilled roles, most of profits leave the country, mechanisation leads to fewer workers, effect on local culture,	**3**

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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	Check weather forecast / don't go into the sea / measure waves from a safe position / keep away from water / stay on beach / check sea conditions Check tide times before setting off / watch for incoming tide / have an escape route Work in groups or pairs / take a mobile phone or whistle / stay together / stay in a small area 3 @ 1	**3**
1(b)(i)	Destructive waves: Waves are closer together Breaking wave plunges down / crashes down onto beach Weak swash **and** strong backwash / stronger backwash / weaker swash Pulls sand and pebbles down beach / remove beach material Constructive waves: Waves are further apart Breaking wave spills forward / gently rolls up beach Strong swash **and** weak backwash / stronger swash / weaker backwash Push sand and pebbles up the beach / bring material to beach / drops material 1 mark reserve for destructive / constructive wave process	**4**
1(b)(ii)	Pick a rock on beach / person stands in sea / put pole in sea / put float in sea Count number of waves breaking / hitting pole in one minute / fixed period of time / specified time / count float going up and down in one minute Use watch / chronometer / stopwatch / timer **for** timing / time for one minute Repeat counting / do counting more than once **and** take average	**3**
1(c)(i)	13.7	**1**
1(c)(ii)	Plotting measurement 7 (13) on Bervie beach	**1**
1(d)(i)	Put rope on beach / create transect line from sea to top of beach / up beach Put poles at each break of slope (NOT equal distances) Measure distance between poles Ensure they are vertical / perpendicular Hold clinometer next to top / at agreed height on marker pole / eye level Sight other marker pole at top / agreed height / string connecting same point on each pole Use a clinometer to measure angle / read angle / degrees / slope Repeat **along** transect / different places **up** beach	**4**

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Question	Answer	Marks
1(d)(ii)	Hypothesis is **true** / **correct** – 1 mark reserve Destructive waves / high frequency at Bervie beach which has steeper profile / is steeper / is higher Bervie beach = average of 13.7 waves per minute (credit highest / range / all over 10 waves per min) and increases by / difference in height of 5–6 m St Cyrus beach = average of 7 waves per minute and increases / difference in height of 3–4 m	**4**
1(e)(i)	Method to decide where to put quadrat such as sampling / along a transect / throw over shoulder Count the number of squares with different types of beach material Estimate percentage of different types of material / convert number of squares into a percentage No credit for repeat measurements up the beach / along the profile	**2**
1(e)(ii)	Plot result of site 1 (St Cyrus beach) onto graph – (dot not cross) Sand = 88%, Shingle = 12%, Pebble = 0%	**1**
1(e)(iii)	Hypothesis is **true** / **correct** – 1 mark reserve Bervie beach has large(r) material / shingle / pebbles and steepe(r) profile 1 mark for paired data comparing two beaches, e.g. At site 1 Bervie beach 100% shingle and pebble and St Cyrus beach has 100% sand and shingle Credit any comparison of size of material between the two beaches. If stats are just for one site, then the site must be identified	**3**
1(f)	Classify types of pollution / decide types of pollution / observe types of pollution Create environmental index / bi-polar index / 1–5 scale Explanation of how index is used Decide on sampling method / random / systematic sampling Use quadrat / transect Count / tally litter / estimate area of oil / sewage coverage / weigh litter Do count at two / three sites Do count at end of day / in different seasons Photographs of types of pollution / polluted areas	**4**

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Question	Answer	Marks
2(a)(i)	Bank (not B)	**1**
2(a)(ii)	2, 8, 7 (not description) 3 @ 1	**3**
2(b)(i)	Subjective decision which shops are used by tourists or residents / students cannot agree decision Shops would be used by tourists and residents Need further research / impossible to know different types of customers / looking is not an efficient way to categorise	**2**
2(b)(ii)	Completion of pie graph: 13% local residents and 26% tourists and local residents 1 mark for plotting line accurately at 74% 1 mark for shading	**2**
2(b)(iii)	**Yes** / **agree** with conclusion – 1 mark reserve Over half / majority used by tourists / less than half used by local residents 61% / over half used by tourists **only** (56/92) 87% used by tourists and residents (80/92) 13% for local residents **only** (12/92)	**3**
2(c)(i)	Students only want to ask locals / questionnaire is for residents or local people / some people they approach will not be residents / don't want tourists to use questionnaire Not waste time Results will be unreliable / wrong info if tourists are included / results will be reliable if only ask residents Only residents can answer questions correctly / know effects of tourism	**2**
2(c)(ii)	Removes bias / is fair / equal chance of everyone being selected Removes selection by questioner – such as look friendly / similar age to questioner / cannot choose who to give questionnaire to Easy to generate from a number table, calculator, telephone directory – 1 mark reserve 2 @ 1	**2**
2(d)(i)	Bar graph completion: 50% buy products from locals in Fig. 2.4 65% jobs are seasonal in Fig. 2.5 2 @ 1	**2**

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Question	Answer	Marks
2(d)(ii)	Hypothesis is **false** / **incorrect** – 1 mark reserve Tourism creates more problems than benefits More **answers** on problems / more **types** or **examples** of problems (than benefits) Total problems (Q3) = 386 and total benefits (Q2) = 328 OR 58 more problems Problems = 6 types / examples, benefits = 5 types / examples Credit paired data to **2 marks** maximum No credit for individual benefits / problems	**4**
2(e)(i)	Increase in people / traffic on roads in tourist season / due to tourists / more tourist traffic Roads are narrow / high density / not built for large number of vehicles Many tourist coaches block narrow roads / tourists drive slowly / tourists don't know where they are going / tourists are looking for parking space Effect of congestion such as people are late for work / disturbed by noise / cannot breath / more accidents / people have to leave earlier	**2**
2(e)(ii)	Car parks **on edge of town** Park and ride / more buses / trains / better public transport Parking restrictions – e.g. no parking zones Resident permit scheme for parking on residential roads By-pass Restrictions of coaches – time or location / no entry zones One-way system of roads More traffic police / traffic lights / roundabouts Clear signposting (of attractions) More footpaths / pedestrian zones Cycle lanes / cycle hire 3 @ 1	**3**
2(f)	Identify different / seven methods of travel / count different types of vehicle Do survey six times in the day / list the six times from table / repeat at each time shown in table Start (and finish) at same time Each survey to last for 30 minutes Use tally method of counting / clicker Work in pairs / groups Organisation, e.g. more than one person does each count / one student counts each type of vehicle / one student counts one side and another student counts on the other side of road	**4**

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)</td><td>
<table>
<tr><th>Order</th><th>How often they are bought</th><th>Average price of goods</th><th>Distance people are willing to travel</th></tr>
<tr><td>High</td><td>Infrequently / not often / low / rarely</td><td>high / expensive / maximum</td><td>further / long / far / maximum / large</td></tr>
<tr><td>Medium</td><td>moderate frequency</td><td>moderate price</td><td>medium distance</td></tr>
<tr><td>Low</td><td>frequently / often / high</td><td>low / cheap / small</td><td>short / less / not far / close / small</td></tr>
</table>
Mark as vertical High / Low <u>pairs</u> i.e. 1 mark for How often; 1 mark for Price; 1 mark for Distance.
(3 × 1)</td><td>3</td></tr>
<tr><td>1(b)(i)</td><td>Construction of divided bar graph (Fig. 1.3).
1 mark for two dividing lines at 7 and 20 from left (1)
1 mark for third dividing line at 45 from left (1)
1 mark for shading in correct order from left (1)
(3 × 1)</td><td>3</td></tr>
<tr><td>1(b)(ii)</td><td>Yes / hypothesis is TRUE – <u>1 mark reserve</u>

<u>High order</u> – greater <u>numbers</u> in Central Ladprao Plaza (1) with 114:7 (1)
<u>Medium order</u> – greater <u>numbers</u> in Central Ladprao Plaza (1) with 173:13 (1)
<u>Low order</u> – greater <u>numbers</u> in Central Ladprao Plaza (1) with 88:25 (1).

Allow 2 max if make a general statement e.g. more high, medium, low order in CLP. Can accept refs to ‘only’ for statement mark;

Can compare <u>numbers</u> between orders in both centres;
e.g. Most / biggest number in CLP are middle order but largest in LV is low order (1) with 173 in CLP and 25 in LV (1)

Credit 1 mark MAX / RESERVE for paired data comparing the two shopping centres.</td><td>4</td></tr>
</table>

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Question	Answer	Marks
1(c)(i)	Ideas such as: Choose a variety of people / choose people of different age / gender / types / adults only (1) Decide on sample size / how long to ask people for (1) Don't ask people you know (1) Introduce yourself / explain purpose of survey (1) Have a system for choosing people such as every 10th person / random / have a sampling method (1) Accept if people don't want to answer / too busy / or fill it in / don't argue / be polite / thank them (1) Don't approach people in a big group / work in pairs or groups / don't work alone (1) Don't block pavements / doorways (1) Go to different parts of shopping area / don't all go to the same area (1) (3 × 1)	**3**
1(c)(ii)	Pie graph (Fig. 1.5) completion. One dividing line at 80% clockwise from 0% (1) 1st largest slice (35–80) shaded Near home; 2nd smaller slice (80–0) shaded Good value for money (1). MUST USE SHADING FROM KEY. (1 + 1)	**2**
1(c)(iii)	Hypothesis is **TRUE** – 1 mark reserve. Main / most top reason for shopping at each centre is different / top two reasons are different (1) 'Large variety' is top reason in Central Ladprao Plaza but 'near home' is top in La Villa (1) 'Near work 2nd reason in CLP but 'good value for money' 2nd reason in LV (1) Credit paired data to show difference to 1 mark MAX / RESERVE 'Large variety' is 35% in Central Ladprao Plaza but 'near home' 45% in La Villa (1). 'Near work' is 22% in CLP but 'good value for money' is 20% in LV (1) Credit grouped data for top two reasons e.g. 57% in CLP and 65% in LV (1)	**4**
1(d)(i)	Plot bar for 7 cars at La Villa on Fig. 1.6. (1).	**1**
1(d)(ii)	Allow any two differences in statements and / or data between centres. No need to compare as long as differences are stated. Differences such as: Car is most popular in Central Ladprao Plaza but monorail is most popular in La Villa (1) Underground train is popular in CLP but not used in LV (1) 0 / nobody uses monorail in CLP but 20 people use it in LV (1) (1 + 1)	**2**

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Question	Answer	Marks
1(d)(iii)	Ideas such as: Distance to travel / from home to shopping centre (1) How long to travel to shopping centre / which method is faster (1) Likely duration of visit / how long shoppers stay (1) What / how much they are buying (1) Availability of regular bus service / underground train / monorail / car park / pedestrian precinct / cycles (1) Cost of car parking (1) Weather conditions / weather forecast / likely to travel by car if raining (1) Cost of travel / do shoppers own a car / can shoppers afford car / car sharing / can shopper afford petrol or bus fare (1) Traffic congestion / amount of traffic (1) How much time they have to shop (1) Risk of crime / safer to drive / prefer privacy / independence (1) Time of day (1) (3 × 1)	**3**
1(e)(i)	*Area served by a town or service* (1).	**1**
1(e)(ii)	Must refer to use of the data obtained. Examples Put results of questions in tables (1) Locate two shopping centres on 1 or 2 maps (1) Locate districts of Bangkok on a map (1) Decide on a key for dividing numbers into groups (1) Choropleth shading to show number of people from each district (1) Plot lines on map to show distances to each district (1) Draw a line / frame around furthest distances to show sphere of influence (1) Calculate range / average distance (1) Work out maximum distance travelled (1) (4 × 1)	**4**

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Question	Answer	Marks
2(a)(i)	*learn how to work safely in the river* *practise fieldwork techniques* 1 mark each correct choice (Choices 3 and 4): (1+1)	**2**
2(b)(i)	Examples Measure 10 m distance along river / downstream / upstream (1) Put two survey poles on / in river bed / put poles in middle of bed (1) Poles must be vertical (1) Students hold ranging poles at either end of measured distance (1) Agree height on ranging pole / at or near top of poles (1) Lines up identified position (1) Use clinometer from agreed height on 1 pole to same height on other pole (1) Read off / measure / find the angle / degrees (1) NOT slope / gradient. Repeat several times and calculate average (1) 1 mark MAX / RESERVED for naming equipment if used correctly e.g. clinometer, ranging pole / poles / survey poles, tape measure. Credit appropriate labelled sketch if given. 1R + (4 × 1)	**5**
2(b)(ii)	Examples Remove the effect of any anomaly (1) Gives an average result (1) One result may be inaccurately measured / eliminates error (1) (2 × 1)	**2**
2(c)(i)	Site 1 (1).	**1**
2(c)(ii)	Straight line plot from 4 (above 0) to 0 (on 10) for site 3 (1). Line must go from 4 to 10 for credit.	**1**
2(c)(iii)	TWO POSSIBLE DECISIONS ACCEPTABLE Hypothesis is **FALSE / NOT TRUE** – 1 mark res. Evidence: Overall gradient is less steep or less at Site 5 than at Site 1 / downstream OR Site 1 is steepest (1) **NOT** refs to any 2 sites. At Site 5 gradient is 6° but at Site 1 it is 9° (1 RESERVED Data) **OR** Hypothesis is **PARTLY FALSE / PARTLY TRUE** – 1 mark reserved Evidence: Gradient is less steep downstream for first 3 sites BUT last 2 sites steeper than Site 3 / overall gradient less but anomaly at Site 3 (1) e.g. Site 1 9° falls to 4° at Site 3 BUT increases to 7° at Site 4 / 6° at Site 5. (1 RESERVED Data)	**3**

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Question	Answer	Marks
2(d)(i)	Examples Rocks selected may not be typical / representative of the rocks at that site / anomaly (1) All rocks may have been taken from same area of river bed / not across channel / taken from same place (1) Not a fair / reliable sample / students choose rock / bias (1) (1 + 1)	**2**
2(d)(ii)	Systematic (1)	**1**
2(d)(iii)	Plotting length of pebble and average length on Fig. 2.2. Length = 13.4 plot above Site 2 (1). Average length = a horizontal line at 7.2 above Site 2 (1) (1 + 1)	**2**
2(d)(iv)	**NOTE**: Decision is given as **PARTLY TRUE**; do not credit any decision by the candidate. Evidence Overall decrease in size / average size from site 1 to site 5 (1) Main anomaly to trend is site 3 which contains largest average size (1) 1 mark MAX. for paired average data from any two numbered sites e.g. Site 1 9.4 cm decreases in size to 6.8 cm at Site 5 (1) Anomaly at Site 3 which at 10.6 cm largest / larger than Site 1 at 9.4 cm (1) (3 × 1)	**3**
2(d)(v)	Examples Attrition OR pebbles crash into each other (1) Abrasion / corrasion OR hitting river bed / bank reduces size (1) Corrosion / solution OR water dissolves rocks (1) Smaller pebbles moved further downstream as lighter to transport (1) Smaller pebbles found downstream because longer in water (1) (3 × 1)	**3**
2(e)(i)	Hypotheses must be written as a statement or question and relate to characteristics of the river. NOTE: pebble size or gradient = 0 in **(i)** and **(ii)** If no response here (X NR) credit in **(ii)** to 2 max if method clearly relates to an appropriate hypothesis. Appropriate examples: *River velocity increases downstream* (1) *Does river velocity vary across the channel*? (1) *Channel width increases downstream (1)* *Does channel depth increase downstream?* (1) Inappropriate examples: *Temperature decreases downstream* *Does the river's salt content increase upstream*? *Pollution increases downstream*	**1**

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Question	Answer	Marks
2(e)(ii)	Will depend on Hypothesis chosen in **2(e)(i)**. IF inappropriate choice or not stated as a hypothesis 2 MAX for method. **Example 1 – method to measure channel width** One student / pole on each bank / side of river (1) Place measuring tape across channel / from one bank to the other (1) Keep tape taut / stretched (1) Poles must be directly across / at 90 degrees to banks (1) Repeat at different sites and calculate average width (1) Record measurement at each site (1) **Example 2 – method of measuring velocity using floats** Put poles / sticks 10 metres or fixed distance along river (1) Use tape measure to measure distance (1) Put float / orange in river at start of distance (1) Start stopwatch / timer when float released at start point (1) Measure time taken for float to travel between poles (1) Stop stopwatch / timer when float passes end point (1) Repeat at different points and calculate average speed (1) Record results from each site (1) **Example 3 – method of measuring velocity using flowmeter** Put meter / propeller / flowmeter below surface of water / into water (1) Propeller must face upstream (1) No obstacles in front of propeller (1) Read / look at digital reading / display to see speed (1) Take several / repeat readings and calculate average speed (1) Repeat at different points and calculate average speed (1) Record results from each site (1) (4 × 1)	**4**

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2018**

MARK SCHEME

Maximum Mark: 60

Published

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Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	To get comparable reading / for comparison / measurement is for 24 hours / consistent / not influenced by time of day / removes a variable	**1**
1(b)(i)	Gauge stood in ground (**not** on ground surface) / below ground level / underground Funnel catches rain / rain is collected in bottle Water poured (from bottle) into measuring cylinder Read water level in measuring cylinder / use the scale / measure the value in mm Empty water from measuring cylinder to set up for next day	**4**
1(b)(ii)	Away from trees to reduce interception by leaves Remote from people or animals which may interfere with the rain gauge 2 @ 1	**2**
1(c)(i)	Arrow rotates to point to the direction the wind **is coming from** N, E, S, W / compass points allow direction to be worked out	**2**
1(c)(ii)	On the roof / top of a building / top of a hill Wind is unobstructed/ gets full force of wind / prevent wind being blocked / no obstacle to block wind / no trees to shelter wind vane	**2**
1(d)(i)	Drawing two bars: 4th = 7 mm 27th = 4.4 mm 2 @ 1	**2**
1(d)(ii)	Hypothesis is **true** – 1 mark reserve Highest / higher / high rainfall totals when wind is blowing from south / south-east (accept wind in south / southerly wind / south wind / wind blows south, etc.) Lower / low rainfall totals when wind is blowing from other directions / named direction Note: higher rainfall when wind from the south than from the north = 2 marks 1 mark for data e.g. 29 / 30 mm when wind from south & 1 mm when wind from north Over 5 mm when winds from S / SE & less than 5 mm when winds from NW Data mark must compare S or SE with another direction (except NE)	**4**
1(d)(iii)	Winds in current year (Fig. 1.3) are from south / south west **and** from north / west / north west / north east in previous year (fig. 1.4) OR More days when wind is from the south / south west in current year OR More days when wind is from north in previous year (accept wind in south / southerly wind / south wind / wind blows south, etc.) 1 mark for paired data e.g. In current year 11 days from south and in previous year 5 days from south 2 @ 1	**2**

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Question	Answer	Marks
1(d)(iv)	Less / lower amount of rainfall in previous year OR More rain in current year OR Rain increases (from previous to current year)	**1**
1(e)(i)	Barometer	**1**
1(e)(ii)	Plotting two points on scatter graph: 987 mb & 10.0 mm 997 mb & 3.1 mm 2 @ 1	**2**
1(e)(iii)	Rainfall totals are lower when AP is higher / rainfall totals are higher when AP is lower / inverse relationship / negative relationship / weak relationship 1 mark for paired data e.g. AP = 976 rainfall = 23.5 mm & AP = 1012 rainfall = 3.5 mm AP = 980 rainfall = 29 mm & AP = 1003 rainfall = 0 mm	**2**
1(e)(iv)	AP is higher in previous year / greater range in AP in previous year / AP decreased from previous year to current year 1 mark for paired data e.g. 20 days under 1000 mb in current year and 1 day under 1000 mb in previous year OR 8 days over 1000 mb in current year and 27 days over 1000 mb in previous year OR Highest AP is 1012 in current year and 1040 in previous year OR Atmospheric pressure varies from 976 to 1012 in current year and from 997 to 1040 in previous year OR Difference / range of AP = 36 mb in current year & 43 in previous year	**2**
1(f)	Temperature highest when wind from south OR Temperatures higher / high when wind from south / south east / south west / west Temperatures lower / low when wind from north / north west / east (accept wind in south / southerly wind / south wind / wind blows south, etc.) Note: Temperature is higher when wind from south than when winds are from north = 2 marks 1 mark for paired data comparing wind directions and temperature, e.g., Temperature above 5° when wind from south and below 5° when wind from north Temperature is 9.2^{o} when wind from S & is 3.5^{o} when wind from north	**3**

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Question	Answer	Marks
2(a)	City / suburbs spread out / expand / grow Affects / changes surrounding or rural area / into rural area / into outskirts / takes over villages	**2**
2(b)	Digital pH meter gives a precise / accurate / specific reading / exact number Measuring clarity is by eye / more prone to discrepancy or human error / subjective / approximate / difficult to judge	**2**
2(c)(i)	Plot 5.8 at site 2 on Fig. 2.2	**1**
2(c)(ii)	Plot 35.0 at site 2 on Fig. 2.3	**1**
2(c)(iii)	Hypothesis is **false** – 1 mark reserve Less polluted / higher pH value / less acidic in site1 / site which has been built longest OR More polluted / lower pH value / more acidic in site 2 or 3 / site which is newer Clearer water / greatest depth of clear water in site 1 / site which has been built longest OR Less clear water / less depth of clear water in site 2 or 3 / site which is newer 1 mark maximum for paired data to compare sites e.g. (Average) pH = 6.1 at site 1 & 5.5 at site 3 (Average) depth of clear water = 38.3 cm at site 1 & 16.7 cm at site 3 Data must compare site 1 with either site 2 or site 3	**4**
2(c)(iv)	Older housing (site 1) has more efficient sewage disposal / lake is cleaned Vehicle pollutants (site 2) washed / fall into lake Building construction (site 3) results in dirty water / building waste entering lake	**2**
2(d)(i)	Scores are subjective / personal opinion Students live in different types of area / students from different backgrounds Looking at different parts of the site / different buildings to make judgement No pilot study to gain consistency 2 @ 1	**2**

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Question	Answer	Marks
2(d)(ii)	Suggestion: **Work** together / in pairs / individually and compare or average results Reason: Other students check scores /agree scores / discuss what score to give / makes results less subjective / biased / consistent Suggestion: One person in group scores the same feature in each area Reason: More consistent results Suggestion: Do surveys on same day / at same time / under same conditions Reason: Comparisons between areas are more consistent Suggestion: Spread students out / all over the site Reason: Record quality in all parts of the site Suggestion: Decide which buildings to look at Reason: Comparing the same thing 2 @ 2	**4**
2(d)(iii)	Plot general features results at site 2 on Fig. 2.6 Roads / pavements = 0 Road signs = –2 Lakes / streams = –1 Insects / wildlife = –1 4 correct = 2 marks 2 or 3 correct = 1 mark 1 correct = 0 (this would credit an NR response)	**2**
2(d)(iv)	Vandalism / graffiti (credit either)	**1**
2(d)(v)	Difference = 11	**1**
2(d)(vi)	Hypothesis is **true** / **correct** – 1 mark reserve Site 1 has highest EQ score OR EQ scores are lower in sites 2 / 3 OR At site 1 all EQ scores are positive and at site 2 / 3 there are negative scores Credit 2 marks for paired data comparing site 1 & another site e.g. Total EQ score = 27 for site 1 & –12 for site 3 / –7 for site 2 Buildings = 8 at site 1 & 5 at site 2 / 4 at site 3 Traffic = 4 × +2 at site 1 & 4 × –2 at site 2	**4**

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Question	Answer	Marks
2(e)	Vegetation has not been cleared / lot of vegetation Plenty of litter bins / notices to take litter home Little / no traffic in the area / roads are not busy / no roads Few people in the area / no one lives there / no human activity No pollution of lakes / streams Insects / wildlife are not disturbed / habitats are undisturbed No houses / offices / shops No credit for reference to buildings No credit for copying positive descriptions from Fig. 2.7	**4**

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Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5552194808

GEOGRAPHY **0460/11**

Paper 1 **May/June 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 2.1 for Question 2, Figs. 4.1, 4.2, 4.3 and 4.4 for Question 4, and Fig. 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about four countries in South America in 2015.

Country	Birth rate (per 1000)	Death rate (per 1000)	Net migration (per 1000)
Argentina	16.6	7.3	0.0
Brazil	14.5	6.6	–0.1
Chile	13.8	6.0	0.3
Peru	18.3	6.0	–2.5

(NB Net migration is the total number of immigrants minus the total number of emigrants.)

Fig. 1.1

(i) What is meant by *birth rate*?

.....

.....[1]

(ii) Using Fig. 1.1, put the four countries in rank order according to their natural population growth rate. You should rank the countries from highest to lowest.

Country	
.....	Highest natural population growth rate ↑
.....	↕
.....	↕
.....	Lowest natural population growth rate ↓

[2]

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(iii) Calculate the **overall** population increase of Peru.
You should show your calculations.

..... per 1000

[3]

(iv) Using the information in Fig. 1.1 **only**, suggest reasons why some countries in South America have a higher overall population increase than other countries.

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.....[4]

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(b) Study Fig. 1.2, which shows the eight countries with the largest predicted overall population growth rates by 2100.



Fig. 1.2

(i) Suggest why the USA (an MEDC) is expected to have one of the largest overall population growth rates in the world by 2100.

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(ii) Suggest reasons why the countries in Africa (LEDCs) such as those labelled in Fig. 1.2 are expected to have large population growth rates by 2100.

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(c) For a named country you have studied, describe and explain the problems caused by **over-population**.

Name of country .....

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2 **(a)** Study Fig. 2.1 (Insert), which shows the urban area and surrounding rural-urban fringe of Ottawa in Canada (an MEDC).

(i) What is meant by *rural-urban fringe*?

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.....[1]

(ii) Suggest **two** likely differences between the housing in areas **X** and **Y**.

1 .....

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2 .....

.....[2]

(iii) Using evidence from Fig. 2.1, describe how the urban area of Ottawa has grown in size since 1900.

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.....[3]

(iv) Suggest problems that are likely to have been caused by the growth of Ottawa's urban area.

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(b) Study Fig. 2.2, which shows information about the housing and population of two areas in Ottawa, Alta Vista and Stittsville (2015). These areas are shown on Fig. 2.1.

	Alta Vista	Stittsville
Detached housing (%)	38	76
Terraced housing (%)	18	16
Housing with more than 5 storeys (%)	33	0
Immigrants (%)	29	13
Graduates (%)	19	22
Unemployed (%)	8.1	5.7
Average income (Canadian dollars)	44 654	57 841

Fig. 2.2

(i) Describe **one** difference between the two areas under each of the following headings:

Average income .....

.....

Housing .....

.....

Employment .....

.....[3]

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(ii) Explain why many people are moving from areas close to the centre of cities in MEDCs to areas close to the rural-urban fringe.

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(c) For a named urban area you have studied, describe and explain the characteristics of the CBD.

Name of urban area .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1, which shows the impacts of an earthquake.

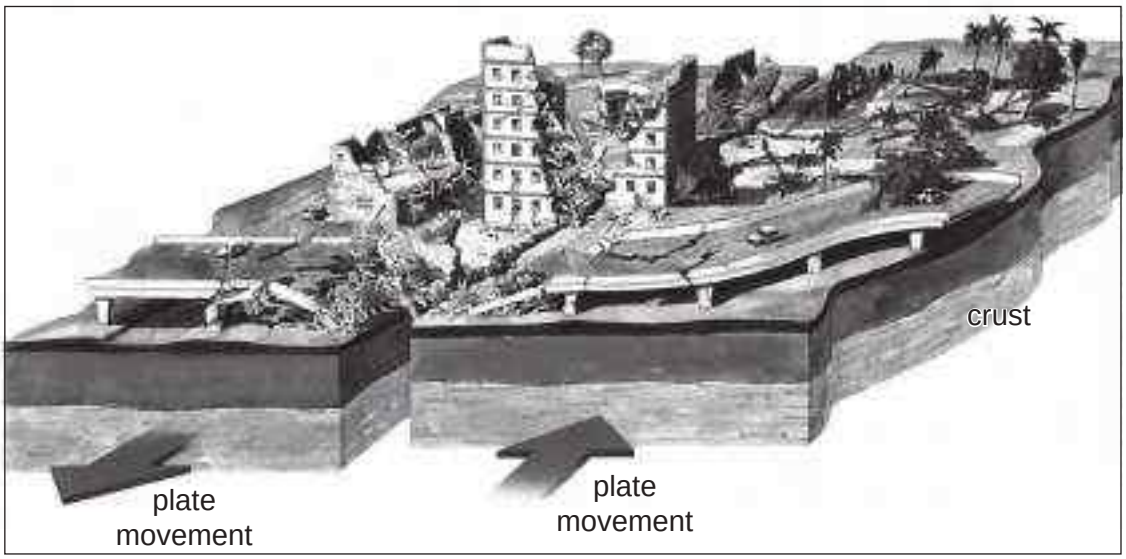

Fig. 3.1

(i) Tick (✓) the **one** statement in the table below which is the correct definition of an earthquake.

A crack in the earth's crust caused by a volcano	
A vent between two plates of the earth's crust through which molten magma escapes.	
Movement of large slabs of rock in the mantle	
The shaking of the ground caused by plate movement.	

[1]

(ii) Using Fig. 3.1 **only**, describe **two** impacts of an earthquake.

1 .....

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2 .....

.....[2]

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(iii) Explain why earthquakes occur in areas such as that shown in Fig. 3.1.

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.....[3]

(b) Study Fig. 3.2, which shows information about three earthquakes in 2015.

A magnitude 7.9 earthquake hit Nepal, about 80 kilometres north west of the country's capital city Kathmandu, killing hundreds of people. The focus was 15 kilometres deep. There were 13 aftershocks, with a magnitude ranging from 4.6 to 6.6 on the Richter Scale, which killed many more people.

A magnitude 5.5 earthquake struck Jianhe County, Guizhou province, in the south of China. The focus of the earthquake was 14.6 kilometres deep. Four people were injured and 3000 properties damaged.

A magnitude 8.2 earthquake occurred off the Pacific coast of Chile. Most people in nearby coastal areas were evacuated and escaped from the tsunami of over 2 metres in height, but five people lost their lives.

Fig. 3.2

(i) Using information from Fig. 3.2 **only**, state **three** reasons why some earthquakes cause more deaths and injuries than others.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Explain why earthquakes of the same intensity are likely to cause more deaths and injuries in LEDCs than in MEDCs.

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(iii) Explain why people live in areas which experience earthquakes.

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(c) Explain the causes of an eruption of a named **volcano**.

Name of volcano .....

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[Total: 25]

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4 **(a)** Study Fig. 4.1 (Insert), which is a photograph showing weather instruments inside a Stevenson screen.

(i) What type of weather instruments are shown in the Stevenson screen in Fig. 4.1? Tick your answer. (✓)

Barometers	
Rain gauges	
Sunshine recorders	
Thermometers	

[1]

(ii) State the **two** types of weather data which are measured by the instruments shown in Fig. 4.1.

1 .....

2 ..... [2]

(iii) Study Fig. 4.2 (Insert). Describe **three** characteristics of the Stevenson screen shown in Fig. 4.2.

1 .....

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2 .....

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3 .....

.....[3]

(iv) Explain why some sites are more suitable to locate a Stevenson screen than others.

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(b) Study Figs. 4.3 and 4.4 (Insert), which show different types of cloud.

(i) Describe **three** differences between the amount and type of cloud in Figs. 4.3 and 4.4.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Explain why there are usually more clouds in areas with an equatorial climate than in areas with a hot desert climate.

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(c) Describe the impacts of large-scale deforestation of tropical rainforests on the **global** natural environment.

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about the relationship between two indicators of development.

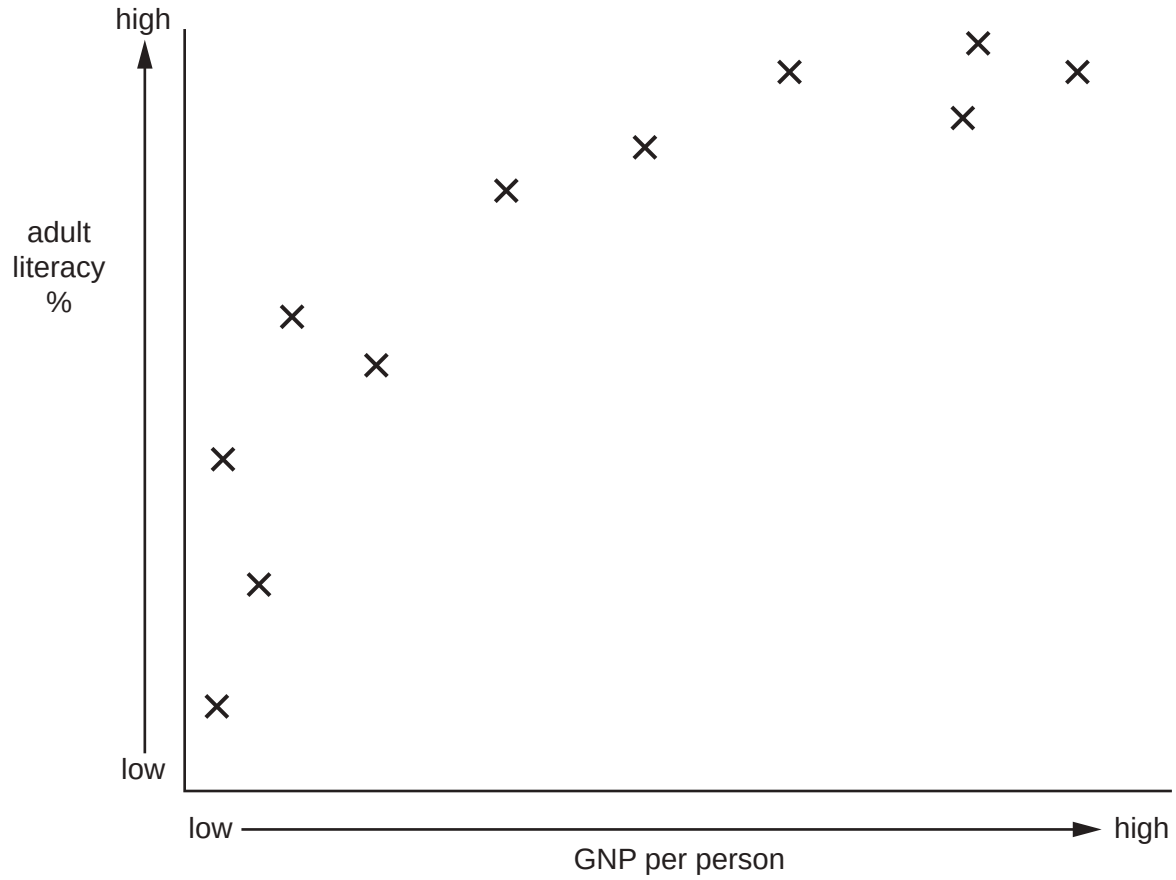

Fig. 5.1

(i) Draw a circle on Fig. 5.1 around the cross which has been plotted for the country with the lowest GNP per person and the lowest adult literacy. [1]

(ii) To what extent does Fig. 5.1 show that there is a relationship between GNP per person and adult literacy?

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.....[2]

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(iii) Explain why there is a relationship between GNP per person and adult literacy.

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.....[3]

(iv) Another indicator of development is employment structure.
Explain how employment structure can be used to assess the level of development of a country.

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(b) Study Fig. 5.2, which shows variation in the Human Development Index (HDI) in different parts of Argentina.

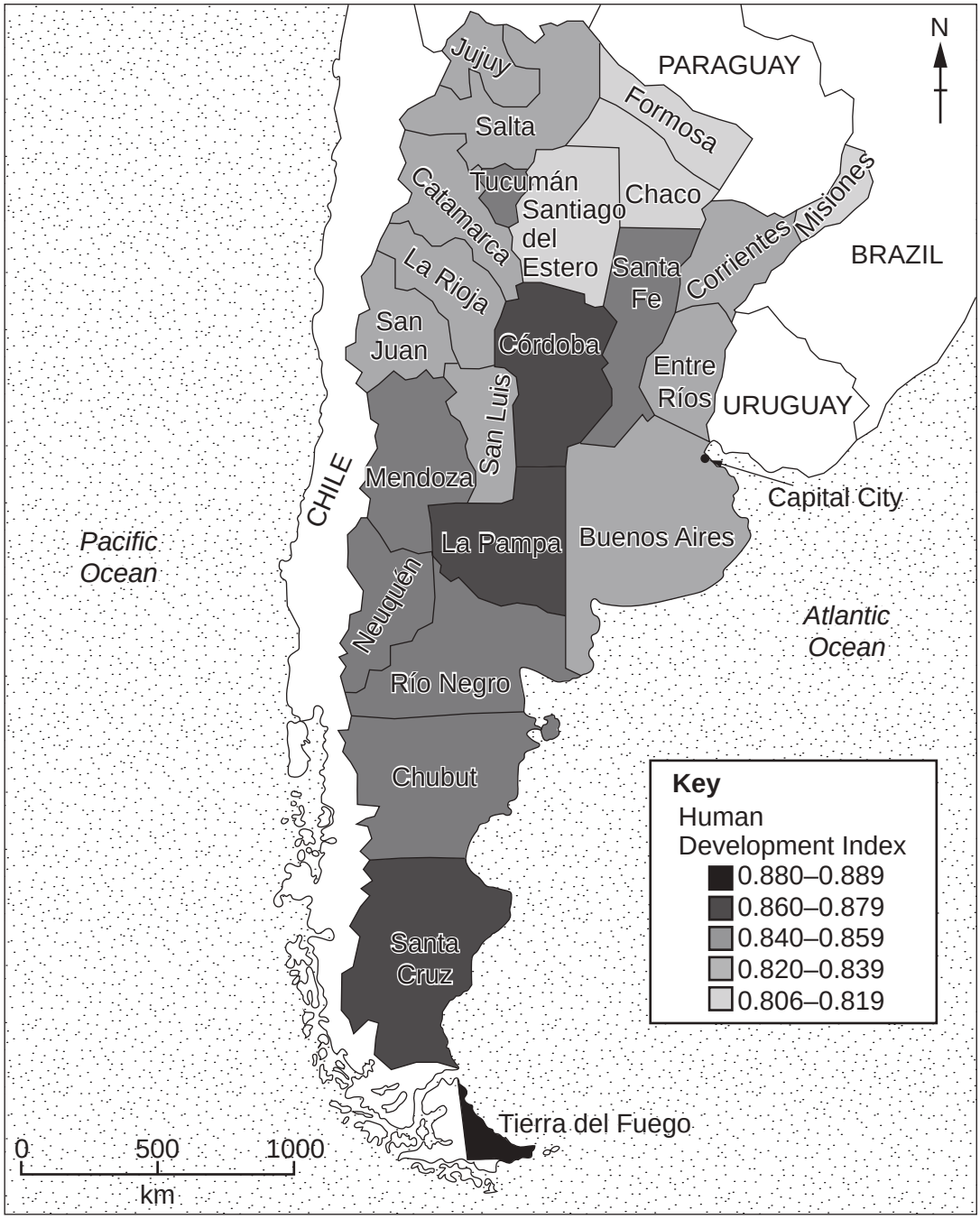

Fig. 5.2

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(i) Using Fig. 5.2 **only**, describe the variation in HDI within Argentina.

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.....[3]

(ii) Explain why there are inequalities in development **within** countries.

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[Turn over

(c) Describe a named transnational corporation (TNC) you have studied and its global links.

Name of transnational corporation (TNC) .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1, which shows some of the stages involved in assembling cars.

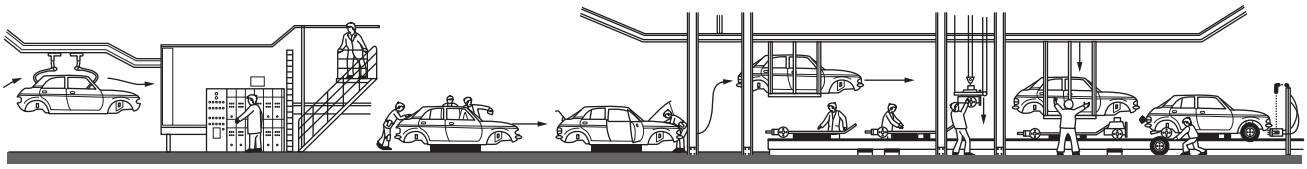

Fig. 6.1

(i) What is meant by an *assembly* industry?

.....

.....[1]

(ii) Using Fig. 6.1 **only**, give **two** pieces of evidence that car assembly is highly mechanised.

1 .....

.....

2 .....

.....[2]

(iii) Car assembly is an industrial system with inputs, processes and outputs.
Define the following terms.

Inputs .....

.....

Processes .....

.....

Outputs .....

.....[3]

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(b) Study Fig. 6.2 (Insert), which shows an area of industry in Staffordshire in the UK.

(i) Using evidence from Fig. 6.2, describe **three** advantages of the area shown for the location of manufacturing industry.

1 .....

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2 .....

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3 .....

.....[3]

(ii) The owner of the factory marked **X** in Fig. 6.2 is considering moving the industry to a different location. Suggest reasons for this.

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.....[4]

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(iii) Suggest how the manufacturing industries shown in Fig. 6.2 might cause problems for the local natural environment.

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(c) For a named country you have studied, describe the methods used to supply energy.

Name of country .....

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2660755211

GEOGRAPHY **0460/12**

Paper 1 **May/June 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Figs. 1.1, 1.2 and 1.3 for Question 1, Fig. 4.2 for Question 4, and Figs. 6.1 and 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **29** printed pages, **3** blank pages and **1** Insert.

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CAMBRIDGE International Examinations

[Turn over

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1 (Insert), which shows information about population density.

(i) What is meant by *densely populated*?

.....

.....[1]

(ii) The continent of Africa had a population of 1166 million in 2015. The land area is 30.22 million square kilometres.

Calculate the population density of Africa.
You should show your calculations in the box below. Give your answer to 2 decimal places.

..... per sq km

[2]

(iii) Describe the distribution of population in Africa.

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.....[3]

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(iv) Explain how different physical factors influence population density.

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.....[4]

(b) Study Figs. 1.2 and 1.3 (Insert), which are photographs showing areas of two different islands in the Maldives.

Fig. 1.2 shows the island of Male.
Fig. 1.3 shows the island of Maamendhoo.

(i) Give **three** pieces of evidence from Figs. 1.2 and 1.3 which suggest that Male is more densely populated than Maamendhoo.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Some densely populated areas may become overpopulated. Suggest likely problems which may be faced by people living in Male if it became overpopulated.

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(c) For a named country you have studied, explain why people migrate **from** it **to** other countries.

Name of country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1, which shows information about urban problems.

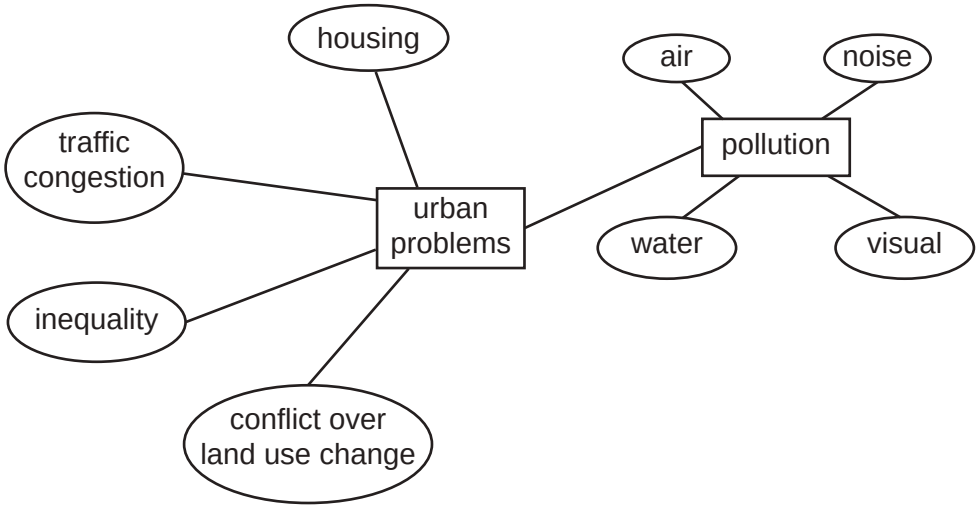

Fig. 2.1

(i) In all cities there are *inequalities*. What does this mean?

.....

.....[1]

(ii) Identify **two** types of pollution from Fig. 2.1, and for each describe a problem which it may cause for people living in urban areas.

1 .....

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2 .....

.....[2]

(iii) Explain why many urban areas experience the problem of traffic congestion.

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.....[3]

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(iv) Explain why many people who live in urban areas live in poor quality housing.

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(b) Study Figs. 2.2 and 2.3, which are maps which show information about land use change in part of the inner city of Nottingham, in the UK.

Before redevelopment

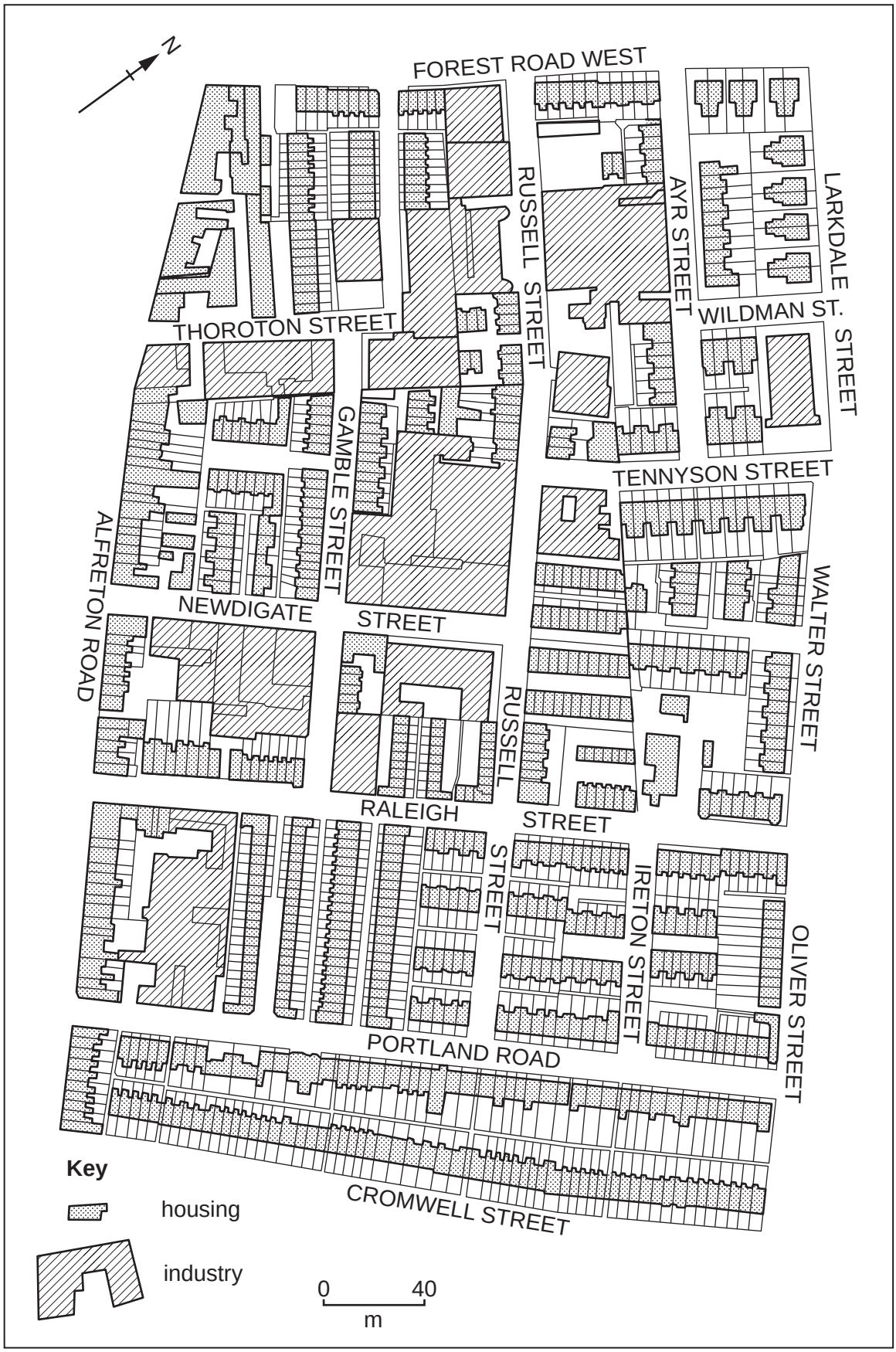

Fig. 2.2

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After redevelopment

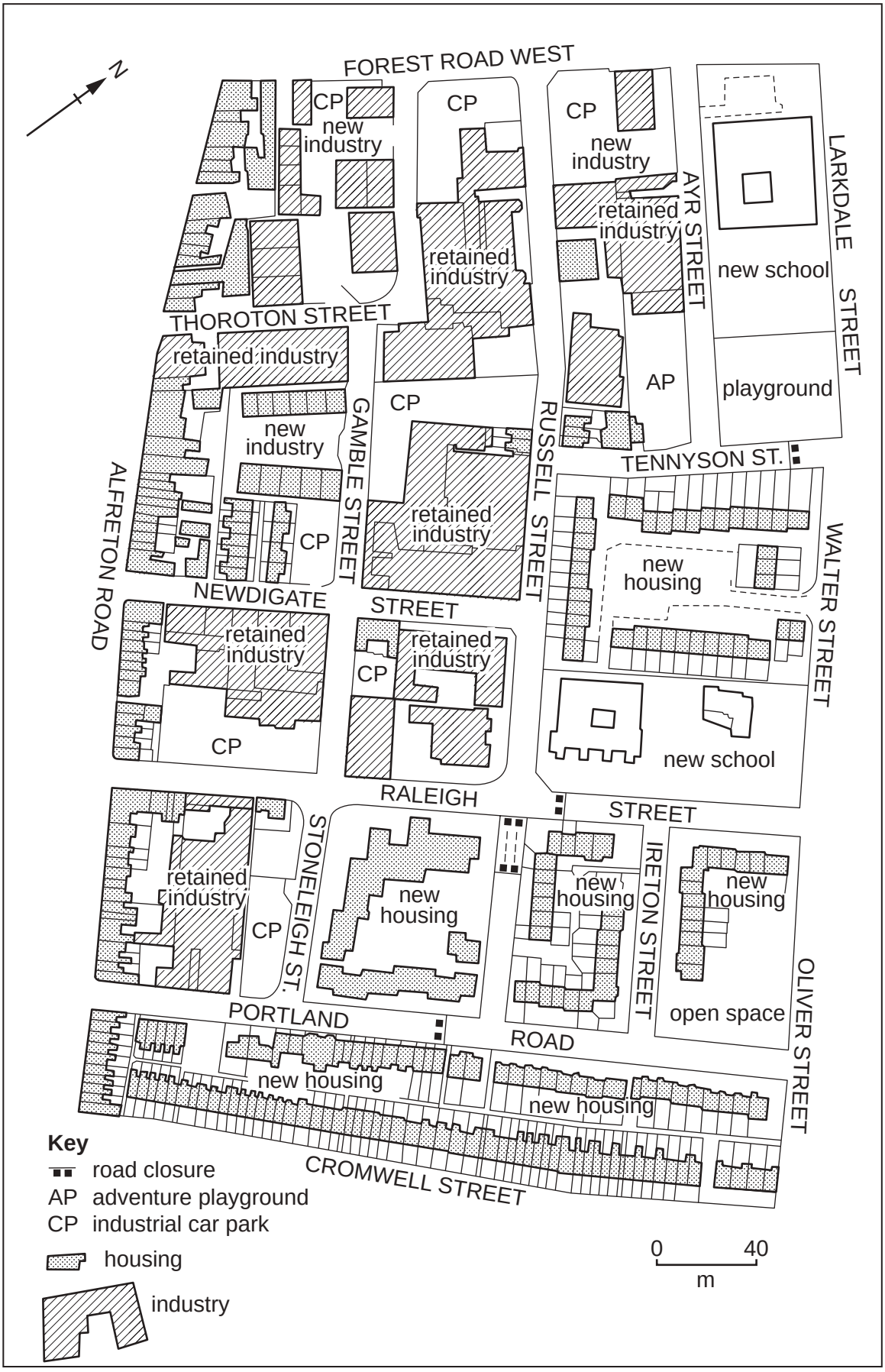

Fig. 2.3

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[Turn over

(i) Using evidence from Figs. 2.2 and 2.3 **only**, describe **three** changes which took place in the land use in the area shown.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Suggest why these land use changes are likely to cause conflict.

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(c) For a named country you have studied, explain why **internal** migration takes place from rural areas to rapidly growing urban areas.

Name of country .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1, which shows an area of coast in the north east of Spain.

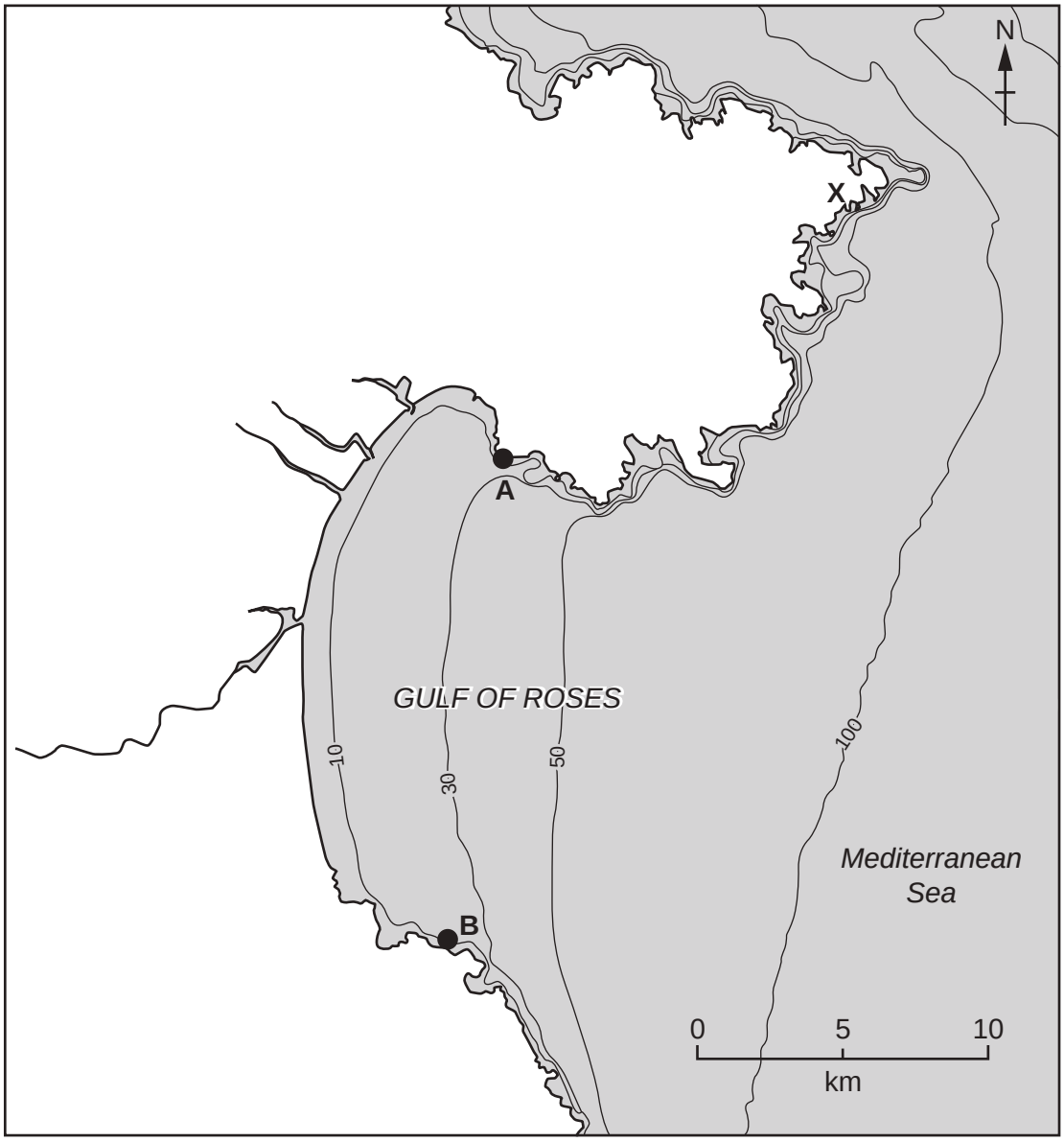

Fig. 3.1

(i) Estimate the width of the Gulf of Roses from **A** to **B**.

Circle your answer in the list below.

5 km 12 km 17 km 20 km

[1]

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(ii) Identify **two** types of landform which may have formed as a result of coastal erosion in the area labelled **X** on Fig. 3.1.
Tick your answers in the list below.

Landform	Tick (✓)
Cliff	
Coral reef	
Delta	
Spit	
Wave-cut platform	

[2]

(iii) Suggest reasons for the formation of a headland and bay in the area shown on Fig. 3.1.

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.....[3]

(iv) Explain why beaches form in bays such as the Gulf of Roses.

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.....[4]

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(b) Study Fig. 3.2, which shows methods of coastal management.

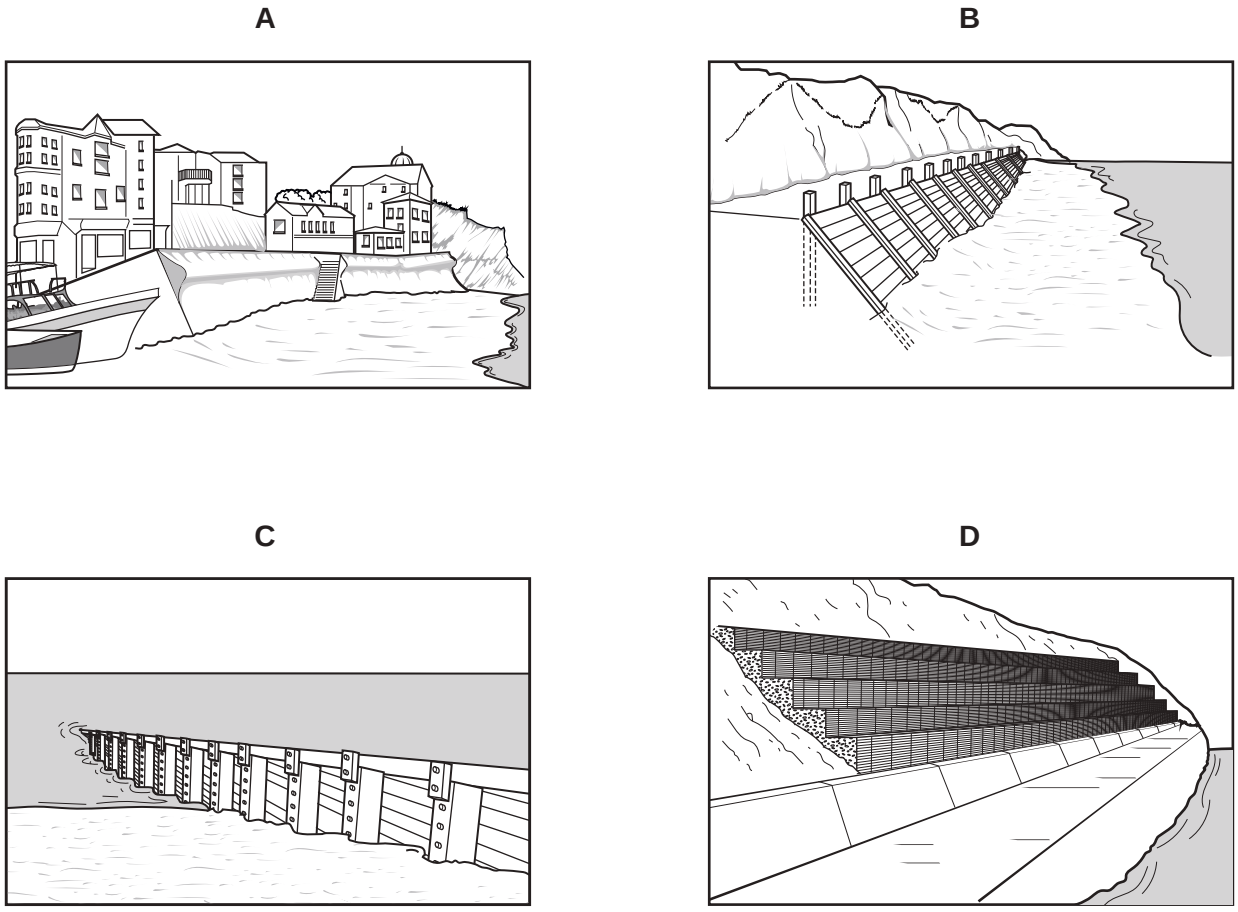

Fig. 3.2

(i) Match the methods of coastal management shown in Fig. 3.2 by using arrows to link the correct methods with their names in the table below. An example has been done for you.

Method **A**	Gabion
Method **B**	Groyne
Method **C**	Revetment
Method **D**	Sea wall

[3]

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(ii) Explain how the methods shown in Fig. 3.2 protect the coast from erosion.

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.....[5]

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[Turn over

(c) Describe the conditions required for the development of coral reefs.

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[Total: 25]

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4 **(a)** Study Fig. 4.1, which shows climate graphs for four places.

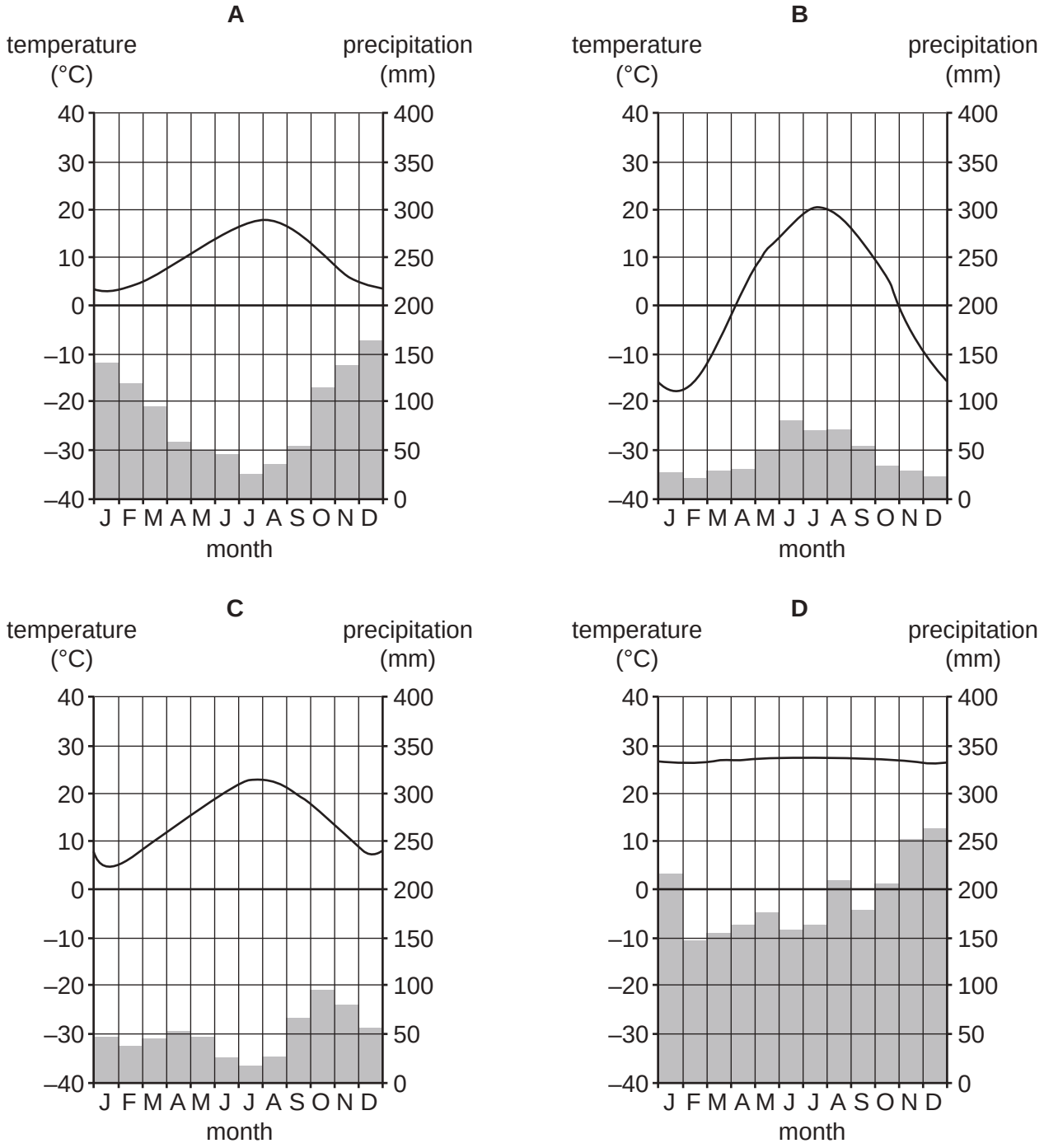

Fig. 4.1

(i) Estimate the average annual precipitation shown by climate graph **A** on Fig. 4.1.
Circle your answer in the list below.

500 mm 750 mm 1050 mm 2000 mm

[1]

(ii) Identify the letter of the climate graph which shows:

– a temperature range of 17 °C .....

– an annual average temperature of 3 °C .....

[2]

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(iii) Identify the graph which shows an equatorial climate. Give **two** reasons for your choice.

Climate graph .....

Reason 1 .....

.....

Reason 2 .....

.....[3]

(iv) Explain why some places have an equatorial climate.

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.....[4]

(b) Study Fig. 4.2 (Insert), which shows part of the Amazon rainforest.

(i) Using evidence from Fig. 4.2 **only**, give **three** reasons why deforestation has occurred in this area.

1 .....

.....

2 .....

.....

3 .....

.....[3]

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(ii) Explain why protecting the rainforest from deforestation is important for the **local** natural environment and for the people who live in the rainforest.

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.....[5]

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(c) Describe the problems caused by large-scale deforestation of tropical rainforests for the **global** natural environment and people who live in other named parts of the world.

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about the relationship between two indicators of development.

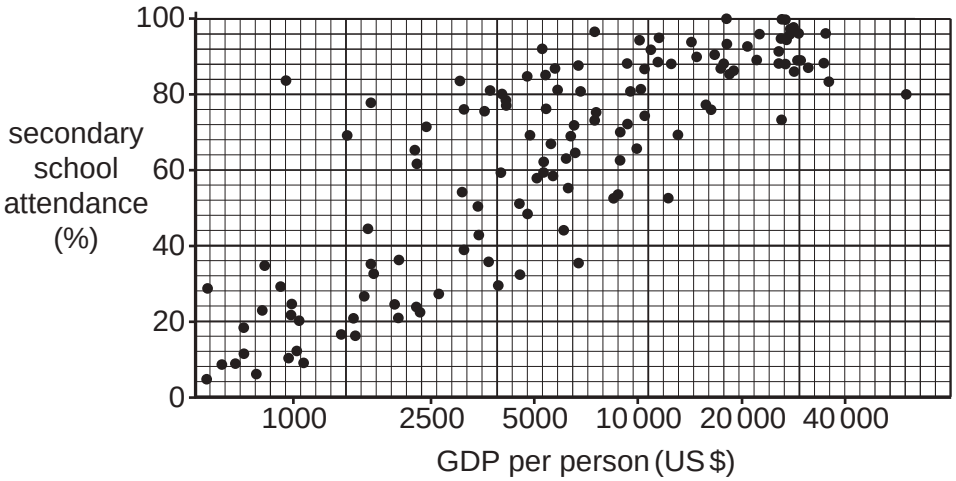

Fig. 5.1

(i) **Draw a best fit line** on Fig. 5.1. [1]

(ii) To what extent does Fig. 5.1 show that there is a relationship between GDP per person and the percentage of children who attend secondary school?

.....

.....

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.....[2]

(iii) Explain why there is a relationship between GDP per person and the percentage of children who attend secondary school.

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.....[3]

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(iv) Another method of measuring development is to use the Human Development Index (HDI).

Explain how the HDI measures the level of development of a country.

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.....[4]

(b) Study Fig. 5.2, which shows variation in the use of energy per person in the world.

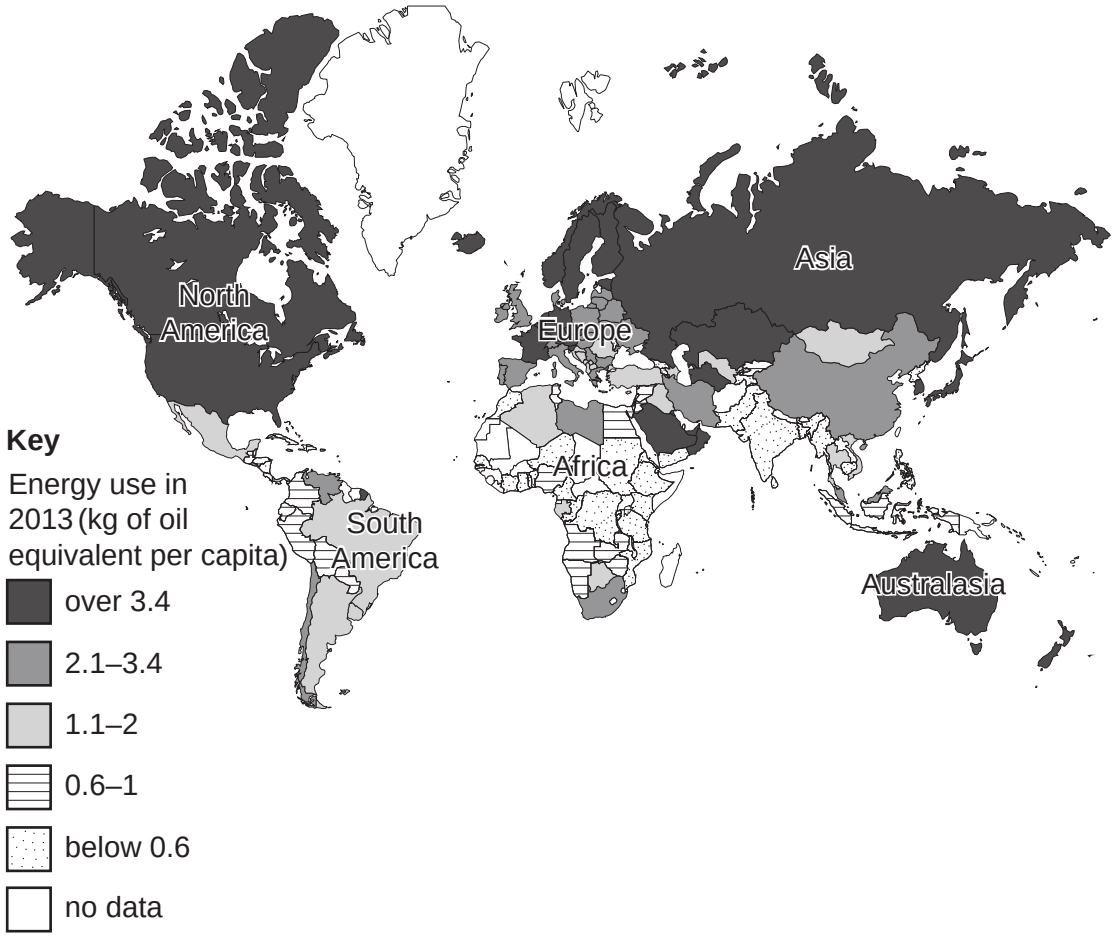

Fig. 5.2

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(i) Using Fig. 5.2 **only**, compare the use of energy per person in Africa and North America.

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.....[3]

(ii) Explain why there is variation in the amounts of energy used in different parts of the world.

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(c) For a named country you have studied, describe and explain the importance of different types of energy sources.

Name of country .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1 (Insert), a map which shows an area in Zimbabwe where the tourist industry is important.

(i) What is meant by the *tourist industry*?

.....

.....[1]

(ii) Identify from Fig. 6.1:

– **one** physical (natural) attraction for tourists.

.....

– **one** human attraction for tourists.

.....[2]

(iii) Using evidence from Fig. 6.1 **only**, suggest how the natural landscape has been changed in the area shown as a result of tourism.

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.....[3]

(b) Study Fig. 6.2 (Insert), which is a photograph showing the entrance to a national park in Zimbabwe.

(i) Suggest **three** ways in which the advice in the notices shown in Fig. 6.2 will help protect the natural environment of the national park.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Suggest the likely benefits of tourism for people who live in or close to national parks such as Lake Chivero (Fig. 6.1) and Rhodes Matopos (Fig. 6.2).

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.....[4]

(iii) Suggest how tourism may cause problems for local people.

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.....[5]

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(c) For a named country or area you have studied, describe the methods used to supply water.

Name of country or area .....

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

2326382607

GEOGRAPHY **0460/13**

Paper 1 **May/June 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided. If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Figs. 2.1 and 2.2 for Question 2, Figs. 3.2 and 3.3 for Question 3, Figs. 4.1 and 4.2 for Question 4 and Figs. 5.1 and 5.2 for Question 5.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions:
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **25** printed pages, **3** blank pages and **1** Insert.

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CAMBRIDGE International Examinations

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Section A

Answer **one** question from this section.

1 **(a)** Study Figs. 1.1 and 1.2, which show information about population.

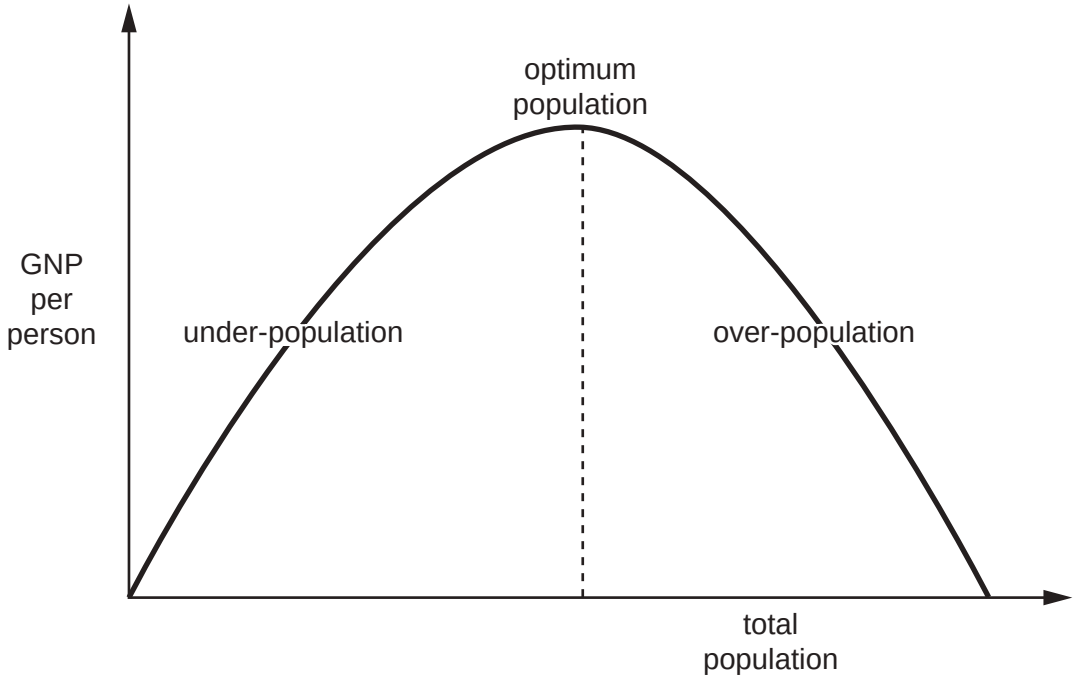

Fig. 1.1

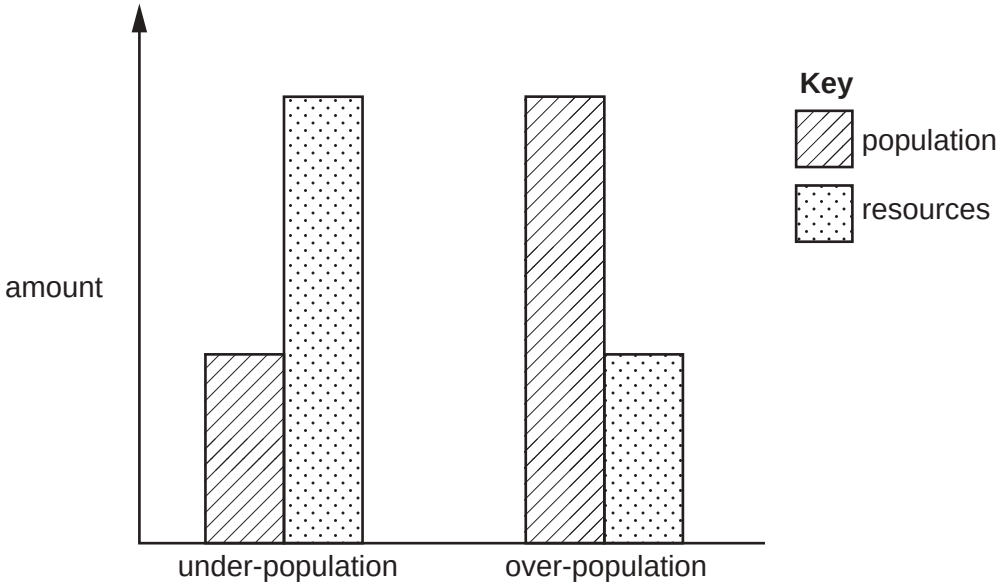

Fig. 1.2

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(i) Using Fig. 1.1 **only**, define *optimum population*.

.....

.....[1]

(ii) Using Fig. 1.2 **only**, define:

under-population

.....

.....

over-population

.....

.....[2]

(iii) Explain why some countries become over-populated.

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.....[3]

(iv) Describe **four** problems which are caused by over-population.

1 .....

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2 .....

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3 .....

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4 .....

.....[4]

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(b) Study Fig. 1.3, which shows different opinions about under-population in Canada.

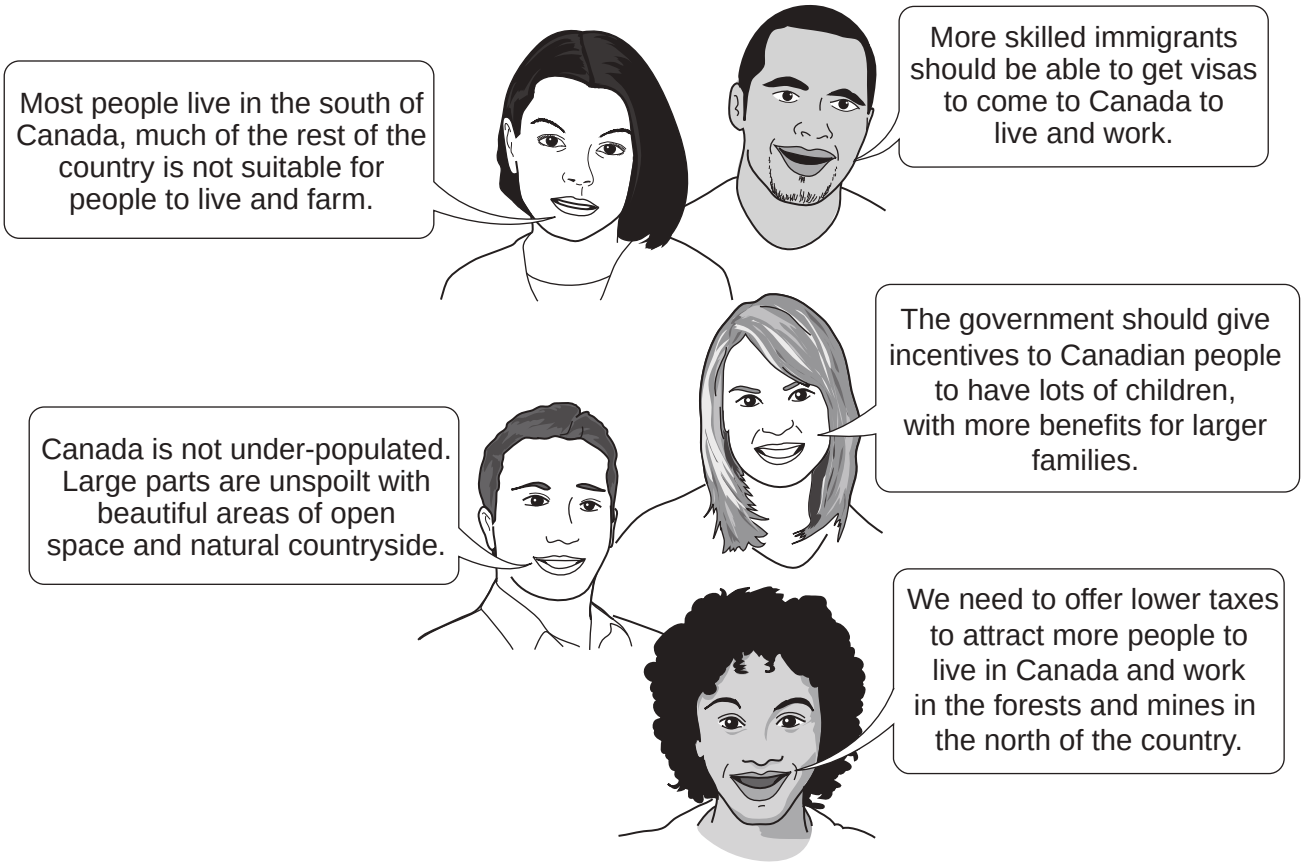

Fig. 1.3

(i) Using Fig. 1.3 **only**, identify **three** possible methods which could be used in Canada to reduce the impacts of under-population.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Explain why countries with large areas of land may **not** be under-populated.

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.....[5]

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[Turn over

(c) For a named country you have studied, describe the problems caused by a large percentage of dependent population.

Name of country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1 (Insert), which shows information about urbanisation.

(i) What is meant by *urbanisation*?

.....

.....[1]

(ii) Using Fig. 2.1 **only**:

– name the continent with the lowest percentage of people living in urban areas

.....

– state the percentage of the population living in urban areas in most countries in Australasia and North America

..... % [2]

(iii) Using Fig. 2.1 **only**, describe the distribution of cities with over 10 million inhabitants in 2000.

.....

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.....[3]

(iv) Explain why the population of many cities has grown rapidly since 2000.

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.....[4]

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(b) Study Fig. 2.2 (Insert), which is a photograph of part of the urban area of Mumbai, India (an LEDC).

(i) Compare the location of the squatter settlements labelled **X** and **Y**.

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.....[3]

(ii) Describe the problems faced by people living in squatter settlements, such as those shown in Fig. 2.2.

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.....[5]

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(c) For a named urban area you have studied, describe what has been done to reduce the negative impacts of urbanisation.

Name of urban area .....

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1, which is a flow diagram showing information about water flows and stores in a drainage basin.

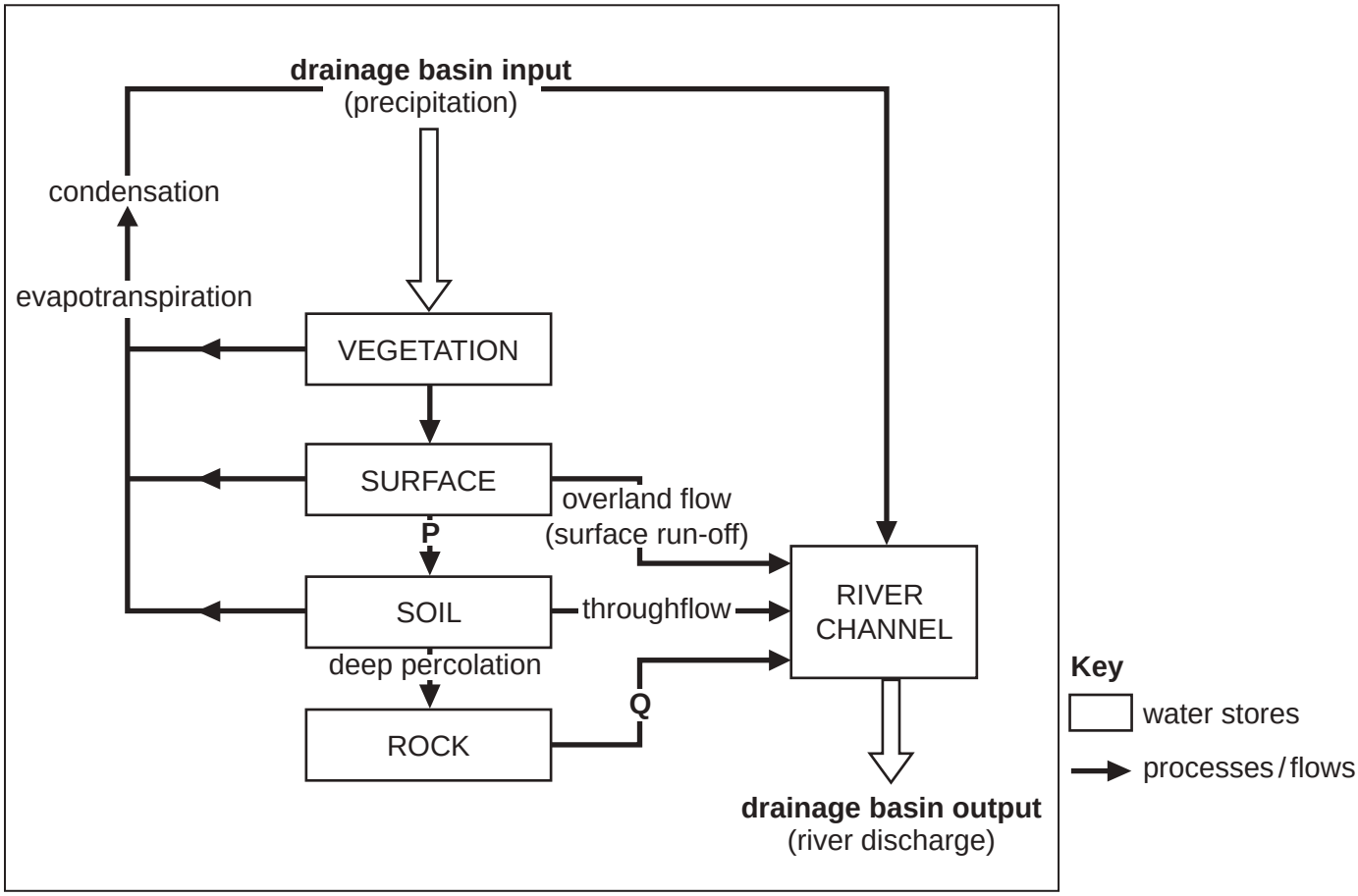

Fig. 3.1

(i) What is a *drainage basin*?

.....

.....[1]

(ii) Name the processes/flows which take place at **P** and **Q** on Fig. 3.1.

P .....

Q ..... [2]

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(iii) Give different reasons to explain why the amount of overland flow varies in a drainage basin:

A from season to season

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.....[3]

B from place to place

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.....[4]

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(b) Study Figs. 3.2 and 3.3 (Insert), which are photographs showing two rivers in an upland area in the UK.

(i) Describe **three** differences between the river and valley in Fig. 3.2 compared with the river and valley in Fig. 3.3.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Suggest how rivers such as those shown in Figs. 3.2 and 3.3 transport their load.

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(c) Explain how an oxbow lake is formed.
Include a diagram or series of diagrams.

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[7]

[Total: 25]

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4 **(a)** Study Fig. 4.1 (Insert), which is a cross section of the atmosphere between the Equator and the Tropics.

(i) Which letter, **X**, **Y** or **Z**, shows the position of the hot deserts?

..... [1]

(ii) Describe how the following are different in equatorial and hot desert climates.

Rainfall .....

.....

Temperature range .....

.....[2]

(iii) Explain how latitude and atmospheric pressure influence the characteristics of equatorial and hot desert climates.

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.....[3]

(iv) Explain why wind direction and distance from the sea are important influences on hot desert climates.

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.....[4]

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(b) Study Fig. 4.2 (Insert), which is a photograph taken in an area of hot desert.

(i) Describe **three** characteristics of the vegetation shown in Fig. 4.2.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Explain how vegetation is able to survive in a hot desert environment.

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.....[5]

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(c) For a named area of **tropical rainforest** you have studied, explain why deforestation has taken place.

Name of area .....

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1 (Insert), which shows agricultural land use in Iraq.

(i) Identify the agricultural land use in north east Iraq.

..... [1]

(ii) Using evidence from Fig. 5.1 **only**, give different reasons why cultivation can take place in areas **A** and **B**.

Area **A** .....

.....

Area **B** .....

.....[2]

(iii) Iraq has recently been at war. Explain why war may cause food shortages.

.....

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.....[3]

(iv) Explain how other economic and political factors may cause food shortages in a country.

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.....[4]

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(b) Study Fig. 5.2 (Insert), which is a photograph showing an area used for agriculture in Indonesia (an LEDC in South east Asia).

(i) Describe the agricultural land use in Fig. 5.2.

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.....[3]

(ii) Describe methods which could be used to increase the output of the land shown in Fig. 5.2.

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.....[5]

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(c) Describe and explain the land use of a farm or agricultural system in a named area you have studied.

Type of farm or agricultural system .....

Name of area .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1, which is information about melting ice.

When Glacier National Park in the USA was established in 1910, there were 150 glaciers (a glacier is a slow moving mass or river of ice). Since then the number has decreased to fewer than 30, and most of those remaining have shrunk in area by two-thirds.

Most scientists believe that human activity, in particular the burning of fossil fuels, has caused the atmosphere to become warmer and caused ice to melt. The ice on Mt Kilimanjaro has reduced by more than 80% since 1912. Glaciers in parts of the Himalayas are retreating so fast that researchers believe that most central and eastern Himalayan glaciers could virtually disappear by 2035. Arctic sea ice has thinned and its area has reduced by about 10% in the past 30 years.

When temperatures rise and ice melts, more water flows to the seas from glaciers and ice caps. Rising temperatures also cause ocean water to warm and expand in volume. This has increased average global sea level by between 10 and 20 centimetres in the past hundred years.

Fig. 6.1

(i) Name an example of a fossil fuel.

.....[1]

(ii) Identify from Fig. 6.1 **two** pieces of evidence that ice is melting.

1 .....

.....

2 .....

.....[2]

(iii) Explain why the burning of fossil fuels may have been a cause of ice melting as described in Fig. 6.1.

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.....[3]

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(iv) Explain how the melting of ice may cause problems for people and the natural environment.

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(b) Study Fig. 6.2, which shows information about average rainfall in the Sahel between 1900 and 2011. The Sahel is an area in Africa.

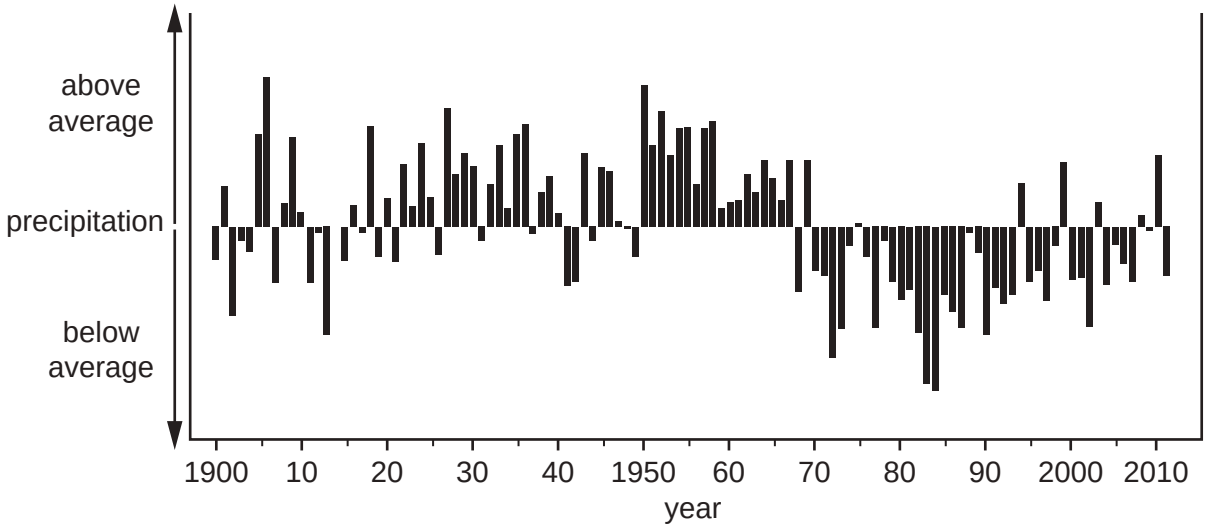

Fig. 6.2

(i) Using evidence from Fig. 6.2 **only**, describe the changes in average precipitation between 1900 and 2011.

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(ii) When rainfall is low desertification may occur. Explain how economic activities in regions such as the Sahel have resulted in an increased risk of desertification.

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(c) For an economic activity in a named area you have studied, describe how the environmental risks are being managed.

Name of area .....

Economic activity .....

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[Total: 25]

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/21**

Paper 2 **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Fig. 2.1 for Question 2, Fig. 4.1 for Question 4, and Figs. 6.1 and 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **20** printed pages, **4** blank pages and **1** Insert.

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1 Study the map extract for Geitsida, Norway. The scale is 1:50 000.

(a) Fig. 1.1 shows some of the features in the south east of the map extract. Study Fig. 1.1 and the map extract, and answer the questions below.

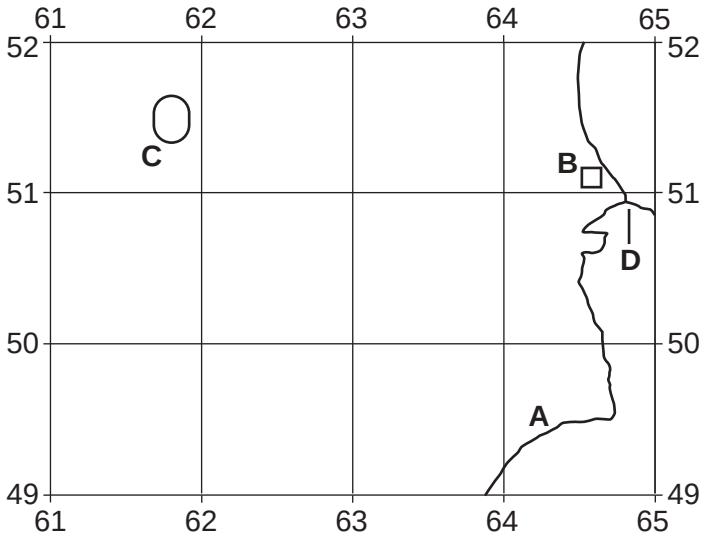

Fig. 1.1

(i) Identify the type of road at **A**.

.....[1]

(ii) Identify feature **B**.

.....[1]

(iii) What is the height of contour **C**?

..... metres [1]

(iv) What is the six-figure grid reference of the road junction at **D**? Tick **one** correct answer below.

	Tick (✓)
652511	
509648	
648510	
648508	
648509	

[2]

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(b) A person travels along the road **from** the northern edge of the map at Nyheim **to** the eastern edge of the map at Atnbrua.

(i) In which compass direction does the person travel? Tick **one** correct statement below.

	Tick (✓)
north west to south east	
south east to north west	
north east to south west	
south west to north east	

[1]

(ii) How far does the person travel along the road? Tick **one** correct statement below.

	Tick (✓)
7200 metres	
7800 metres	
8400 metres	
9000 metres	

[1]

(c) Fig. 1.2 is a cross section along northing 58 from 580580 to 640580.

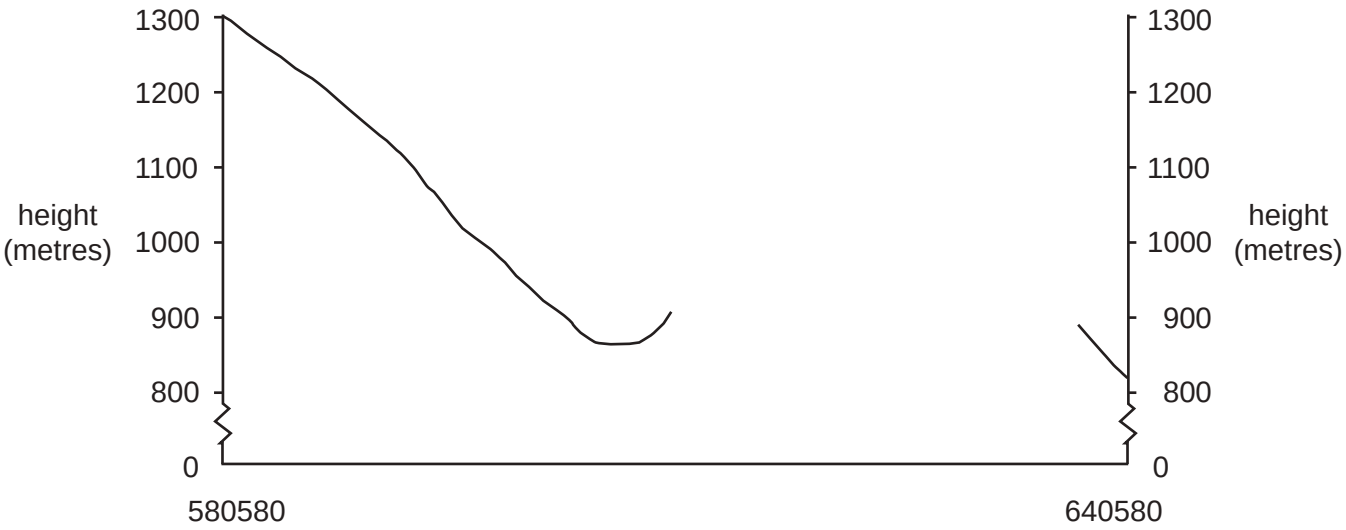

Fig. 1.2

(i) Using the map, **complete the cross section** on Fig. 1.2. [2]

(ii) On Fig. 1.2, **use a labelled arrow** to show the position of Voldalen. [1]

(iii) On Fig. 1.2, **use a labelled arrow** to show the position of Midtvola. [1]

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(d) Fig. 1.3 shows the mountainous area around Geitsida in the west of the map extract.

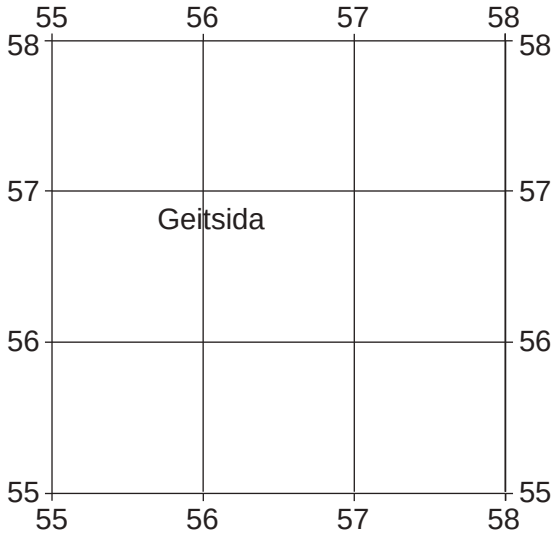

Fig. 1.3

Describe the relief of the area shown on Fig. 1.3.

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.....[3]

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(e) Look at the whole of the map extract.

(i) Describe the distribution of cultivation and forest.

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.....[3]

(ii) Describe the relationship between roads and relief.

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.....[3]

[Total: 20]

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2 Study Fig. 2.1 (Insert), which shows the population distribution of Iran, a country in Asia.

(a) Which **three** of the following statements about the population distribution of Iran are true? Tick **three** boxes.

Statement	Tick (✓)
the north is more densely populated than the south	
the population is evenly distributed	
there are no areas with a population of over 80 people per km^2	
there are large areas with a population of over 80 people per km^2	
the west is more densely populated than the east	
the border with Pakistan is densely populated	
most of the country is densely populated	
the coastline of the Persian Gulf is densely populated	
the coastline of the Caspian Sea is densely populated	

[3]

(b) Name one country shown on Fig. 2.1 which does not have a boundary with Iran.

.....

[1]

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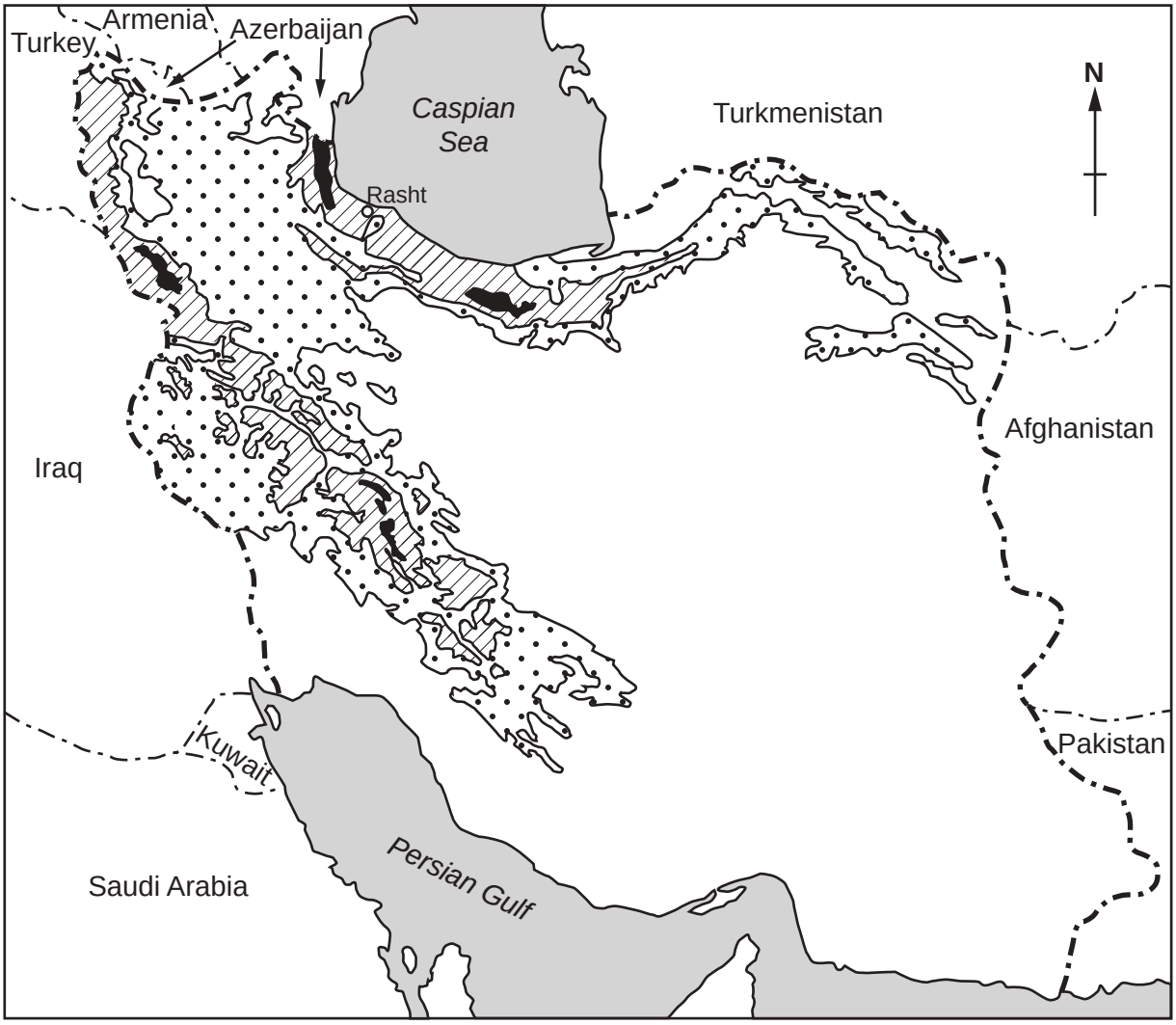
(c) Fig. 2.2 shows rainfall in Iran.

Iran – rainfall



Key

rainfall (mm)

- over 1200
- 401–1200
- 101–400
- 0–100
- boundary of Iran
- other international boundary

Fig. 2.2

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Describe the relationship between population density shown on Fig. 2.1 (Insert) and rainfall shown on Fig. 2.2.

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.....[2]

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(d) Fig. 2.3 shows the relief of Iran.

Iran – relief

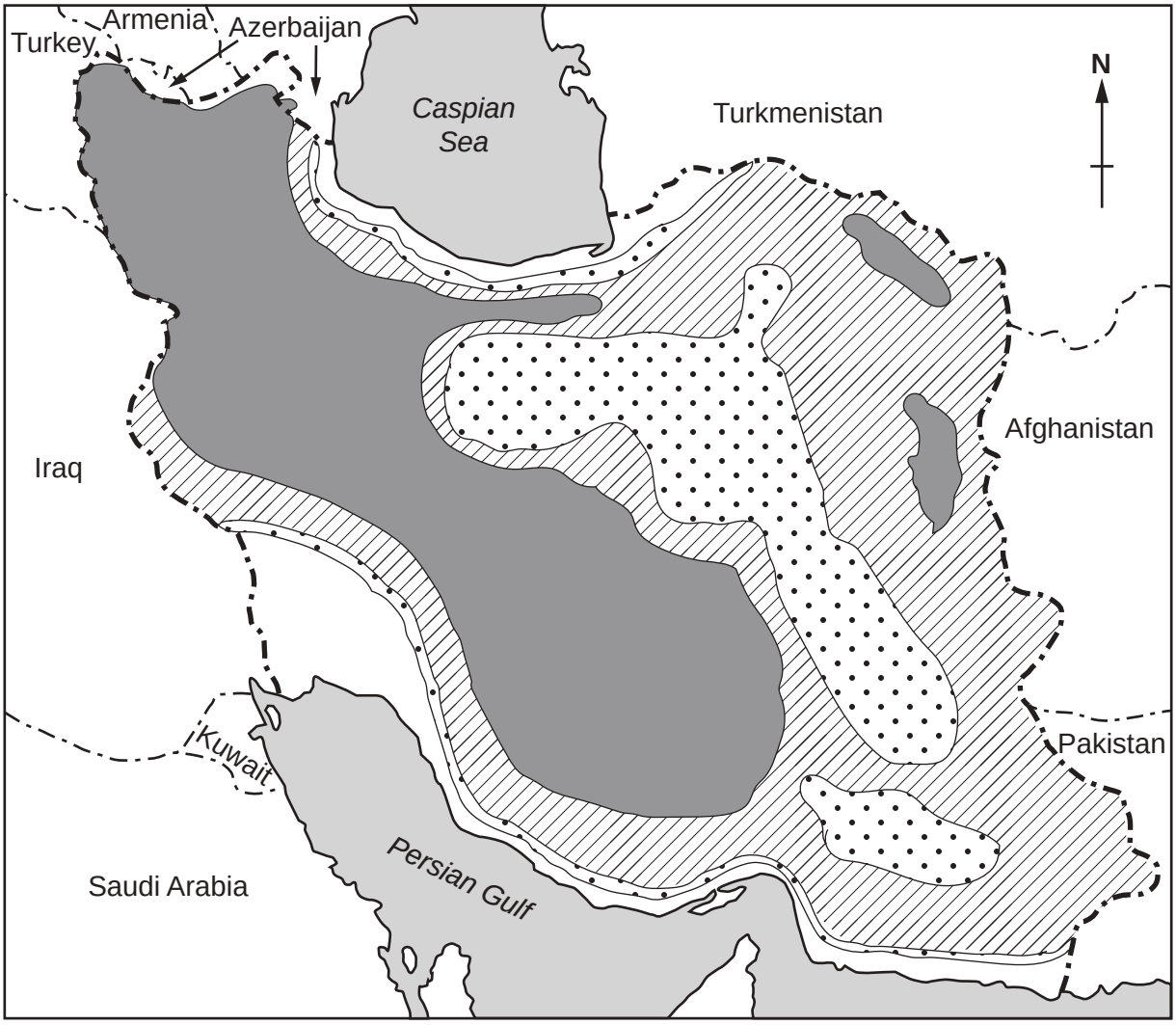

Fig. 2.3

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Describe the relationship between population density shown on Fig. 2.1 (Insert) and relief shown on Fig. 2.3.

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.....[2]

[Total: 8]

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3 (a) Fig. 3.1 shows a map of a river. The positions of three cross sections through the river channel are shown: these are A – B, C – D and E – F.

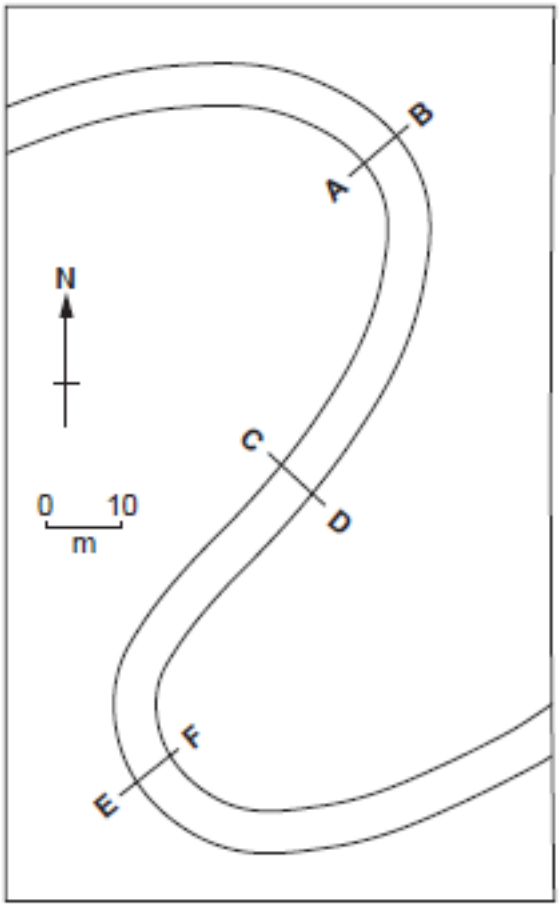

Fig. 3.1

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Fig. 3.2 shows a cross section through the river channel drawn at one of the positions shown on Fig. 3.1.

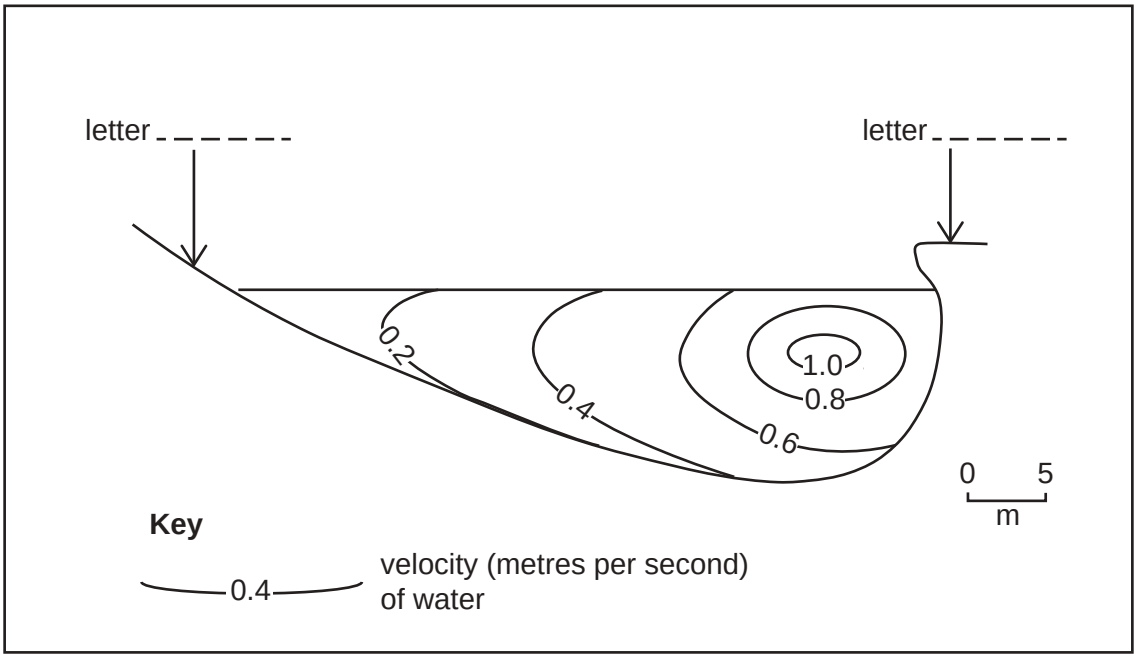

Fig. 3.2

(i) Which position on the river channel is shown on Fig. 3.2? **Add two letters**, **A**, **B**, **C**, **D**, **E** or **F**, to Fig. 3.2 to show your answer. [2]

(ii) Using Fig. 3.2, describe how the velocity of the water varies in the river channel.

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.....[2]

(iii) **Add an arrow, labelled 'erosion'**, to Fig. 3.2 to show where this process is most likely to occur. [1]

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(b) Name the following river landforms:

(i) rounded hollows in a rocky river bed;

Name ..... [1]

(ii) flat land either side of a river formed by deposits from the river;

Name ..... [1]

(iii) raised banks on either side of a river formed by deposits from the river.

Name ..... [1]

[Total: 8]

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4 Fig. 4.1 (Insert) is a photograph which shows a coastline in Devon, UK. The coast has been affected by erosion and deposition.

(a) Identify and describe the coastal landforms shown in Fig. 4.1.

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.....[5]

(b) Describe and explain the coastal processes which may affect the houses at the top of the photograph in the future.

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.....[3]

[Total: 8]

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5 Table 5.1 gives information about milk production from cattle in four villages in Tanzania, East Africa.

Table 5.1

	Village			
	Handeni	Lushoto	Mvomero	Kilosa
number of cattle – local breeds	87 943	6769	94 327	131 840
number of cattle – improved breeds	770	10 126	5281	2103
milk yield per cow per day – local breeds (litres)	2.1	4.8	3.2	1.3
milk yield per cow per day – improved breeds (litres)	8.3	7.0	5.2	11.1
% of milk sold	81	79	64	72
% of cattle food from grazing	62	44	64	68
% of cattle food from crop remains	18	37	18	23
% of cattle food from fodder crops	1	19	9	1

(a) Which village has the most cattle?

..... [1]

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(b) Use information from Table 5.1 to **complete Fig. 5.1** below, by adding the milk yield from improved breeds at Lushoto. [1]

Milk Yields

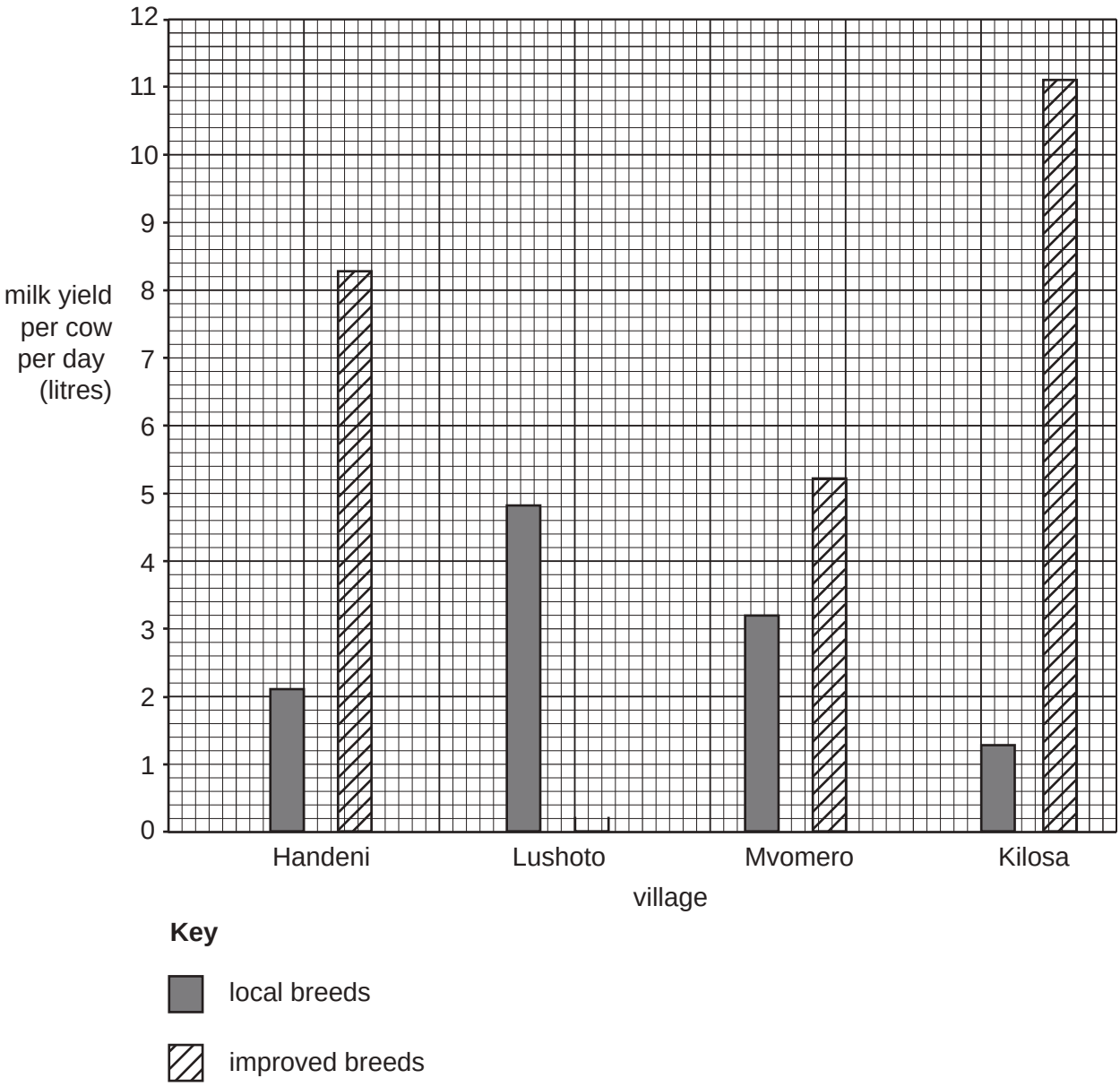

Fig. 5.1

(c) Using evidence from Table 5.1 and Fig. 5.1, explain why farmers in the four villages keep improved breeds.

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.....[2]

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(d) (i) '*Milk production in Lushoto is more* ***commercial*** *than in the other three villages.*' Give evidence from Fig. 5.1 to support this statement.

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.....[2]

(ii) '*Milk production in Mvomero is more* ***subsistence*** *based than in the other three villages.*' Give evidence from Fig. 5.1 to support this statement.

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.....[2]

[Total: 8]

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6 Study Figs. 6.1 and 6.2 (Insert), which are two photographs showing two areas of rural settlement.

(a) Identify each settlement pattern.

Fig. 6.1 .....

Fig. 6.2 ..... [2]

(b) Describe the site of the settlement in Fig. 6.2.

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.....[4]

(c) Suggest **one** economic activity which could be carried out in the area shown in Fig. 6.2. Support your answer with evidence from the photograph.

Economic activity

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Evidence

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[Total: 8]

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Additional Pages

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CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

GEOGRAPHY **0460/22**

Paper 2 **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
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Answer **all** questions.

The Insert contains Figs. 3.1 and 3.2 for Question 3.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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[Turn over

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1 Study the map extract for Vinstra, Norway. The scale is 1:50 000.

(a) Fig. 1.1 shows some of the features in the north of the map extract. Study Fig. 1.1 and the map extract, and answer the questions below.

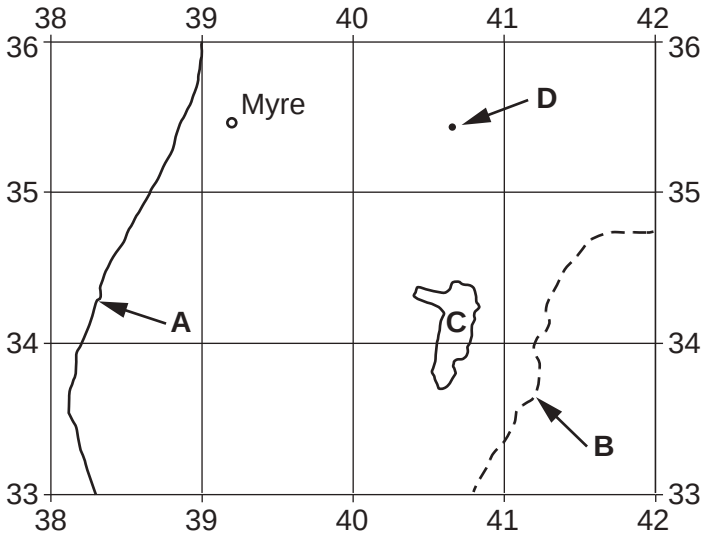

Fig. 1.1

(i) Identify the type of road at **A**.

..... [1]

(ii) Identify feature **B**.

..... [1]

(iii) Identify feature **C**.

..... [1]

(iv) What is the height above sea level at **D**?

..... metres [1]

(v) What is the six-figure grid reference of the house at Myre, shown on Fig. 1.1? Tick **one** correct answer below.

	Tick (✓)
382355	
355392	
408366	
391354	
391355	

[2]

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(b) Fig. 1.2 is a cross section along northing 345 from the western edge of the map at 340345 to 400345, passing through the summit of the mountain Teigkampen.

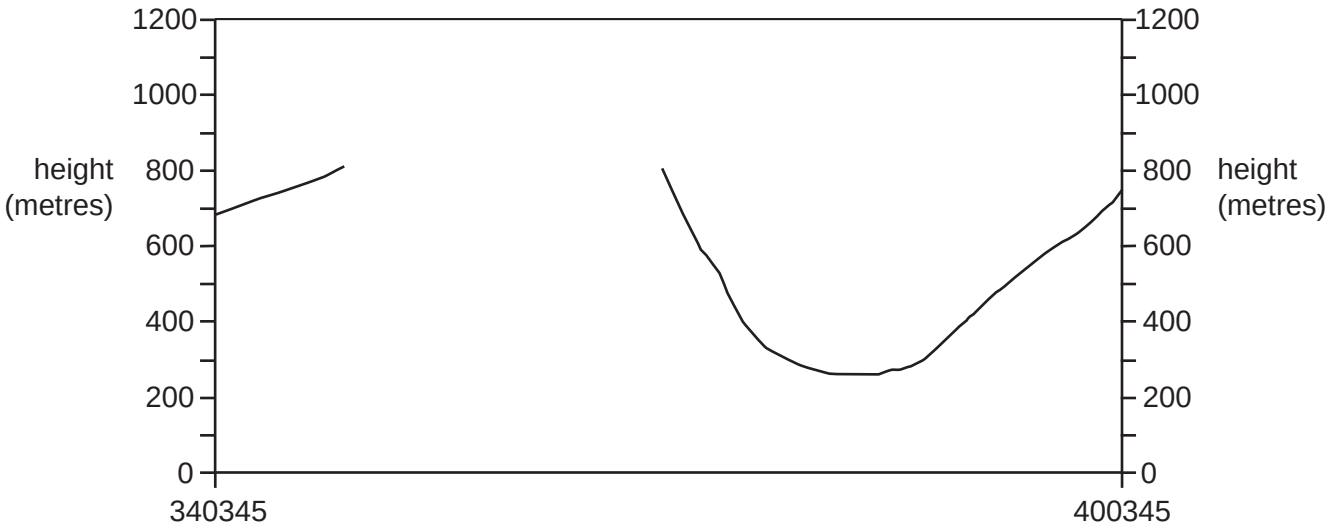

Fig. 1.2

(i) Using the map, **complete the cross section** on Fig. 1.2. [2]

(ii) On Fig. 1.2, **use a labelled arrow** to show the position of the railway. [1]

(iii) On Fig. 1.2, **use a labelled arrow** to show the position of a marked footpath. [1]

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[Turn over

(c) Using map evidence, give reasons for the growth of the main area of settlement on the map at Vinstra.

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.....[4]

(d) Fig. 1.3 shows part of the valley of the river Vinstra in the south west of the map extract.

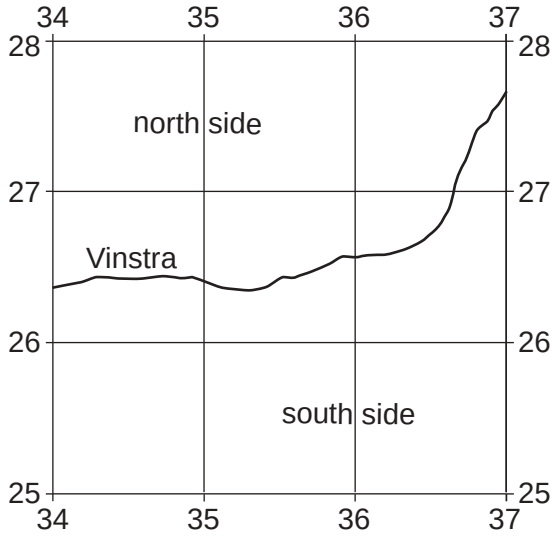

Fig. 1.3

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Compare the following features on the north side of the valley and the south side of the valley:

roads

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.....

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settlement

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land use

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relief.

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.....[6]

[Total: 20]

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2 Fig. 2.1 shows the five countries expected to have the largest populations by the year 2100.

	China	India	Indonesia	Nigeria	USA
population in 2016 (billions)	1.37	1.28	0.26	0.18	0.32
estimated population in 2100 (billions)	1.09	1.55	0.36	0.91	0.46
birth rate in 2016 (per 1000)	12.49	19.55	16.72	37.64	12.49
migration in 2016 (per 1000)	–0.44	–0.04	–1.16	–0.22	+3.86

Fig. 2.1

(a) (i) Use information from Fig. 2.1 to **plot the estimated population** of Indonesia in 2100 on Fig. 2.2 below. [1]

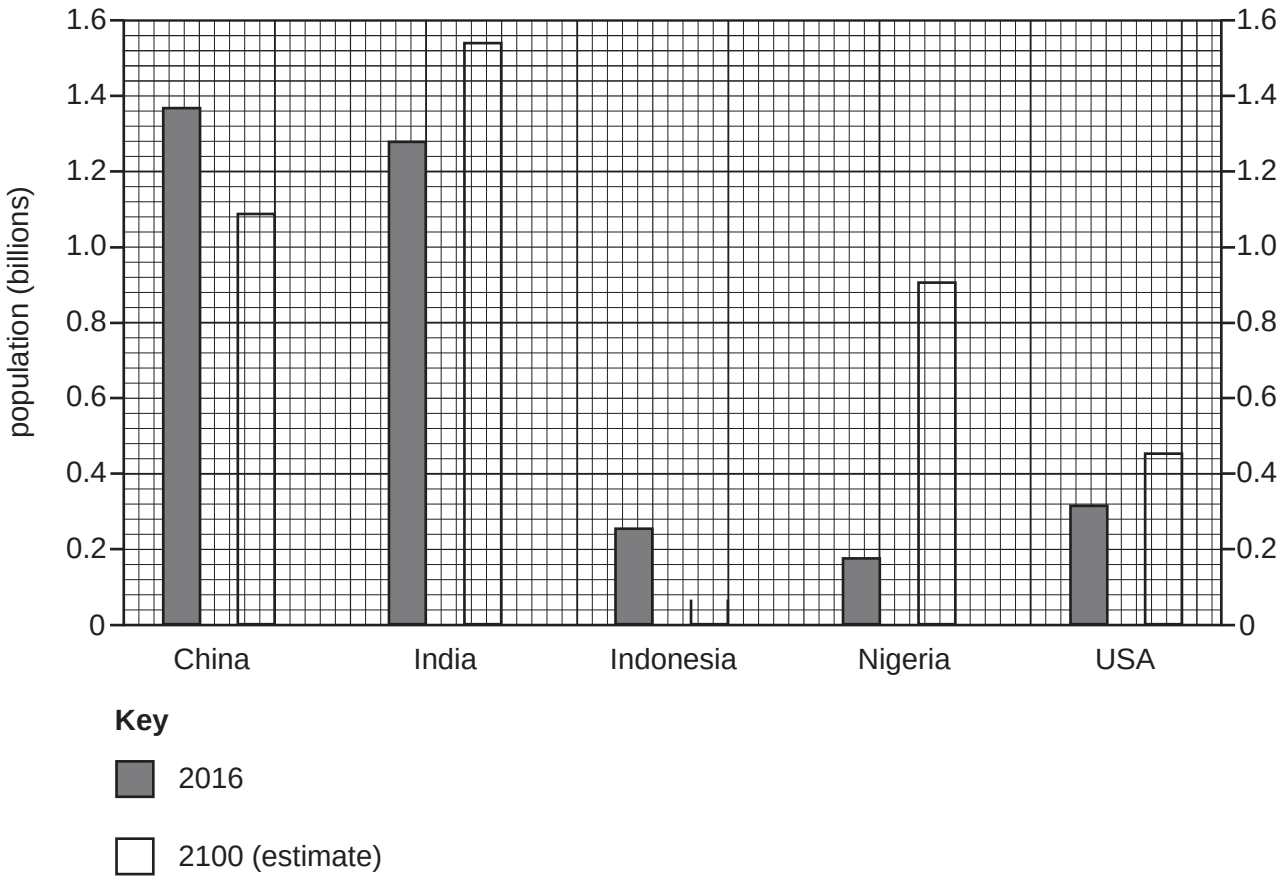

Fig. 2.2

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(ii) Which country shown on Fig. 2.2 is expected to have a population decrease between 2016 and 2100?

..... [1]

(iii) Using Fig. 2.1, calculate the estimated increase in the population of USA between 2016 and 2100.

..... billion [1]

(iv) Which country shown on Figs. 2.1 and 2.2:

had the largest population in 2016

.....

is expected to have the largest population in 2100?

..... [1]

(b) Which country shown on Fig. 2.1 is expected to have the greatest increase in population between 2016 and 2100? Use information from Fig. 2.1 to suggest the main reason for this.

Country .....

Reason .....

.....[2]

(c) **(i)** Is migration an important factor in the growth in population of the countries shown on Fig. 2.1? Use information from Fig. 2.1 to support your answer.

.....

.....

.....[1]

(ii) Give **one** other population statistic, not shown on Fig. 2.1, which would help explain these population changes.

..... [1]

[Total: 8]

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3 **(a)** Study Fig. 3.1 (Insert), which is a photograph showing part of an urban area.

Suggest which urban zone is shown in the photograph and give **four** reasons for your choice.

Urban zone

.....

Reasons

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[5]

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(b) Study Fig. 3.2 (Insert), which is a photograph showing the industrial zone of an urban area. Using evidence from the photograph, explain why industry has developed here.

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.....[3]

[Total: 8]

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4 **(a)** Fig. 4.1 shows a cross section through an area affected by an earthquake.

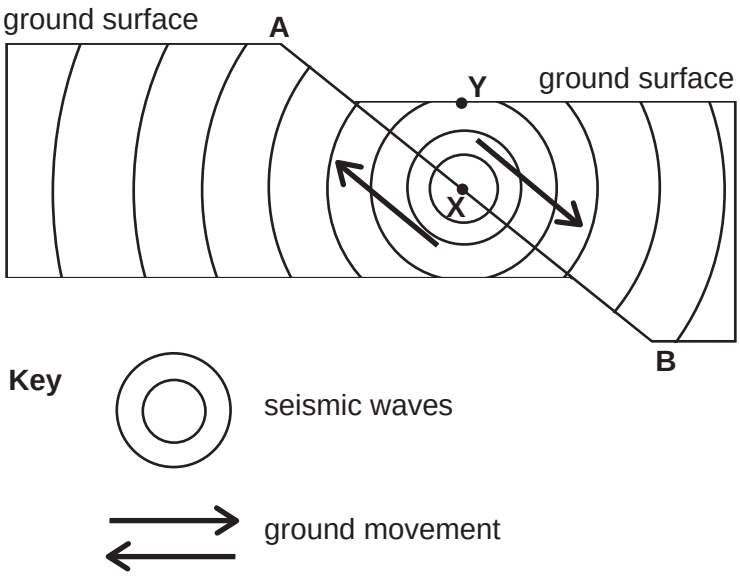

Fig. 4.1

(i) Identify points **X** and **Y** shown on Fig. 4.1.

X .....

Y ..... [2]

(ii) Describe what happened along line **A** – **B** to cause an earthquake.

.....

.....

.....[1]

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(b) Fig. 4.2 gives information about an earthquake at Bam in Iran.

> An earthquake occurred at Bam in south east Iran on December 26, 2003 at 05:26. More than 40 000 people were killed, 50 000 were injured and 100 000 became homeless.
>
> The Arg-e-Bam, the largest mud-brick building in the world, which was about 2000 years old, was almost totally destroyed in the earthquake.

Fig. 4.2

Using Fig. 4.2, suggest the importance of the following on the effects of the earthquake:

(i) the time of day

.....

.....[1]

(ii) the building materials of the Arg-e-Bam.

.....

.....[1]

(c) Using Fig. 4.2, suggest when the last major earthquake occurred at Bam before 2003.

.....

.....[1]

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(d) Fig. 4.3 is a map showing the intensity of the Bam earthquake. Fig. 4.4 describes the different intensity values.

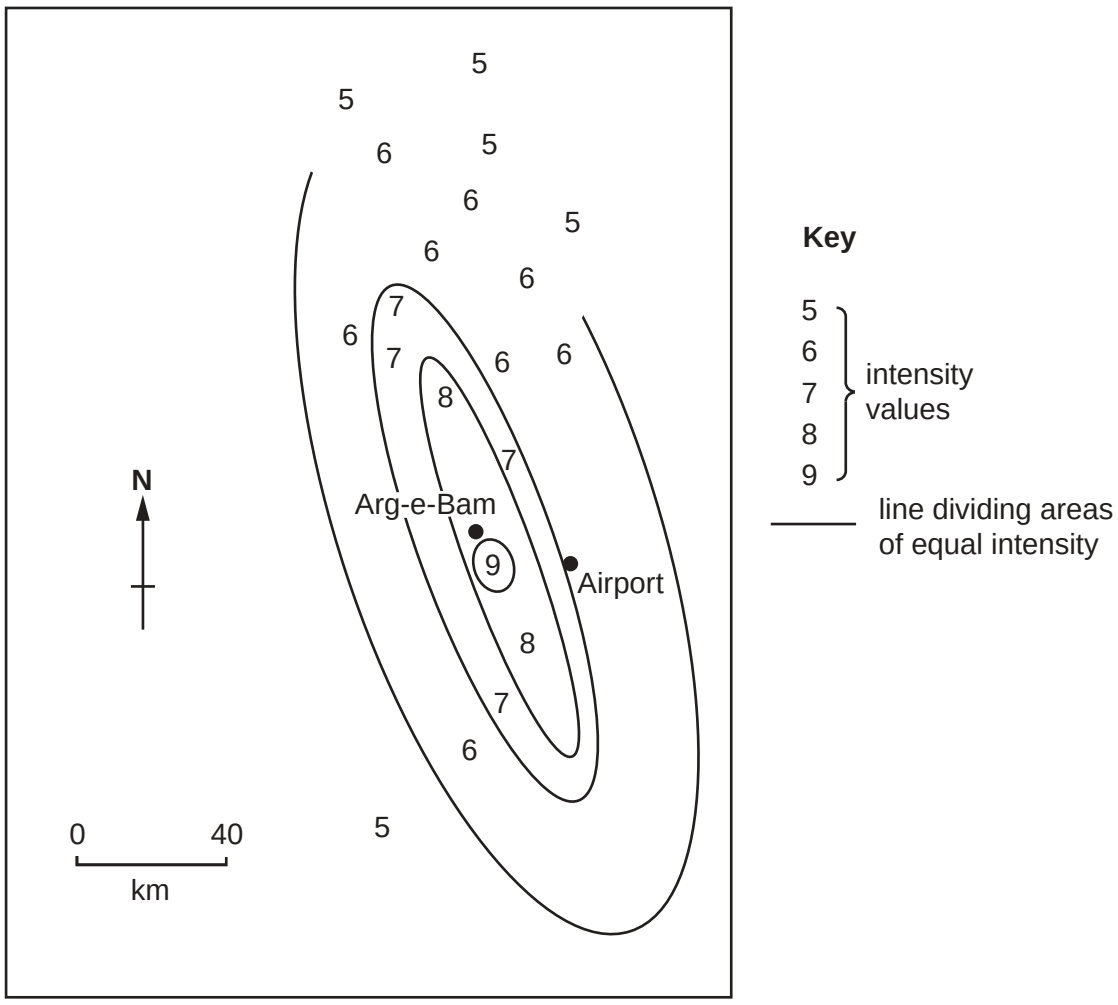

Fig. 4.3

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Intensity value	Description of effects
5	Felt by nearly everyone. Sleepers wake up. Some windows broken. Unstable objects overturned. Clocks may stop.
6	Felt by everyone, many people frightened. Some plaster falls from walls. Damage slight.
7	Difficult to stand up. People run outdoors. Walls crack.
8	Partial collapse of buildings. Chimneys fall. Damage great in poorly constructed buildings.
9	Damage considerable in well-designed structures, with partial collapse. Buildings shifted off foundations.

Fig. 4.4

(i) **Complete the line** of equal intensity in the north of Fig. 4.3. [1]

(ii) Using Figs. 4.3 and 4.4, describe the effects of the earthquake on the buildings at the airport.

.....

.....[1]

[Total: 8]

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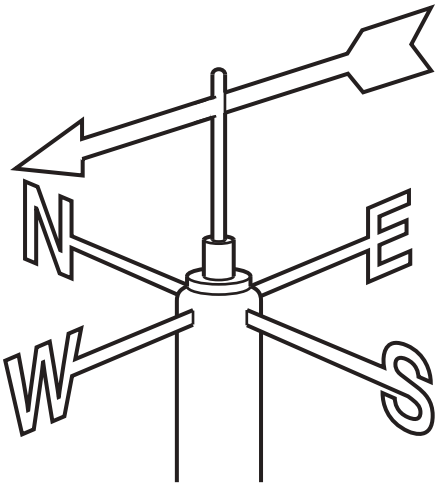
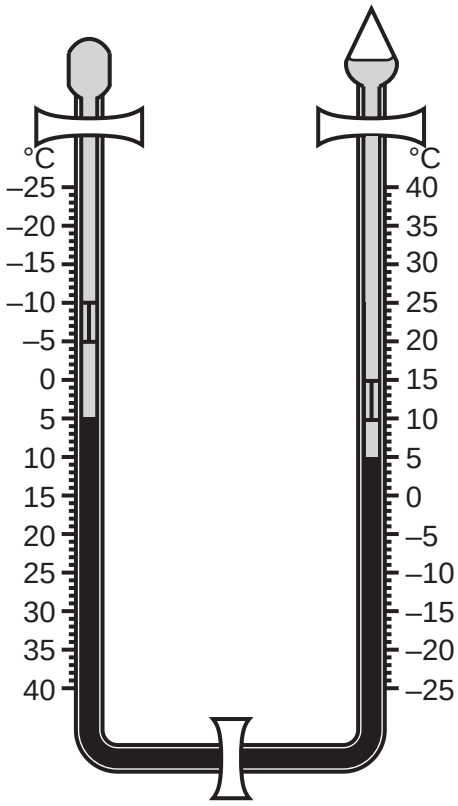
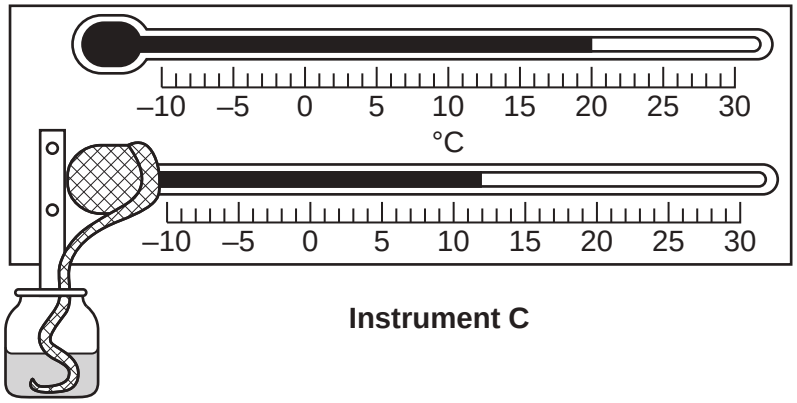
5 Study Fig. 5.1, which shows instruments **A**, **B** and **C**, which are used to measure the weather.



Instrument A



Instrument B



Instrument C

Fig. 5.1

(a) Name the three weather instruments.

(i) Instrument **A** .....

(ii) Instrument **B** .....

(iii) Instrument **C** ..... [3]

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(b) Using Instrument **A**, state the wind direction.

..... [1]

(c) Using the information shown on Instrument **B**, state the:

(i) present temperature

..... [1]

(ii) maximum temperature since the instrument was reset

..... [1]

(iii) minimum temperature since the instrument was reset.

..... [1]

(d) Do the readings shown on Instrument **C** show that the air is saturated (relative humidity 100%)? Explain your answer.

.....

.....

.....[1]

[Total: 8]

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6 Figs. 6.1 and 6.2 give information about Kenya, one of the main manufacturing countries in East Africa.

Kenya – location, imports and export routes

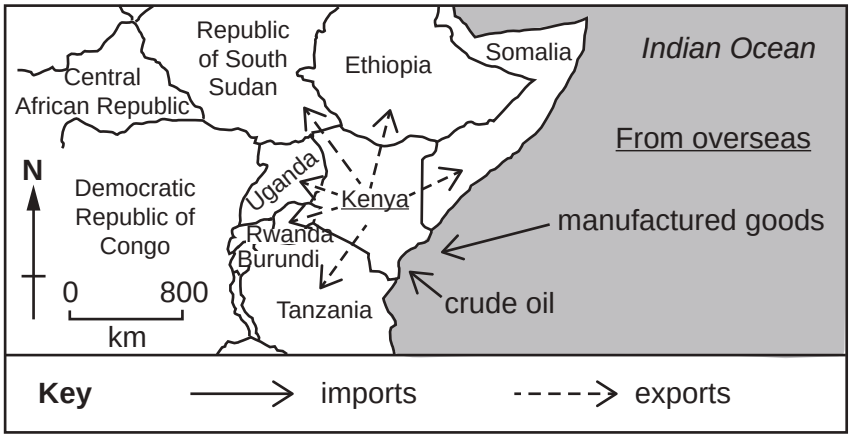

Fig. 6.1

Kenya – manufacturing centres and materials produced within the country

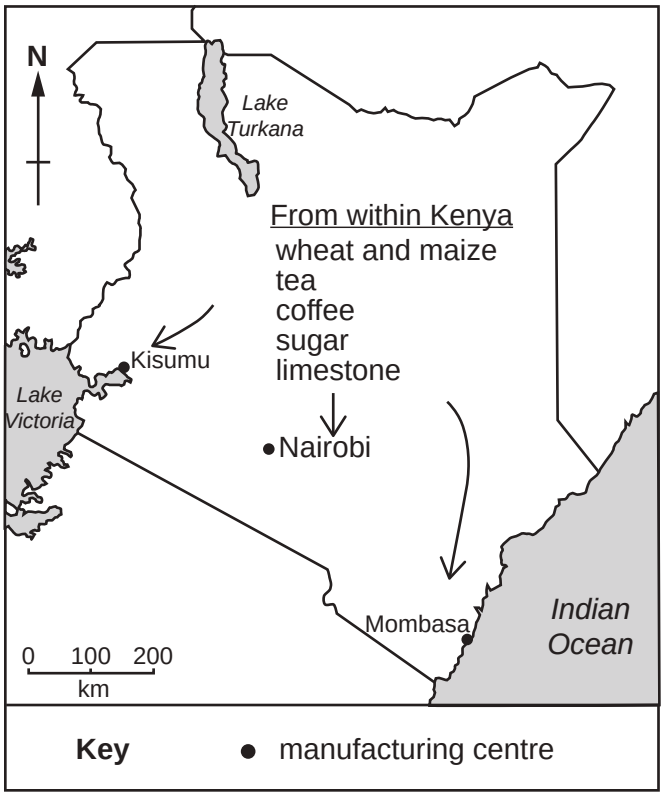

Fig. 6.2

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(a) Using Figs. 6.1 and 6.2, suggest **three** advantages of Kenya for the development of manufacturing industry.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....[3]

(b) Using Figs. 6.1 and 6.2, suggest **one** disadvantage of Kenya for the development of manufacturing industry.

.....

.....

.....[1]

(c) Using Figs. 6.1 and 6.2, suggest why an oil refinery is located at Mombasa.

.....

.....

.....

.....[2]

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(d) Fig. 6.3 shows the employment structure of Kenya.

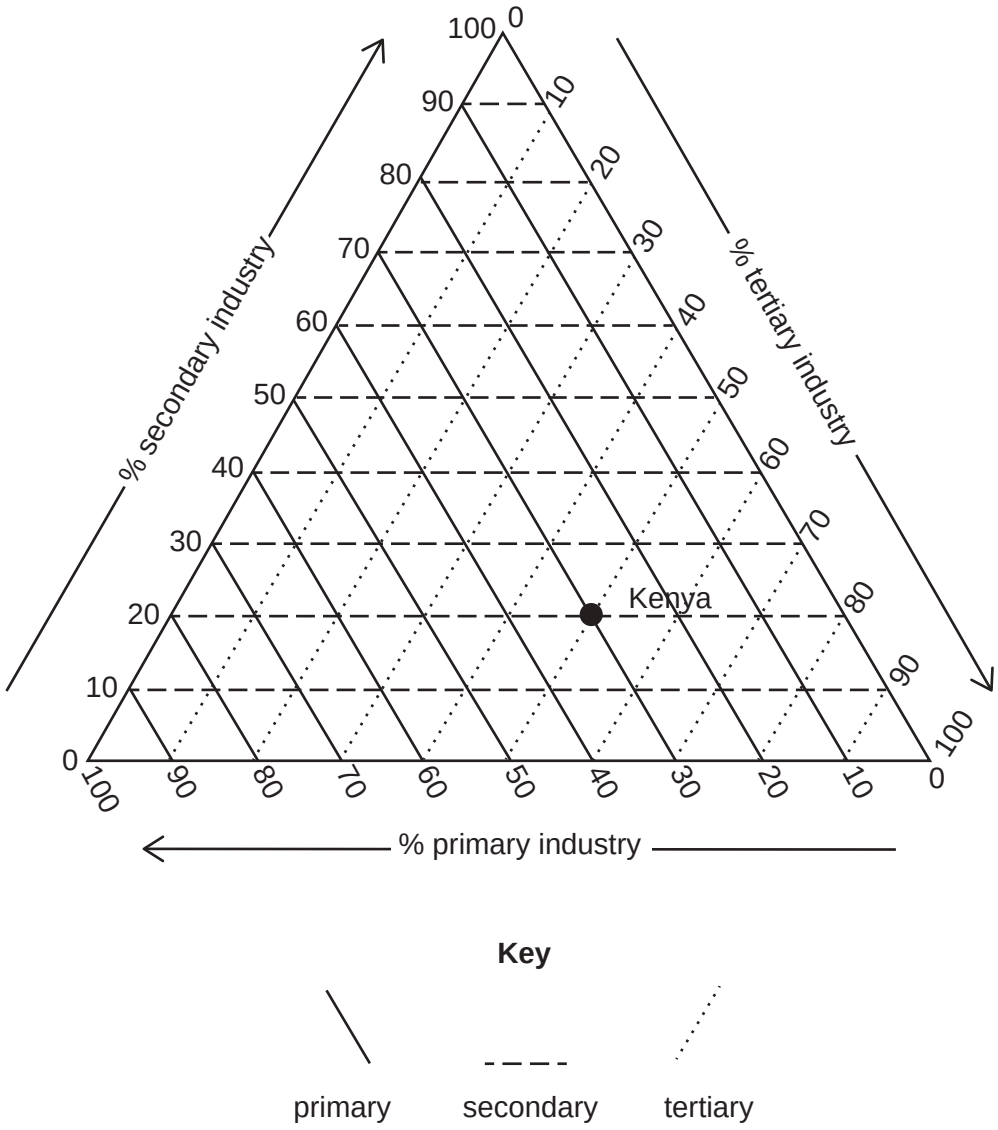

Fig. 6.3

What percentage of Kenya's employment is in:

(i) secondary industry

..... % [1]

(ii) tertiary industry?

..... % [1]

[Total: 8]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Cambridge IGCSE

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

GEOGRAPHY **0460/23**

Paper 2 **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Calculator
Protractor

1:25 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figure 4.1 and Figure 4.2 for Question 4.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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[Turn over

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1 **(a)** Study the map extract, which is for Valestrandsfossen, Norway. The scale is 1:25 000. Fig. 1.1 shows some features in the east of the map extract.

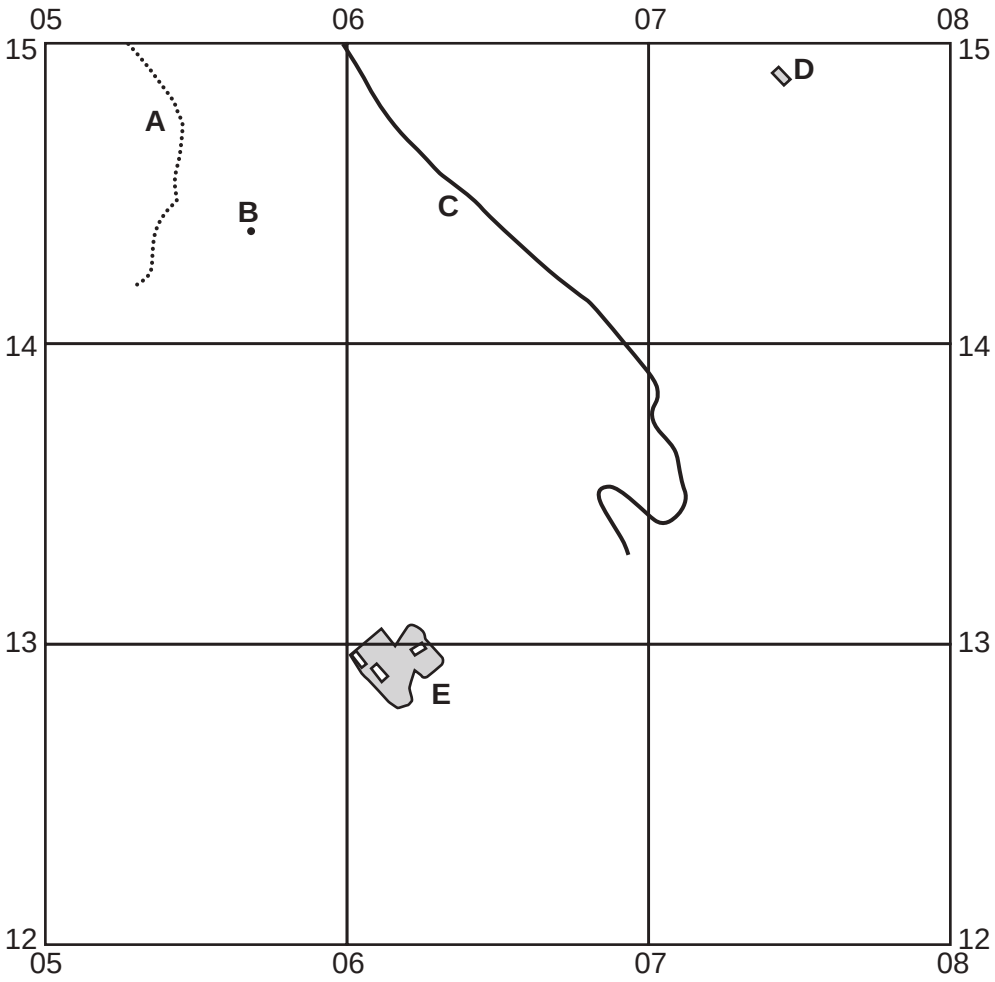

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**;

..... [1]

(ii) the height at the spot elevation **B**;

..... metres [1]

(iii) the type of road **C**;

..... [1]

(iv) the type of building at **D**;

..... [1]

(v) the land use at **E**.

..... [1]

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(b) Fig. 1.2 is a cross section along northing 11 from the coast at 039110 to 070110.

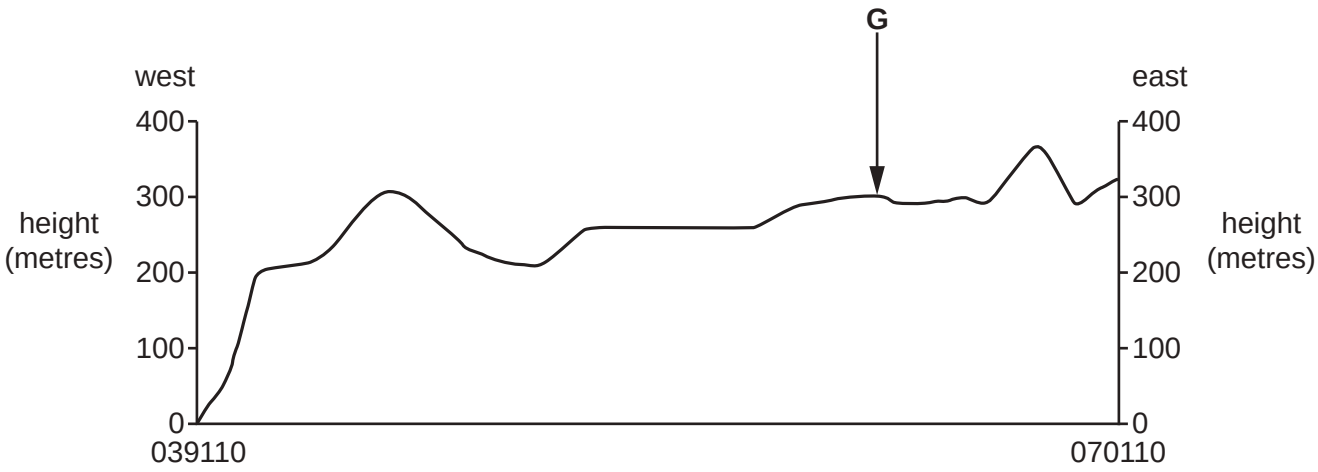

Fig. 1.2

(i) Identify the land use between **G**, labelled on the cross section, and the eastern edge of the cross section.

.....[1]

(ii) On Fig. 1.2 **show with a labelled arrow** the position of a private road. [1]

(iii) On Fig. 1.2 **show with a labelled arrow** the position of an unmarked footpath. [1]

(iv) On Fig. 1.2 **show with a labelled arrow** the position of the Daltveitelva river. [1]

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(c) Find the Daltveitelva river in the grid squares shown on Fig. 1.3.

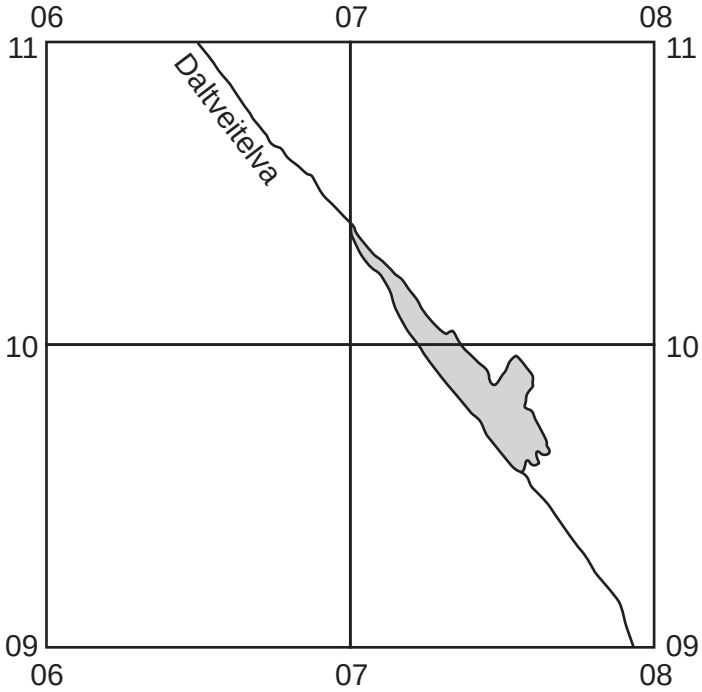

Fig. 1.3

(i) What is the direction of flow of the river? Tick **one** correct statement below.

	Tick (✓)
south west to north east	
north east to south west	
south east to north west	
north west to south east	

[1]

(ii) Using the map area shown in Fig. 1.3 **only**, give **one** reason for your answer to **(c)(i).**

.....

.....[1]

(d) Look at Fig. 1.4, which shows grid square 0115.

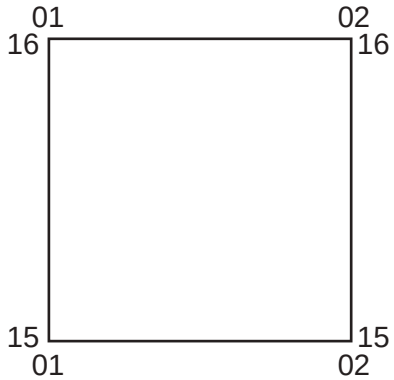

Fig. 1.4

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Describe the relief and drainage of the land in grid square 0115.

relief .....

.....

.....

.....

.....

.....

.....

drainage .....

.....

.....

.....[5]

(e) **(i)** Find the ferry crossing from Breistein to Valestrandsfossen in the centre of the map. Measure the distance along the route of the ferry crossing. Give your answer in metres.

..... metres [1]

(ii) What is the six-figure grid reference of the start of the ferry crossing at Breistein? Tick **one** correct answer below.

	Tick (✓)
022114	
023114	
032124	
114022	
114023	

[2]

(iii) Measure the bearing **from** the start of the ferry crossing at Breistein **to** its end at Valestrandsfossen.

..... degrees. [1]

[Total: 20]

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2 Study Fig. 2.1, which shows the number of immigrants arriving in Spain in 2001 and in 2014.

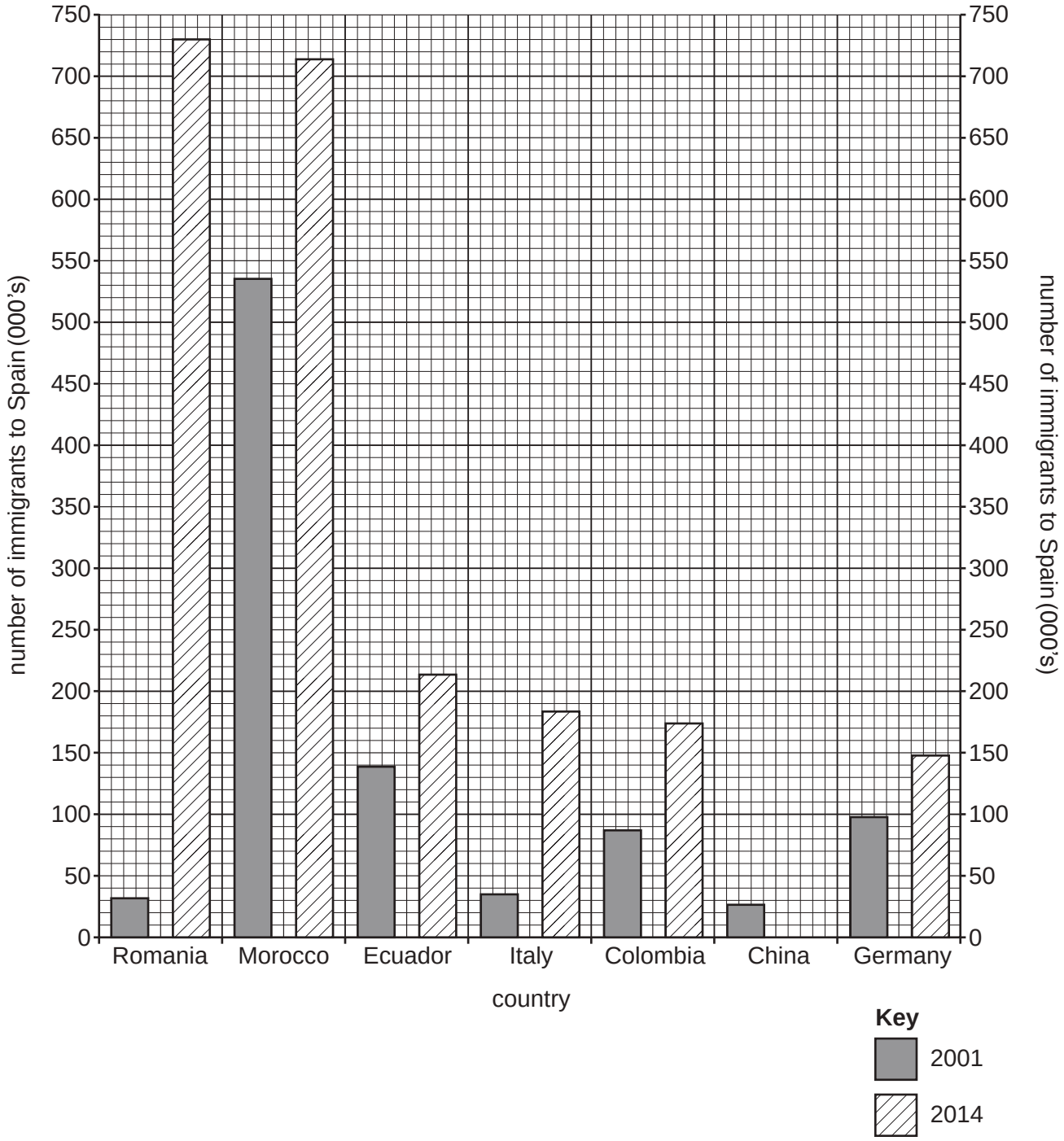

Fig. 2.1

(a) (i) **Complete the graph** by drawing a bar to show that 165 000 immigrants entered Spain from China in 2014. [1]

(ii) Identify the country with the largest number of immigrants to Spain in 2001.

.....[1]

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(iii) State the number of immigrants to Spain from Romania in 2014.

.....[1]

(iv) Calculate how many more immigrants entered Spain from Romania in 2014 than in 2001.

.....[1]

(b) Study Table 2.1, which gives information about the countries shown in Fig. 2.1.

Table 2.1

Country	Continent	Member of the EU and date of entry	Spanish as a main language	GNI* per person 2014 in US$
Spain	Europe	✓(1986)	✓	29 940
Romania	Europe	✓(2007)		9 370
Morocco	Africa			3 020
Ecuador	South America		✓	6 040
Italy	Europe	✓(1952)		34 280
Colombia	South America		✓	7 780
China	Asia			7 380
Germany	Europe	✓(1952)		47 640

EU = European Union (a group of countries which allows free movement of people)
* Gross National Income, GNI, a measure of wealth

(i) Using evidence from Table 2.1, suggest why many migrants moved from South America to Spain.

.....

.....

.....

.....[3]

(ii) State the evidence in Table 2.1 that explains the difference in the numbers of immigrants to Spain from Romania in 2014 from 2001.

.....

.....[1]

[Total: 8]

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3 Study Fig. 3.1, which shows part of Flevoland province in the Netherlands.

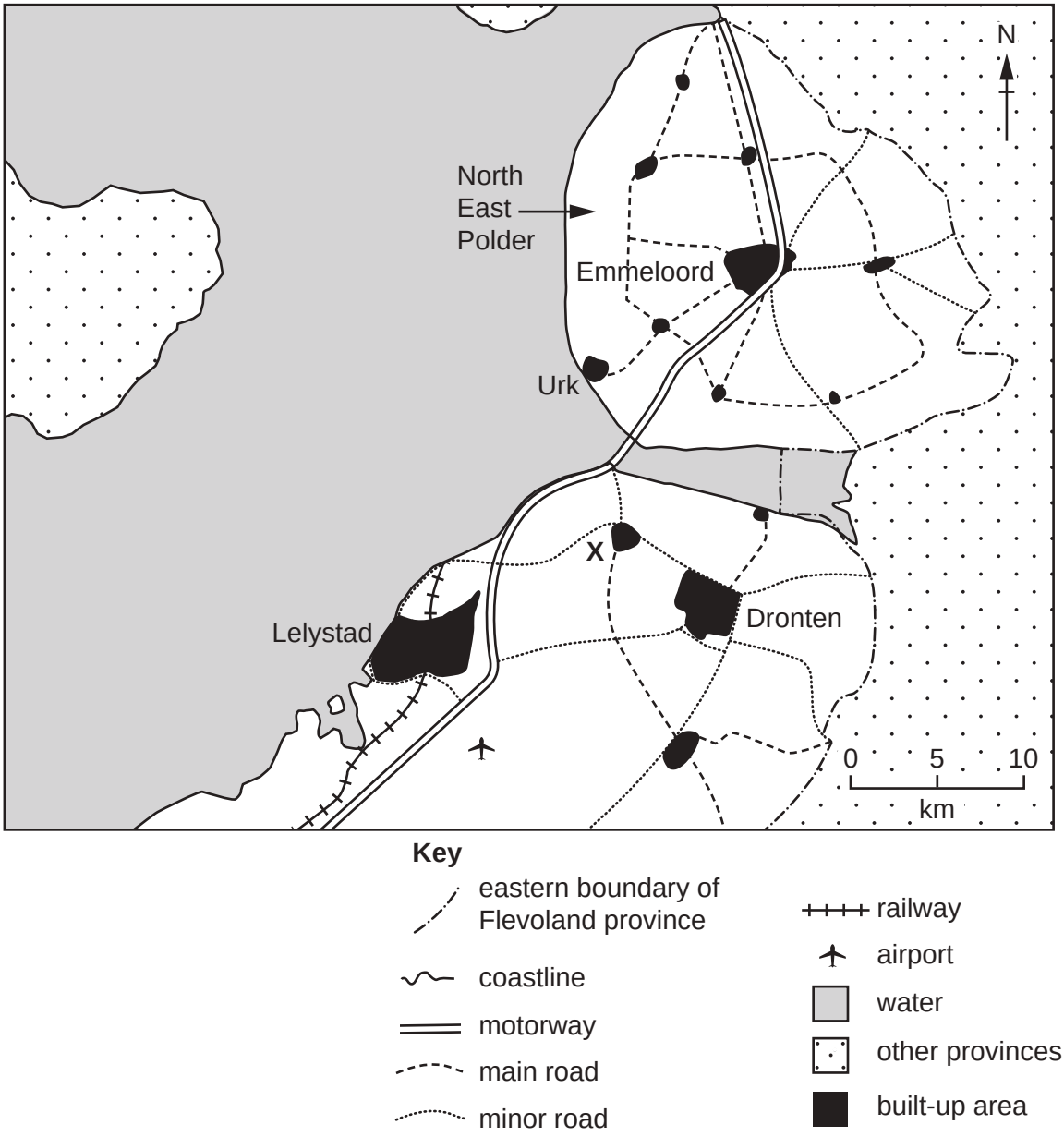

Fig. 3.1

(a) Complete the table below to show the hierarchy of settlements in the area shown on Fig. 3.1.

Settlement order	Settlement name	Number of settlements
highest	……	1
middle	…… and ……..	2
lowest		11

[3]

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(b) All land uses on the North East Polder were planned.

(i) Describe how the planners arranged the settlements on the North East Polder.

.....

.....[1]

(ii) Describe the road pattern on the North East Polder.

.....

.....

.....

.....[2]

(c) Use Fig. 3.1 to explain why Dronten has grown more rapidly than Emmeloord.

.....

.....[1]

(d) Suggest why residents in village **X** use shops and services in Lelystad even though Dronten is closer.

.....

.....[1]

[Total: 8]

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4 **(a)** **(i)** Study Fig. 4.1 (Insert), which is a photograph showing part of a coastline.

Name the features of coastal erosion shown in Fig. 4.1.

.....

.....

.....

.....[3]

(ii) Give **one** characteristic of the rock shown in Fig. 4.1 that causes it to be eroded.

.....

.....[1]

(b) **(i)** Study Fig. 4.2 (Insert), which is a photograph showing part of a different type of coastline.

Describe the beach shown in Fig. 4.2. Do not include the seaweed.

.....

.....

.....

.....[2]

(ii) Explain why the coastline in Fig. 4.2 has more deposition than the coastline in Fig. 4.1.

.....

.....

.....

.....[2]

[Total: 8]

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TURN PAGE FOR QUESTION 5

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5 **(a)** Fig. 5.1 shows plate boundaries and the direction of movement of some plates.

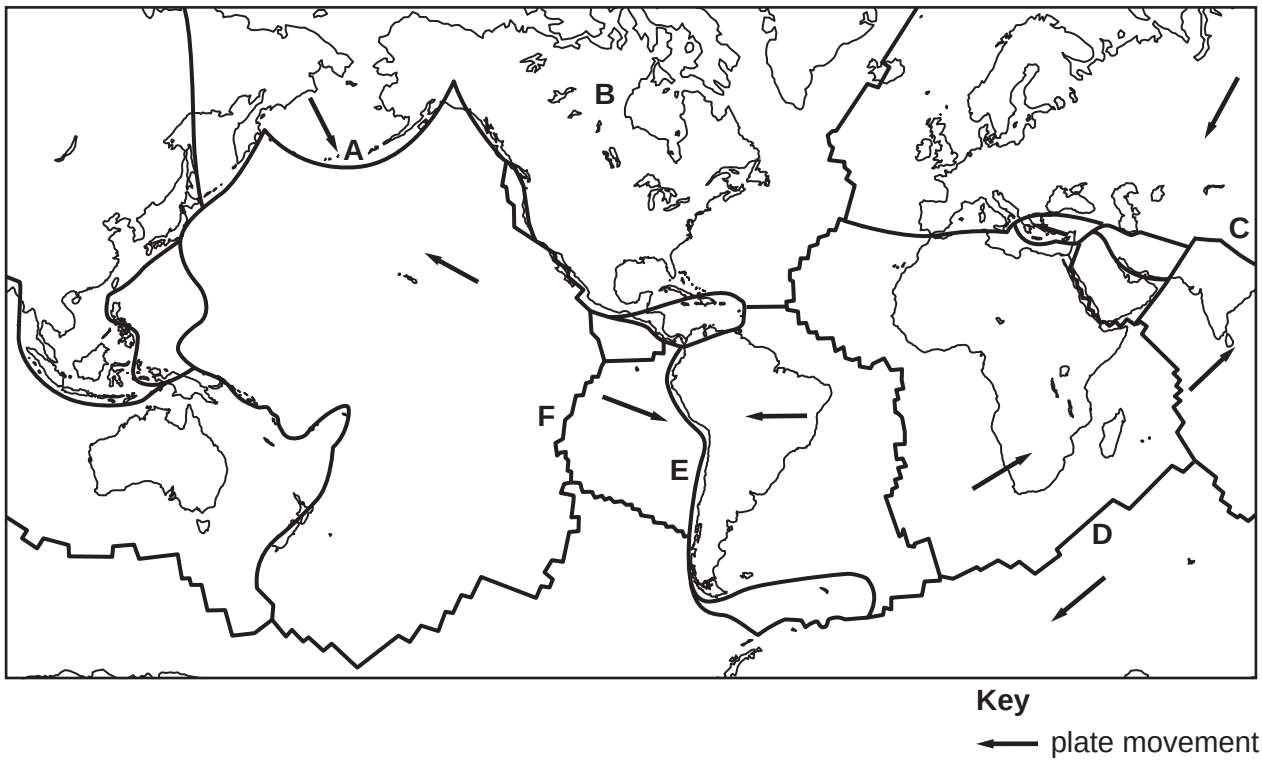

Fig. 5.1

Use Fig. 5.1 to complete the table by writing in the letter, chosen from **A** to **F**, that locates the description.

Description of location	Letter
an oceanic plate colliding with a continental plate	
an island arc formed by two oceanic plates colliding	
two continental plates colliding	
two plates moving apart	
major earthquakes are unlikely to occur here	

[5]

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(b) Study Fig. 5.2, which shows part of the Earth's crust. Using information from Fig. 5.2, answer the questions below.

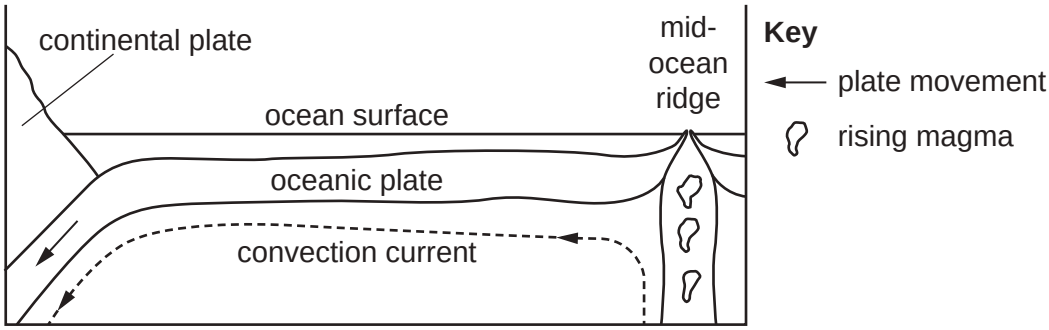

Fig. 5.2

(i) Suggest where new oceanic plate is formed.

.....

.....[1]

(ii) Suggest how new oceanic plate is formed.

.....

.....[1]

(iii) Suggest why oceanic plate moves.

.....

.....[1]

[Total: 8]

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6 Study Fig. 6.1, which shows countries in which Nestlé, a transnational corporation, has factories.

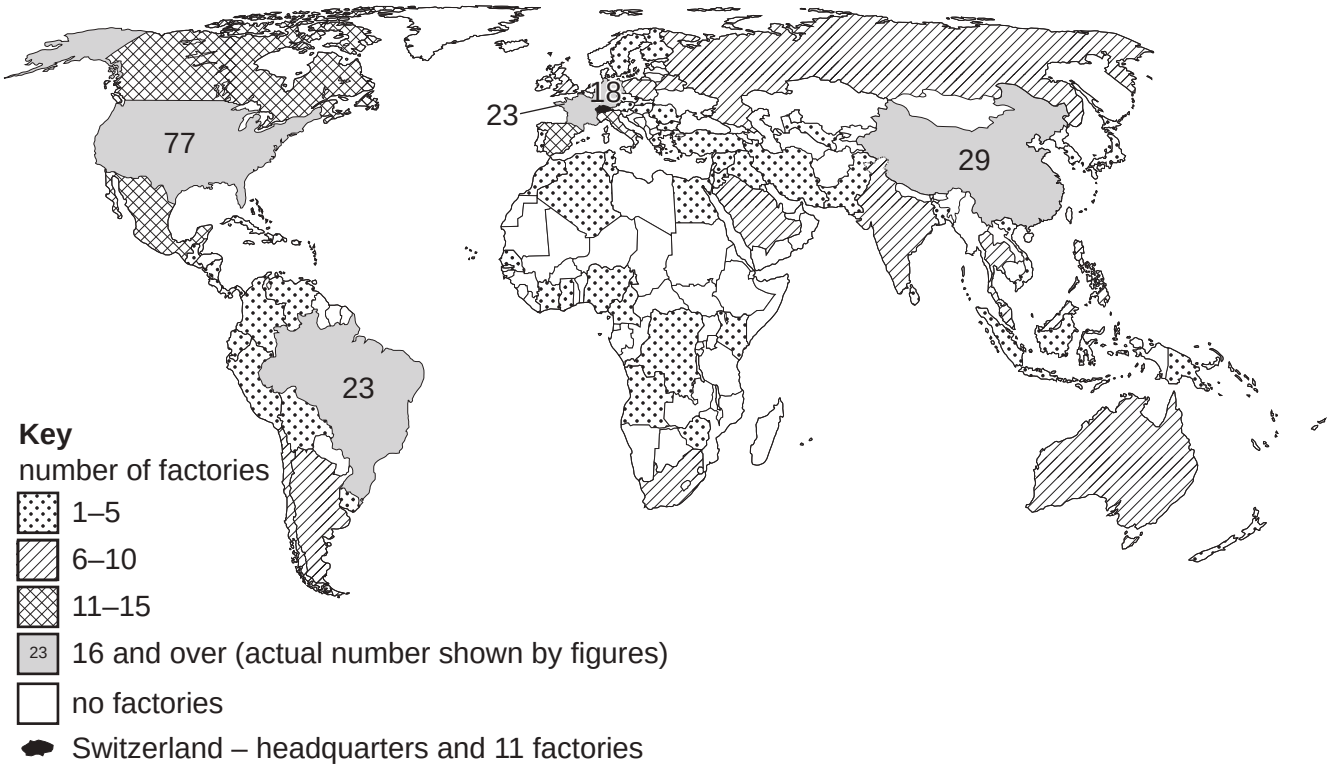

Fig. 6.1

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(a) Describe how Fig. 6.1 shows that Nestlé is typical of a transnational corporation.

.....

.....

.....

.....[2]

(b) **(i)** Suggest **three** advantages for a country of having a transnational corporation factory.

.....

.....

.....

.....

.....

.....[3]

(ii) Suggest **three** disadvantages for a country that a transnational corporation factory might cause.

.....

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.....[3]

[Total: 8]

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Additional Pages

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

7915136208

GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2, 1.3, 1.5 and 1.6 and Tables 1.2 and 1.3 for Question 1, and Figs. 2.1 and 2.3 and Tables 2.1, 2.2 and 2.3 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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[Turn over

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1 Students carried out fieldwork at two beaches in eastern Scotland. Bervie beach is in a bay surrounded by cliffs and St Cyrus beach is a long, straight beach.

(a) Before they began their fieldwork their teacher reminded them of the need to be safe near the sea.

The table below shows three possible threats to their safety. Suggest **one** different precaution that the students could take to reduce the risk of accident in each situation.

Possible threat to safety	Possible precaution
Sea conditions may be rough	…… …… ……
There may be a high tide during the time scheduled for fieldwork	…… …… ……
An individual student may become separated from the class	…… …… ……

[3]

(b) In class the students studied the difference between destructive and constructive waves. The two types of wave are shown in Figs 1.1, 1.2 and 1.3 (Insert).

(i) Destructive waves have a higher frequency than constructive waves.
Explain why destructive waves erode beaches and constructive waves deposit material.

.....

.....

.....

.....

.....

.....

.....

.....[4]

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(ii) Describe a method the students could use on a field visit to measure wave frequency.

.....

.....

.....

.....

.....

.....[3]

The students tested the following hypotheses through fieldwork at the two beaches:

Hypothesis 1: *Destructive waves produce a steeper beach profile.*

Hypothesis 2: *There is larger beach material where there is a steeper beach profile.*

(c) To investigate **Hypothesis 1** the students first needed to find out if there was a difference in wave frequency between the two beaches. The results of their measurements at each beach are shown in Table 1.1 below.

Table 1.1

Results of measurements

Bervie beach

Measurement number	1	2	3	4	5	6	**7**	8	9	10	Average
Wave frequency (number of waves per minute)	11	14	15	12	15	16	**13**	14	15	12	.....

St Cyrus beach

Measurement number	1	2	3	4	5	6	7	8	9	10	Average
Wave frequency (number of waves per minute)	6	6	7	8	7	7	6	8	7	8	7

(i) Calculate the average wave frequency at Bervie beach. **Write your answer in Table 1.1.** [1]

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(ii) Use the results in Table 1.1 **to complete Fig. 1.4**, below, by plotting the result of measurement 7 at Bervie beach. [1]

Results of measurements of wave frequency

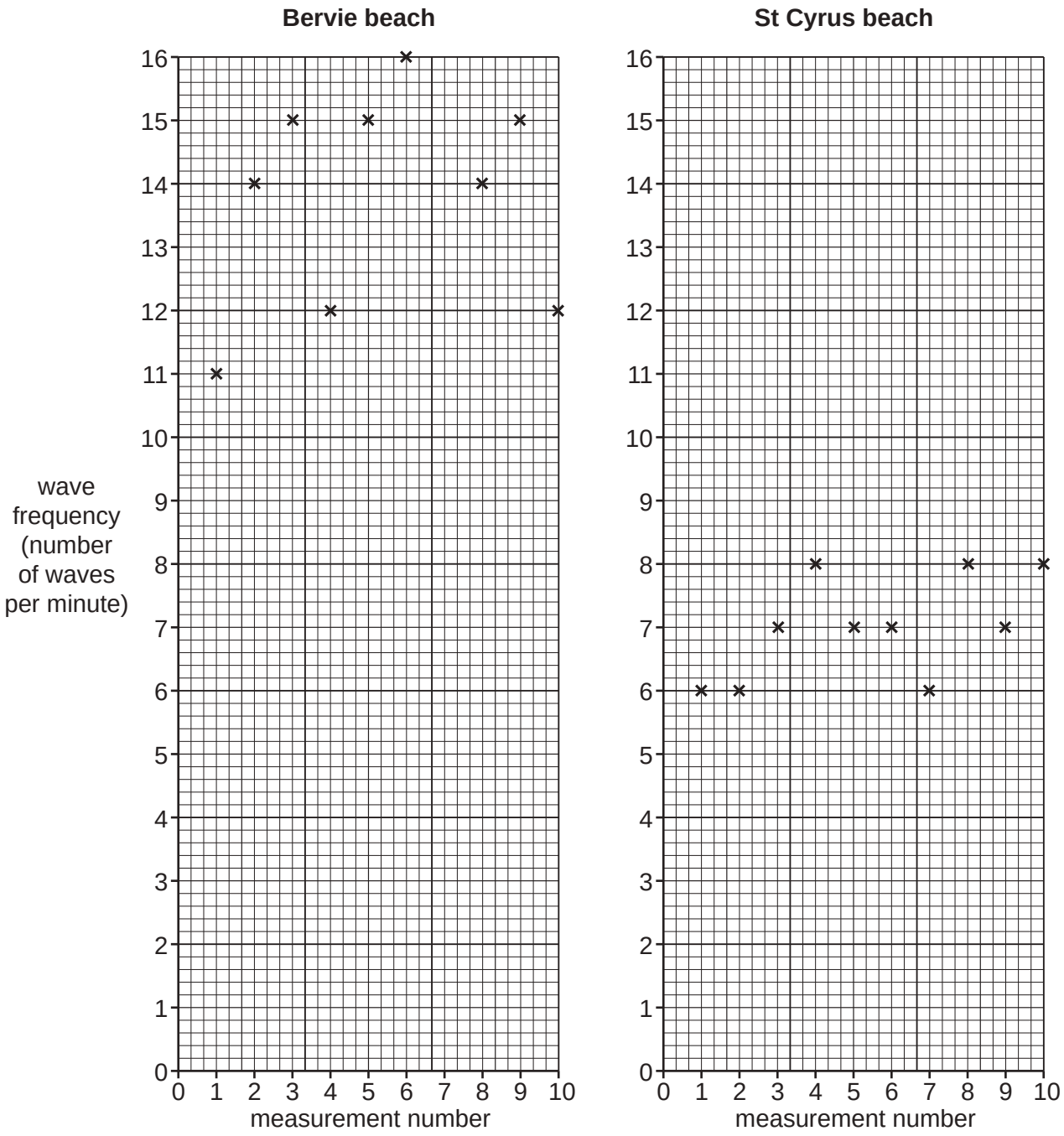

Fig. 1.4

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(d) Next the students measured the angles of slope at the two beaches and used their results to draw the two profiles shown in Fig. 1.5 (Insert).

(i) Describe a method to measure the beach profiles.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(ii) What conclusion would the students make about **Hypothesis 1:** *Destructive waves produce a steeper beach profile*? Support the conclusion with evidence from Table 1.1, and Figs 1.4 and 1.5.

.....

.....

.....

.....

.....

.....

.....

.....[4]

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(e) To investigate **Hypothesis 2:** *There is larger beach material where there is a steeper beach profile*, the students used a quadrat at three sites on each beach. This quadrat is shown on Bervie beach in Fig. 1.6 (Insert).
Their results are shown in Tables 1.2 and 1.3 (Insert).

(i) Describe how the students used the quadrat to collect their results.

.....

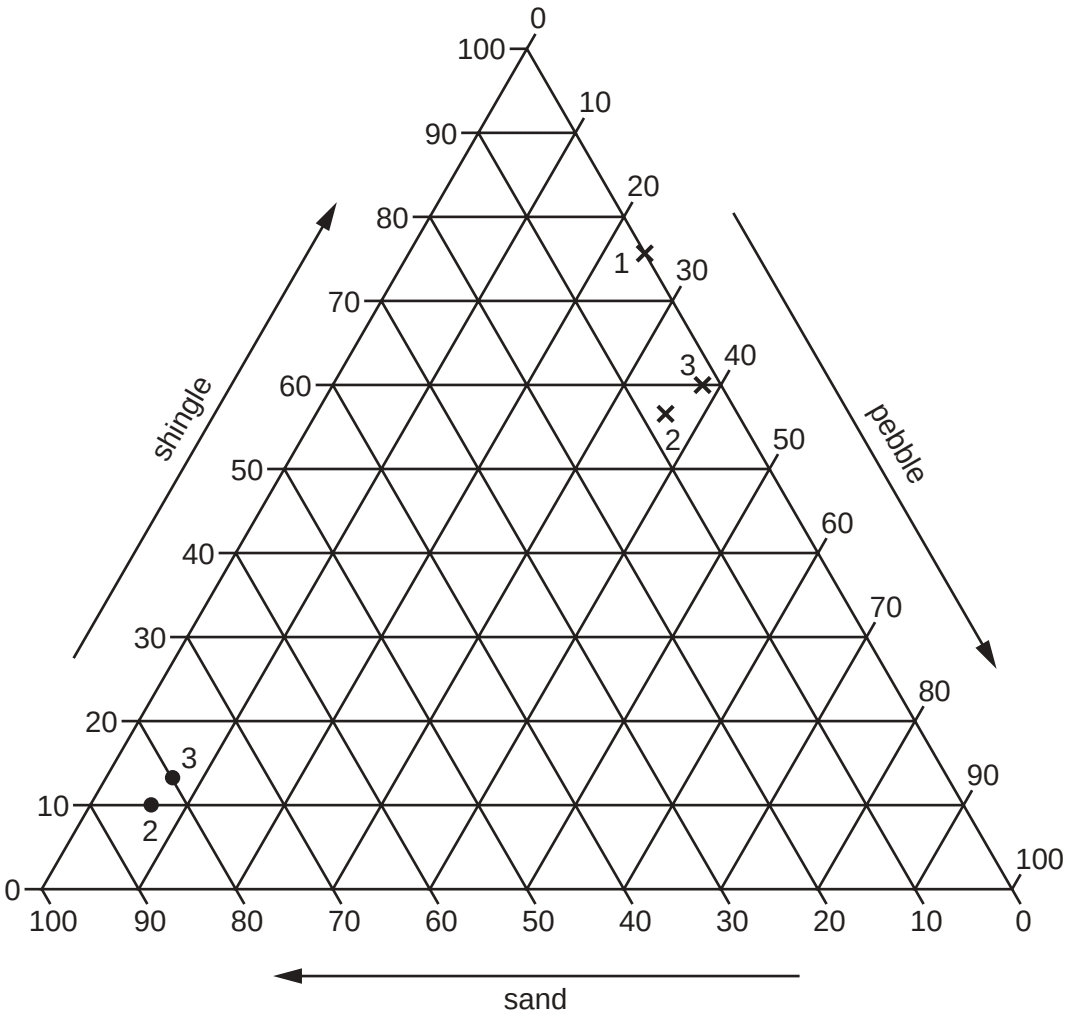
.....

.....

.....[2]

(ii) Use Table 1.3 **to plot the result at site 1** on St Cyrus beach **in Fig. 1.7 below**. [1]

Types of beach material



Key

× sites on Bervie beach

● sites on St Cyrus beach

Fig. 1.7

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(iii) Do the results of the fieldwork support **Hypothesis 2:** *There is larger beach material where there is a steeper beach profile*? Support your decision with data from Tables 1.2 and 1.3 and Figs. 1.5 and 1.7.

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.....[3]

(f) Bervie beach and St Cyrus beach are popular for tourism. Describe a fieldwork method to compare how tourists may have polluted the two beaches.

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.....[4]

[Total: 30]

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2 Students in the UK wanted to investigate the impact of tourism on a town in the Lake District National Park. They wanted to find out if there were both positive and negative effects.

They decided to test the following hypotheses:

Hypothesis 1: *Most of the shops and services in the town centre are for tourists.*

Hypothesis 2: *Tourism creates more benefits than problems for local people.*

(a) To investigate **Hypothesis 1** the students did some fieldwork to identify and map the different shops and services in the town centre. Fig. 2.1 (Insert) shows part of their map.

(i) Identify the building located 120 m north east of the tourist information office.

.....[1]

(ii) Three shops on Fig. 2.1 are described in the table below. Use the key to identify the number of each shop and write this number in the table.

Description of shop	Shop number
It sells equipment for mountaineering and outdoor activities, including walking boots and waterproof coats.	.....
It sells jewellery, craft objects and artistic materials. The goods are made in the town and are speciality products of the local area.	.....
It sells bread and cakes which are made in the shop. These are usually made and sold on the same day.	.....

[3]

(b) When the students completed the land use map of the town centre they classified the shops and services into three groups:

- for tourists only
- for local residents only
- for tourists and local residents

The results of this classification are shown in Table 2.1 (Insert).

(i) Why might the students have found it difficult to classify some shops and services into the three groups?

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.....

.....

.....[2]

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(ii) Use the results in Table 2.1 to **complete the pie graph, Fig. 2.2 below**. [2]

Students' classification of shops and services

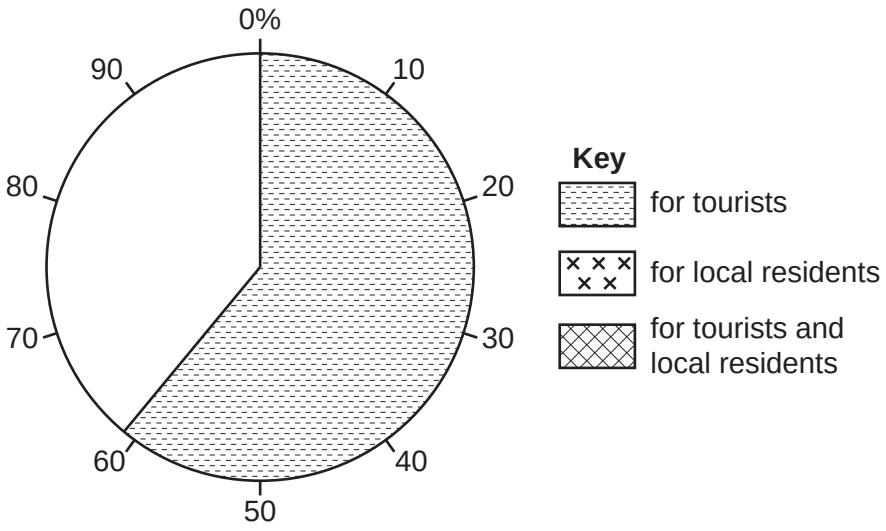

Fig. 2.2

(iii) The students made the conclusion that **Hypothesis 1:** *Most of the shops and services in the town centre are for tourists* was correct. Do you agree with their conclusion? Support your answer with evidence from Table 2.1 and Fig. 2.2.

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.....[3]

(c) To investigate **Hypothesis 2:** *Tourism creates more benefits than problems for local people*, the students used a questionnaire with people who lived in the town. The questionnaire is shown in Fig. 2.3 (Insert). They decided on a sample size of 100 residents and to ask people to complete the questionnaire on a Saturday morning in the town centre.

(i) Why did the students ask Question 1: *Are you a resident of the town?*

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.....[2]

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(ii) The students decided to use random numbers as their sampling method. Give **two** advantages of this method.

1 .....

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2 .....

.....[2]

(d) The answers to Question 2: *What benefits do you think tourists bring to the town?* and Question 3: *What problems do tourists cause for you?* are shown in Table 2.2 (Insert).

(i) Use the results in Table 2.2 **to complete Figs 2.4 and 2.5 below**. [2]

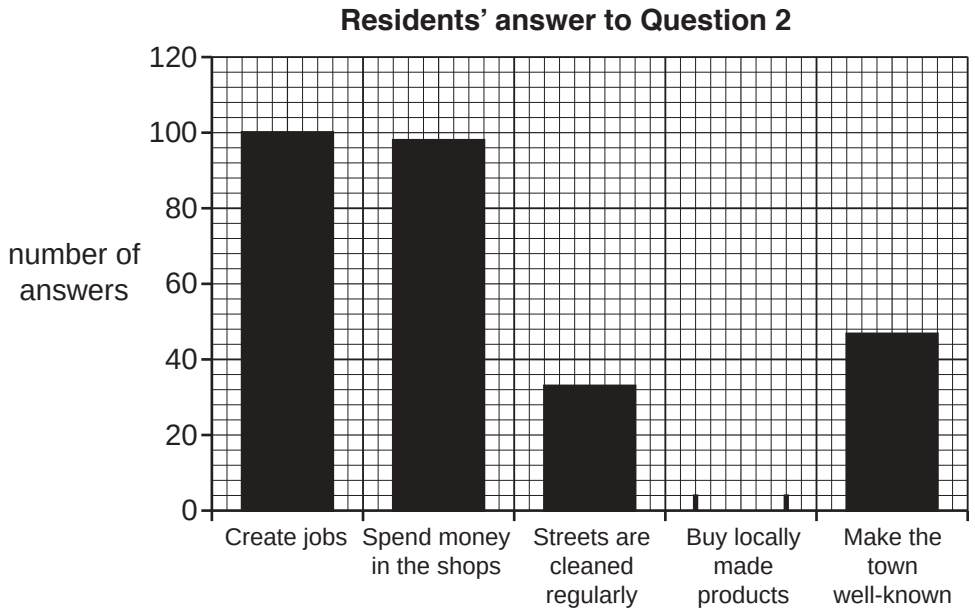

Fig. 2.4

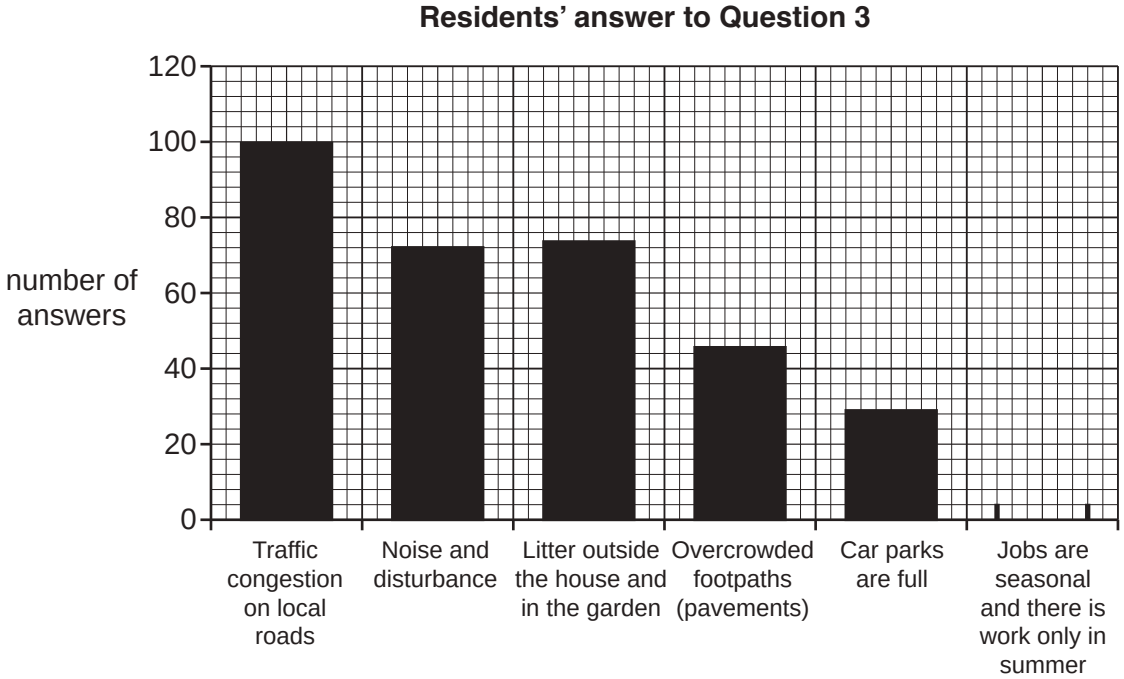

Fig. 2.5

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(ii) What conclusion can you make about **Hypothesis 2:** *Tourism creates more benefits than problems for local people*? Support your conclusion with evidence from Table 2.2 and Figs. 2.4 and 2.5.

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.....[4]

(e) Local residents identified traffic congestion as a main problem of tourism.

(i) Suggest why this is a problem in many towns popular with tourists.

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.....

.....[2]

(ii) Suggest **three** ways to reduce traffic congestion in tourist towns.

1 .....

.....

2 .....

.....

3 .....

.....[3]

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(f) As an extension study the students decided to do a traffic survey at six sites around the town centre. They chose a day in summer when there were many tourists in the town.
The results of the traffic survey at one site are shown in Table 2.3 (Insert). Describe the students' fieldwork method which produced these results.

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.....[4]

[Total: 30]

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CENTRE NUMBER						CANDIDATE NUMBER				

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator
Protractor

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Tables 1.1, 1.2 and 1.3 and Fig. 1.4 for Question 1, and Table 2.2 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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1 Students in Bangkok, Thailand investigated differences between two shopping centres in the north of the city. Central Ladprao Plaza is a larger shopping centre than La Villa and they are about 5 km apart. One group of students wanted to find out if there were differences between the shops and services in the two centres, and the different reasons people went to them.

They decided to test the following hypotheses:

Hypothesis 1: *There are differences between the numbers of high-, middle- and low-order shops and services in Central Ladprao Plaza and in La Villa.*

Hypothesis 2: *The main reasons for people going to shop in Central Ladprao Plaza and La Villa vary in importance.*

(a) Before they began their fieldwork the class of students made a summary table of the differences between high-, middle- and low-order goods and services. This is shown in Fig. 1.1 below.

Complete Fig. 1.1 to show the differences between high- and low-order goods and services. [3]

Goods and services

Order	How often they are bought	Average price of goods	Distance people are willing to travel	Examples of goods and services
High	....	....	....	jewellery 'designer' fashions
Middle	moderate frequency	moderate price	medium distance	clothes shoes
Low	....	....	....	food hairdressers

Fig. 1.1

(b) To investigate **Hypothesis 1** the students did fieldwork in the two shopping centres. One student's fieldwork notes describe their method in Fig. 1.2 below.

Extract from a student's fieldwork notes

Method

My group got a map which showed the different shops in Central Ladprao Plaza. We walked round the shopping centre and checked that the shops were still the same as on the map. We then used a tally chart and classified the shops as high-, middle- or low-order. We then went to La Villa and walked round the shopping centre classifying the shops on a tally chart in the same way.

Fig. 1.2

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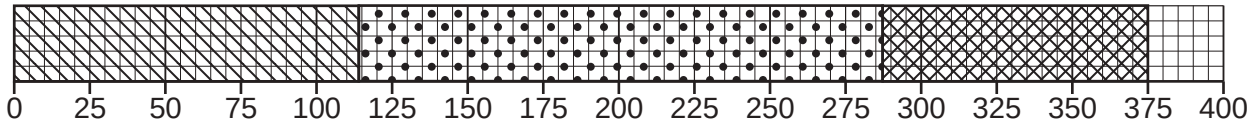
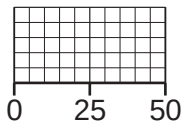
(i) The results of this fieldwork are shown in Table 1.1 (Insert). Use these results **to draw the divided bar graph** for La Villa in Fig. 1.3 below. [3]

Number of shops selling goods and services

Central Ladprao Plaza



La Villa



Key



high-order goods and services

middle-order goods and services

low-order goods and services

Fig. 1.3

(ii) Do the results of the students' fieldwork support **Hypothesis 1:** *There are differences between the numbers of high-, middle- and low-order shops and services in Central Ladprao Plaza and in La Villa*?
Support your conclusion with evidence from Fig. 1.3 and Table 1.1.

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.....[4]

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(c) To get some information to test **Hypothesis 2:** *The main reasons for people going to shop in Central Ladprao Plaza and La Villa vary in importance*, the students used a questionnaire with people in the two shopping centres. This questionnaire is shown in Fig. 1.4 (Insert).

(i) The students and teacher agreed the questions they would use in the questionnaire. Suggest **three** pieces of advice their teacher gave them about using the questionnaire with people who are shopping.

1 .....

.....

2 .....

.....

3 .....

.....[3]

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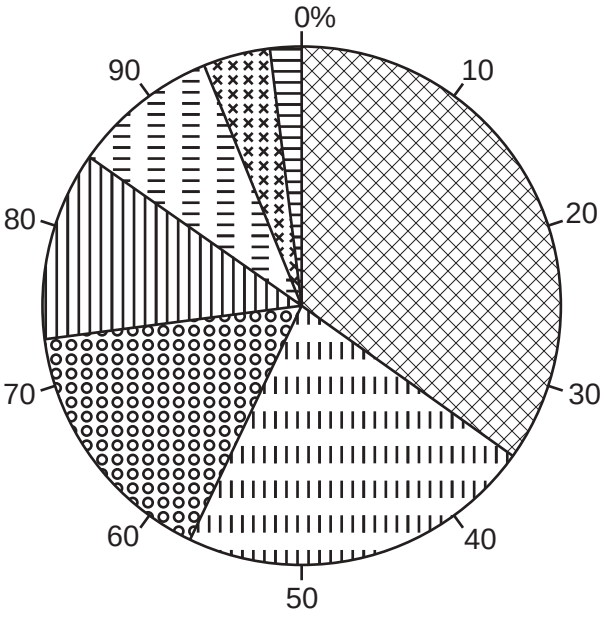
(ii) Table 1.2 (Insert) shows the results of Question 1 in the questionnaire.

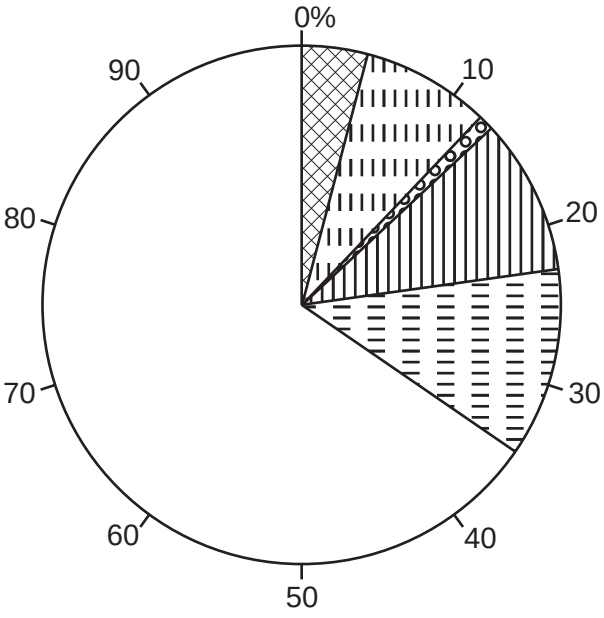
Use the results from Table 1.2 **to complete the pie graph** for La Villa in Fig. 1.5 below. [2]

Answers to Question 1 in the questionnaire:
What is the main reason you are shopping here today?

Central Ladprao Plaza



La Villa



Key

- large variety of shops and services
- near work
- large department stores
- attractive indoor shopping environment
- good parking
- near home
- good value for money

Fig. 1.5

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(iii) What conclusion would the students make about **Hypothesis 2:** *The main reasons for people going to shop in Central Ladprao Plaza and La Villa vary in importance*?
Use evidence from Fig. 1.5 and Table 1.2 to support your answer.

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.....[4]

(d) One student used the answers to Question 2 in the questionnaire (*How did you travel here today?*) to plot the graphs in Fig. 1.6 opposite.

(i) Use the results shown in Table 1.3 (Insert) to **plot the number of people** who went to La Villa by car in Fig. 1.6 opposite. [1]

(ii) Using Table 1.3 and Fig. 1.6, identify **two** differences between the methods of travel used to go to the two shopping centres.

1 .....

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2 .....

.....[2]

(iii) Suggest **three** factors which may affect people's method of travel to the shopping centres.

1 .....

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2 .....

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3 .....

.....[3]

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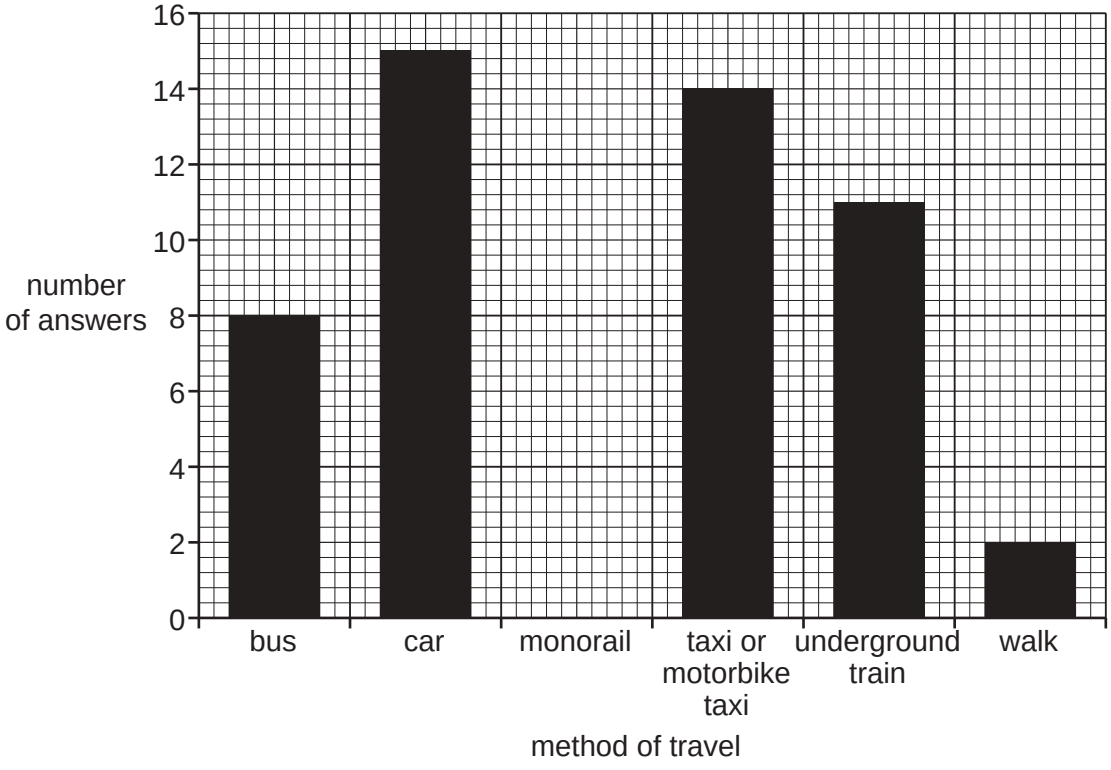
Methods of travel to the shopping centres

Central Ladprao Plaza



La Villa

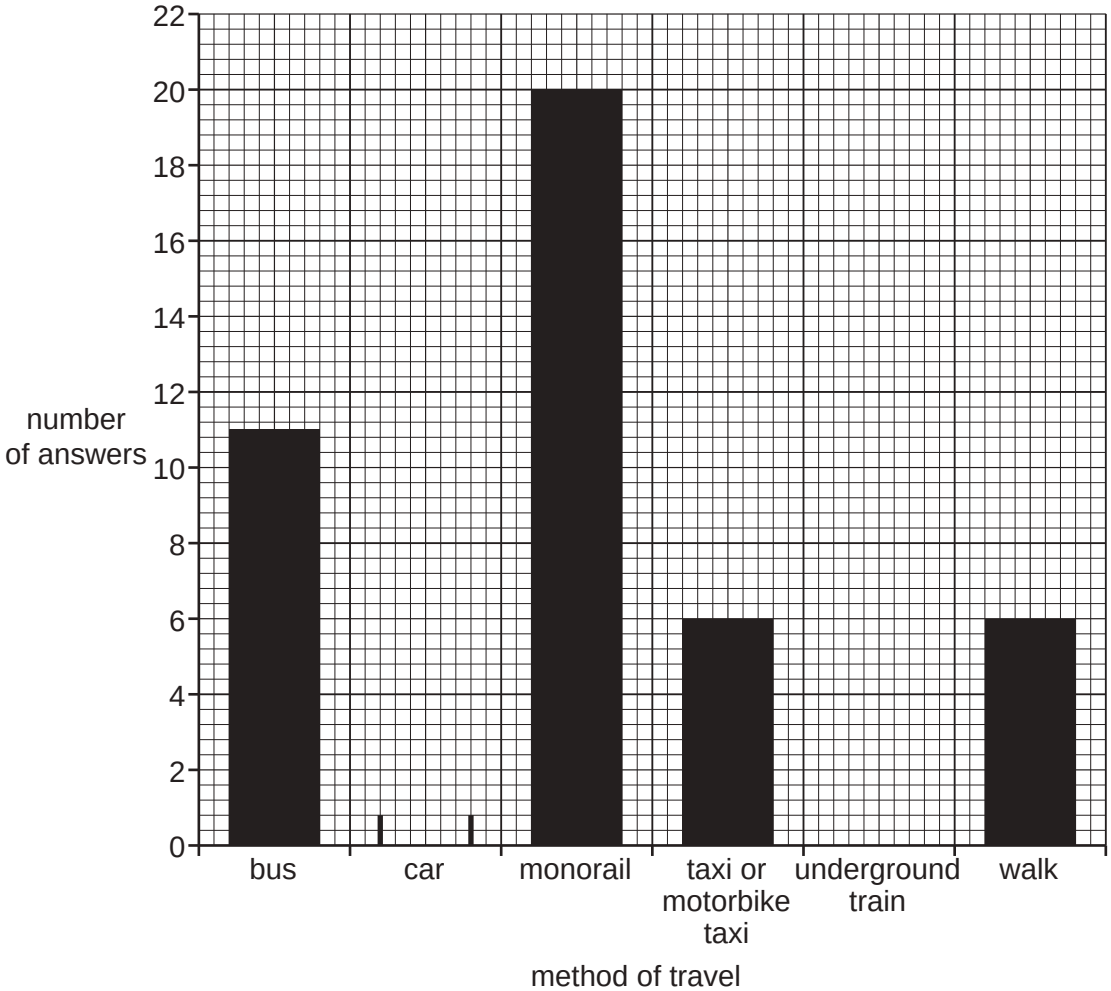


Fig. 1.6

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(e) Another group of students investigated the spheres of influence of the shopping centres.

(i) Which **one** of the following is the correct definition of *sphere of influence*? Tick (✓) your choice in the table below.

Definition	Tick (✓)
area surrounding a town or city	
area served by a town or service	
area where people have migrated from	
area next to the CBD	
area where people go to work	

[1]

(ii) Describe how the students could use the answers to Questions 3 and 4 in the questionnaire (Fig. 1.4 Insert) to investigate the spheres of influence of the two shopping centres.

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.....[4]

[Total: 30]

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2 Students at a school in England did fieldwork on a local river. They wanted to investigate how the river changed downstream.

(a) Before splitting up into separate groups the whole class of students did a pilot study at one site.

Identify **two** advantages of doing a pilot study from the table below. Tick (✓) your choices.

	Tick (✓)
look at different features along the river	
draw a map of the course of the river	
learn how to work safely in the river	
practise fieldwork techniques	
get to know other students before they begin fieldwork	

[2]

Two groups of students worked separately to investigate the following hypotheses:

Hypothesis 1: *The river gradient becomes steeper downstream.*

Hypothesis 2: *The size of pebbles on the river bed becomes smaller downstream.*

(b) (i) To investigate **Hypothesis 1** the students measured the gradient of the river bed over 10 m at five fieldwork sites. Describe a method to do this. Refer to the equipment they would use in your answer.

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.....[5]

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(ii) One group of students (group A) made one measurement at each site and the other group (group B) made four measurements. Explain why the results of group B should be more reliable.

.....

.....

.....

.....[2]

(c) The results of the measurements made by group B at each site are shown in Table 2.1 below.

Table 2.1

Measurements of angle of gradient made by group B

Site		Angle of gradient (°) measured over 10 m				
		Measurement 1	Measurement 2	Measurement 3	Measurement 4	Average angle (°)
1	upstream	11	14	7	5	9
2		6	7	9	7	7
3		3	6	5	2	**4**
4		10	3	8	6	7
5	downstream	4	11	5	4	6

Note - average figures given to the nearest whole number

(i) At which site (1 to 5) is the largest variation in measurements?

Site ..... [1]

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(ii) Fig. 2.1 below shows a method chosen by one student to present the results in Table 2.1. Use this method **to show the average gradient at site 3**. [1]

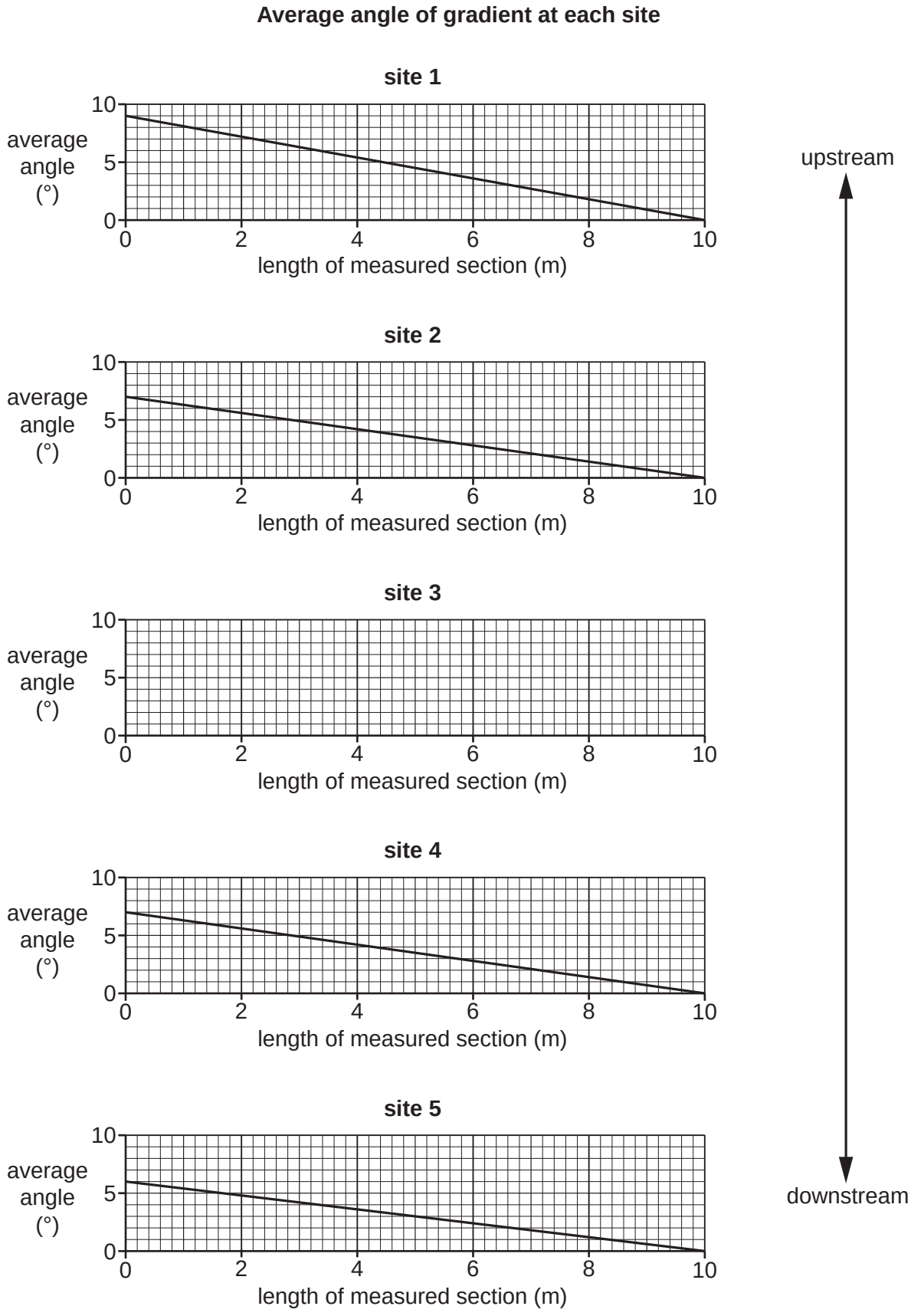

Fig. 2.1

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(iii) What conclusion would the students make about **Hypothesis 1:** *The river gradient becomes steeper downstream*? Support your answer with data from Fig. 2.1 and Table 2.1.

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.....

.....[3]

(d) To investigate **Hypothesis 2:** *The size of pebbles on the river bed becomes smaller downstream*, the students in group A selected 10 pebbles at random from the bed of the river at each site.

(i) Suggest **two** weaknesses of selecting pebbles at random.

1 .....

.....

2 .....

.....[2]

(ii) The students in group B collected their sample of 10 pebbles at equal distances across the river bed. Which **one** of the following describes this method of sampling? Tick (✓) your answer.

	Tick (✓)
average	
balanced	
biased	
stratified	
systematic	

[1]

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(iii) Using a ruler the students then measured the length of the pebbles. The measurements of the pebbles collected by group B at site 2 are shown in Table 2.2 (Insert).

Plot on Fig. 2.2 below the length of pebble number 3 and the average length of the pebbles at site 2. [2]

Length of sampled pebbles at each site

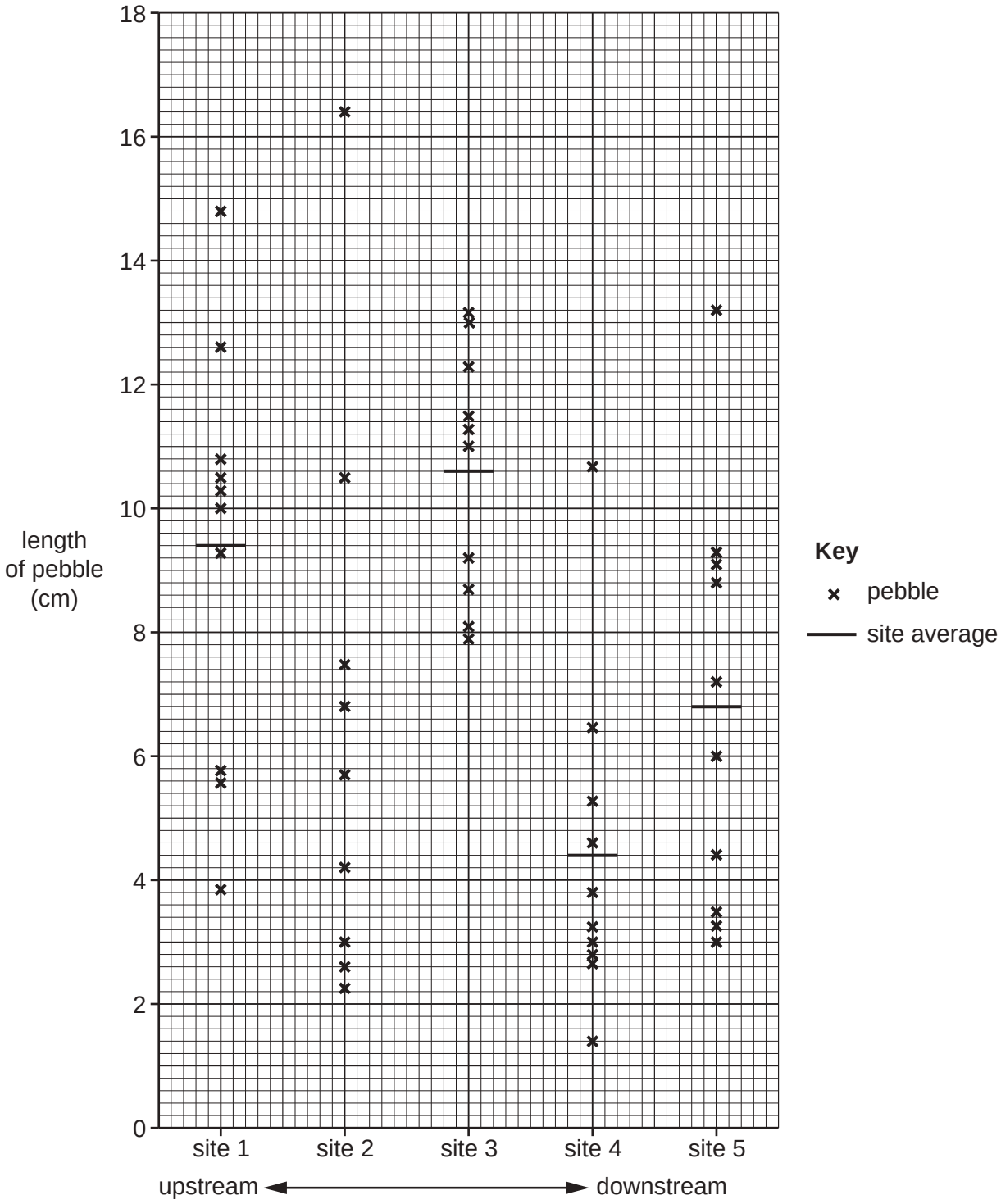

Fig. 2.2

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(iv) The students decided that **Hypothesis 2:** *The size of pebbles on the river bed becomes smaller downstream*, was **partly true**. Use evidence from Fig. 2.2 to explain why they reached this conclusion.

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.....[3]

(v) Explain why pebbles generally become smaller downstream. Refer to processes of erosion.

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.....[3]

(e) Whilst the two groups of students worked on Hypotheses 1 and 2, other students investigated how other characteristics of the river changed downstream.

(i) Suggest a suitable hypothesis to investigate. Do **not** choose gradient or pebble size.

.....

.....[1]

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(ii) Describe a method to investigate your hypothesis at the five fieldwork sites.

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.....[4]

[Total: 30]

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2018**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

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Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
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Write your answer to each question in the space provided.
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Answer **all** questions.

The Insert contains Figs. 1.1 and 1.6 and Table 1.1 for Question 1, and Figs. 2.1, 2.4 and 2.8 and Tables 2.2 and 2.3 for Question 2.

The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
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1 Students at a college in southern England were studying how to collect weather data and if there might be relationships between weather data measurements. One group of students focused their study on rainfall. They investigated the following hypotheses:

Hypothesis 1: *Daily rainfall totals are influenced by the direction from which the wind is blowing.*

Hypothesis 2: *Daily rainfall totals are higher when atmospheric pressure is higher.*

(a) The students decided to collect their data at 09:00 on each day in February.

Why is it important to collect data at the same time each day?

.....

.....[1]

(b) The students used a rain gauge and measuring cylinder to collect rainfall data. These are shown in Fig. 1.1 (Insert).

(i) Describe how this equipment is used to measure daily rainfall.

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.....[4]

(ii) Which **two** of the following factors are important when deciding where to put the rain gauge? Tick (✓) your choices below.

Factor	Tick (✓)
away from trees to reduce interception by leaves	
on concrete to collect any rain splashing up from the ground	
on a hillside which is facing the direction the wind is blowing the rain	
next to a main road so it is easy to get to the rain gauge	
remote from people or animals which may interfere with the rain gauge	

[2]

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(c) The students used a wind vane to collect data about wind direction.

(i) On Fig. 1.2 below, **complete the boxes** to show how the wind vane measures wind direction. [2]

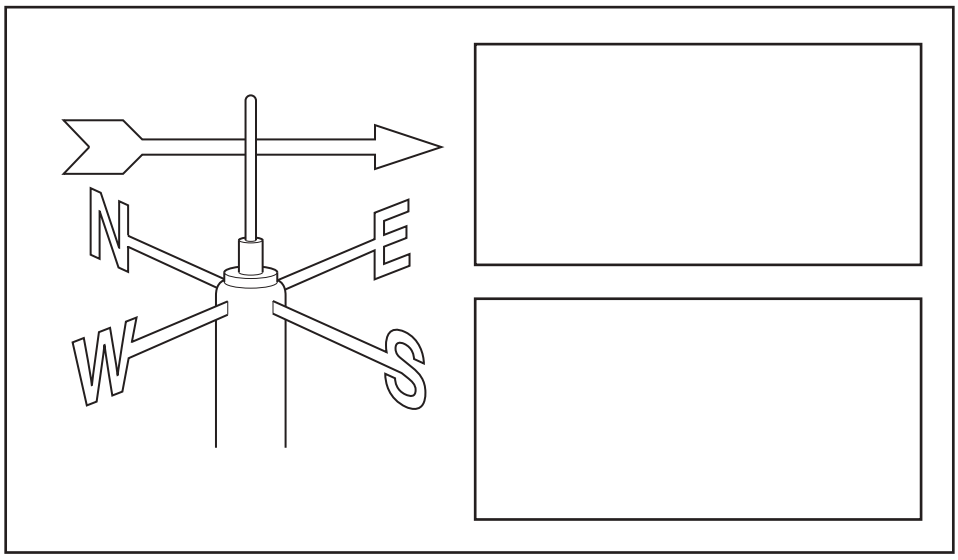

Fig. 1.2

(ii) Suggest a good position to put a wind vane and explain your choice.

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.....

.....

.....[2]

(d) The students used their daily measurements of rainfall and wind direction to plot data onto Fig. 1.3 on page 4.

(i) On Fig. 1.3 **plot the rainfall measurements** for 4th and 27th February shown below.

Date in February	Wind direction	Total rainfall (mm)
4th	south	7.0
27th	north	4.4

[2]

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Results of students' measurements of wind direction and total daily rainfall from the current year

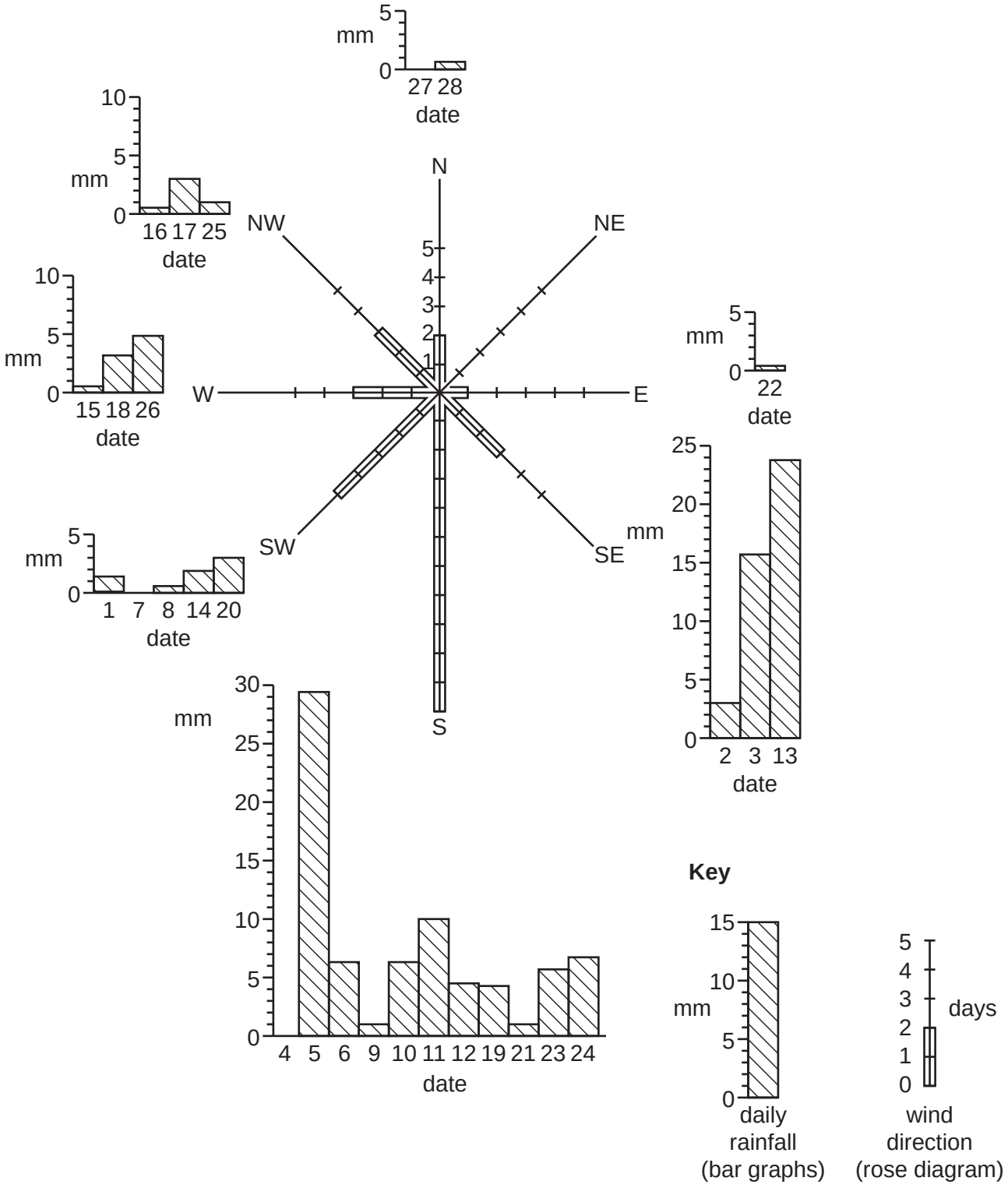

Fig. 1.3

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(ii) What conclusion would the students make about **Hypothesis 1:** *Daily rainfall totals are influenced by the direction from which the wind is blowing*? Support your answer with evidence from Fig. 1.3.

.....

.....

.....

.....

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.....

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.....[4]

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The students compared their results with data collected in February of the previous year. This is shown in Fig. 1.4 below.

Wind direction and total daily rainfall data from previous year

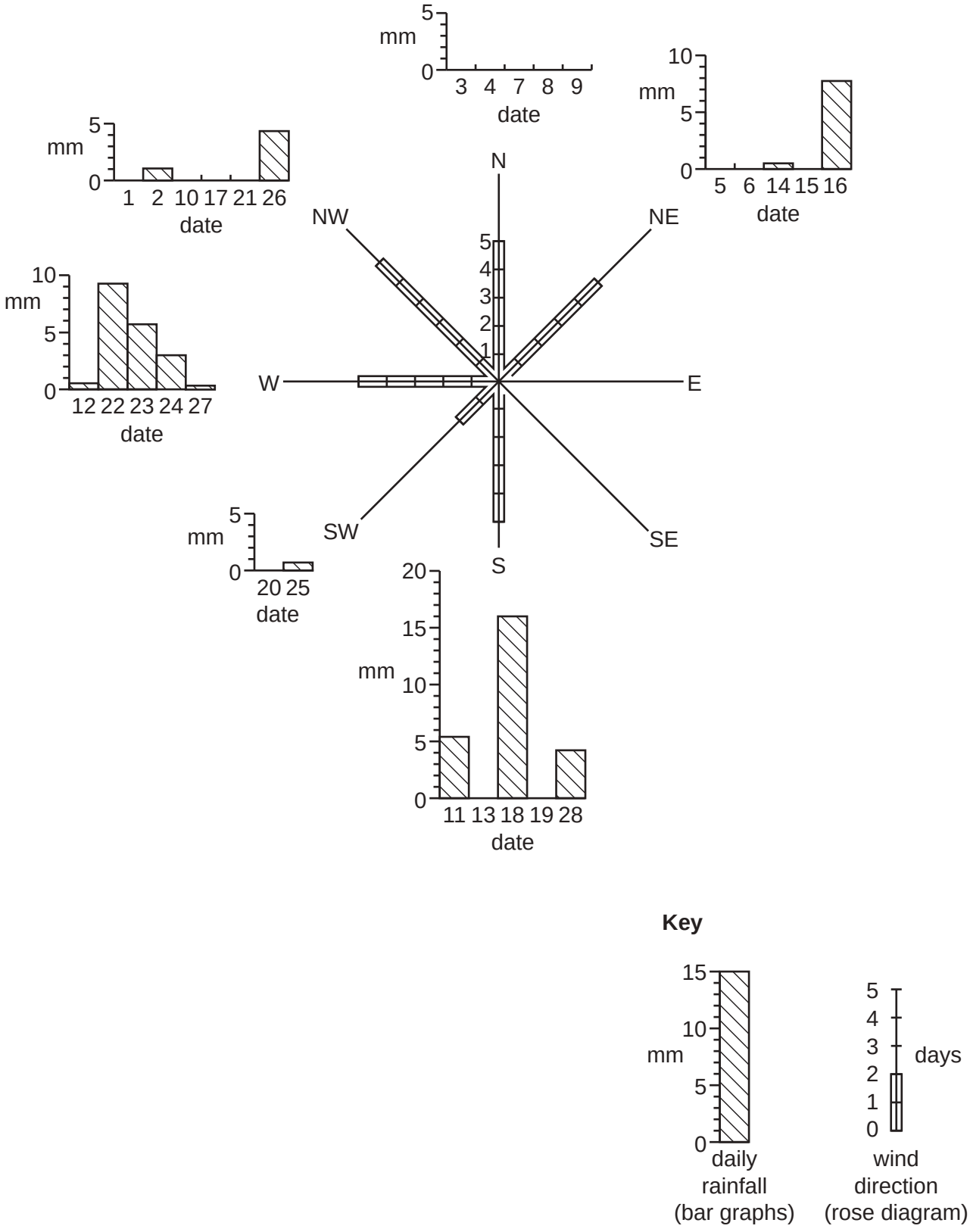

Fig. 1.4

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(iii) Describe how **wind direction** in February varied between the two years shown in Figs. 1.3 and 1.4. Use data in your answer.

.....

.....

.....

.....[2]

(iv) What effect did the difference in wind direction have on daily amounts of rainfall in February in the two years?

.....

.....[1]

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(e) To investigate **Hypothesis 2:** *Daily rainfall totals are higher when atmospheric pressure is higher*, the students recorded atmospheric pressure daily.

(i) Which **one** of the following instruments would the students have used to measure atmospheric pressure? Tick (✓) your choice below.

Weather instrument	Tick (✓)
anemometer	
barometer	
hygrometer	
thermometer	

[1]

(ii) The students plotted their measurements of atmospheric pressure and daily rainfall on the scatter graph, Fig. 1.5 below.

Plot the data for the two days in the table below onto Fig. 1.5.

Date in February	Atmospheric pressure (mb)	Total rainfall (mm)
11th	987	10.0
24th	997	3.1

[2]

Atmospheric pressure and daily rainfall totals

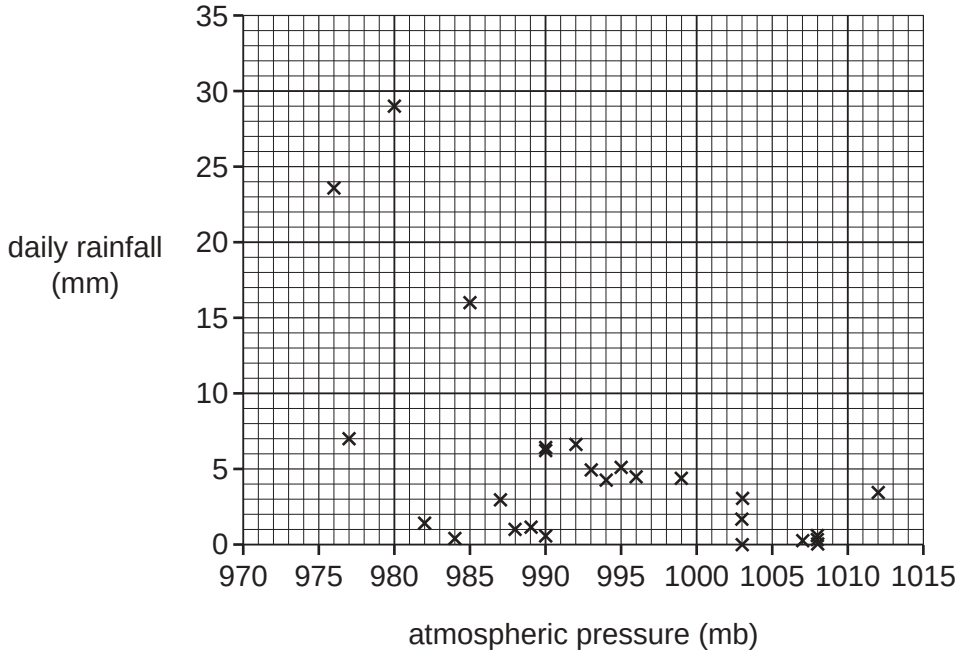

Fig. 1.5

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(iii) The students made the conclusion that **Hypothesis 2:** *Daily rainfall totals are higher when atmospheric pressure is higher* is incorrect. How does Fig. 1.5 support this conclusion? Refer to data in your answer.

.....

.....

.....

.....[2]

(iv) The students again compared their results with data collected in February of the previous year. Atmospheric pressure data for both months is shown in Table 1.1 (Insert). Describe the differences in atmospheric pressure between the two months. Use data in your answer.

.....

.....

.....

.....[2]

(f) Another group of students compared data they had collected on average daily temperatures and wind direction. This is shown in Fig. 1.6 (Insert). Describe how the direction from which the wind was blowing affected average daily temperatures.

.....

.....

.....

.....

.....

.....[3]

[Total: 30]

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2 Students in Thailand did fieldwork to investigate the effects of urban sprawl taking place around their school.

(a) What is meant by *urban sprawl*?

.....

.....

.....

.....[2]

One group of students measured variations in water pollution in local lakes, and did an environmental quality survey in areas near the school.
They concentrated their investigation on the following hypotheses:

Hypothesis 1: *Lakes are more polluted in areas where housing has been there longer.*

Hypothesis 2: *The overall quality of the environment is better in the older housing area.*

The students selected three sites in different areas around their school to do their fieldwork. They are described in Table 2.1 below.

Table 2.1

Site 1	an area of older, more expensive housing on a secure estate
Site 2	an area of modern, cheaper housing alongside a main road
Site 3	an area where new housing was being completed

(b) To investigate **Hypothesis 1** the students did two tests to measure the pH value and clarity of the water. These two tests are described in Fig. 2.1 (Insert), which is taken from a student's fieldwork notebook.

Suggest why the method to measure pH may be more reliable than the method to measure clarity.

.....

.....

.....

.....[2]

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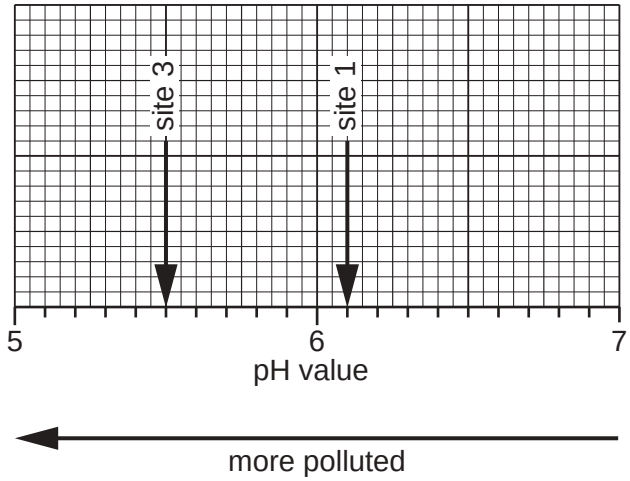
(c) The results of the tests are shown in Tables 2.2 and 2.3 (Insert).

(i) **Plot the average pH value** of the water at site 2 on Fig. 2.2 below. [1]

Average pH values of water at the three sites



site 1: older housing

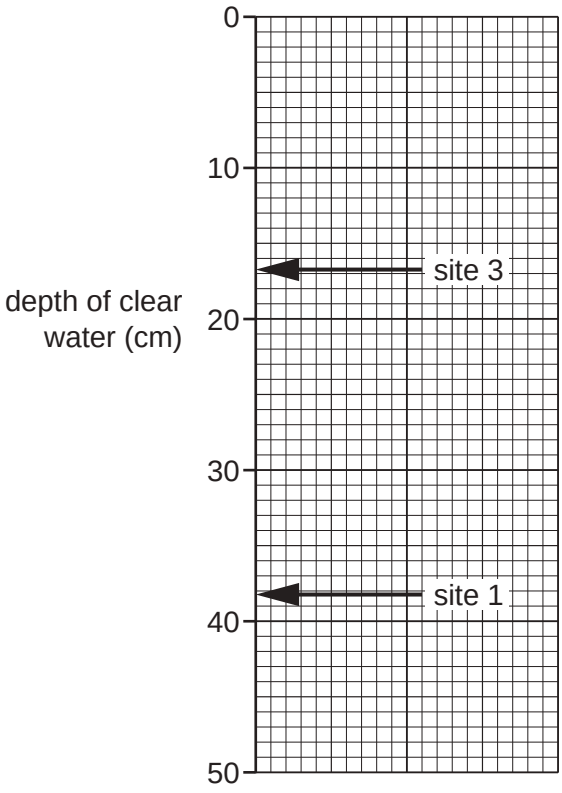
site 2: modern housing

site 3: new housing being completed

Fig. 2.2

(ii) **Plot the average depth of clear water** at site 2 on Fig. 2.3 below. [1]

Average depth of clear water at the three sites



site 1: older housing

site 2: modern housing

site 3: new housing being completed

Fig. 2.3

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(iii) What conclusion would the students make about **Hypothesis 1:** *Lakes are more polluted in areas where housing has been there longer*?
Circle your decision below and support it with evidence from Figs. 2.2 and 2.3 and Tables 2.2 and 2.3.

Hypothesis is true Hypothesis is partly true Hypothesis is false

.....

.....

.....

.....

.....

.....[4]

(iv) Look again at Table 2.1. Suggest reasons to explain why the level of water pollution varies between the three sites.

.....

.....

.....

.....[2]

(d) To investigate **Hypothesis 2:** *The overall quality of the environment is better in the older housing area*, the students did an environmental quality survey at each site. Their survey sheet is shown in Fig. 2.4 (Insert).

(i) The decisions made by two students about buildings at the same site are shown in Fig. 2.5 below and opposite.

Students' decisions on environmental quality

Student A

Site number surveyed: 2

	Positive description	**+2**	**+1**	**0**	**–1**	**–2**	**Negative description**
Buildings	in good condition	✓					in poor condition
	well-designed / attractive				✓		poorly designed / ugly
	well maintained		✓				poorly maintained
	no vandalism or graffiti		✓				extensive vandalism or graffiti

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Student B

Site number surveyed: 2

	Positive description	**+2**	**+1**	**0**	**–1**	**–2**	**Negative description**
Buildings	in good condition		✓				in poor condition
	well-designed / attractive			✓			poorly designed / ugly
	well maintained			✓			poorly maintained
	no vandalism or graffiti	✓					extensive vandalism or graffiti

Fig. 2.5

Suggest **two** reasons why the decisions made by the two students are different.

1 .....

.....

2 .....

.....

[2]

(ii) Suggest **two** ways the group of students could have organised themselves to make sure that their results were reliable.
Give a different reason for each way you suggest.

Suggestion 1 .....

Reason .....

.....

Suggestion 2 .....

Reason .....

.....

[4]

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(iii) Fig. 2.7 (on page 15) shows the results of the environmental quality survey at the three sites. Use the information in Fig. 2.6 below to **plot the results** for general features at site 2 on Fig. 2.7.

[2]

	Positive description	**+2**	**+1**	**0**	**–1**	**–2**	**Negative description**
General	roads and pavements are well maintained			✓			roads and pavements are poorly maintained
	few road signs or advertising boards					✓	lots of road signs and advertising boards
	lakes and streams are clean				✓		lakes and streams are dirty
	lots of insects and wildlife can be seen				✓		no evidence of insects and wildlife

Fig. 2.6

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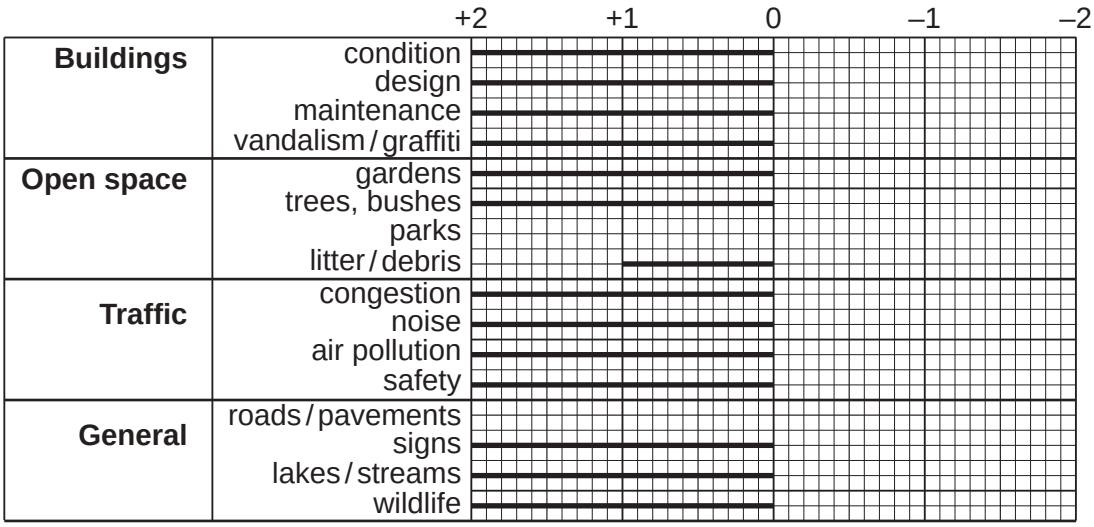
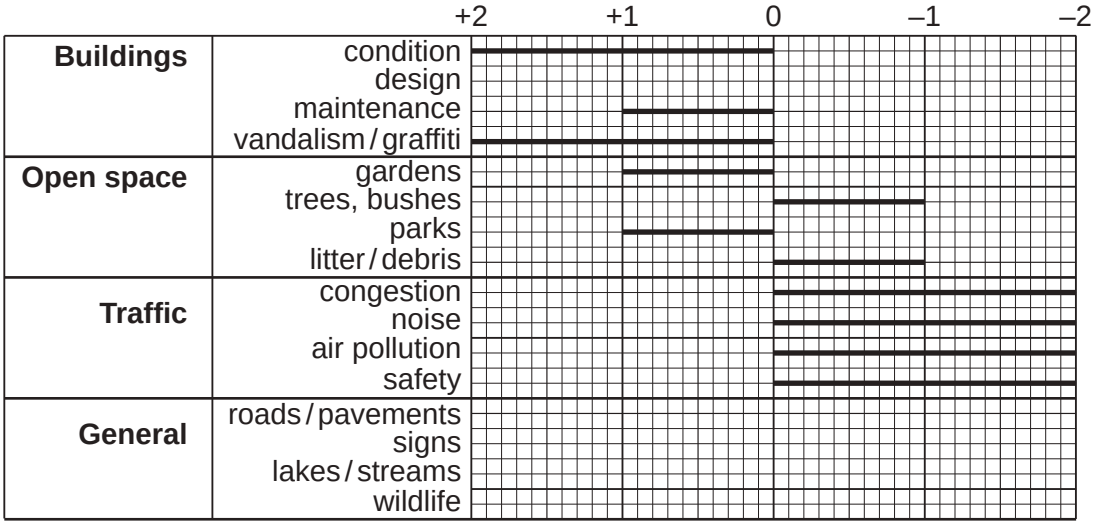
Results of the environmental quality survey

Site 1: area of older housing



Site 2: area of modern housing



Site 3: area of new housing being completed

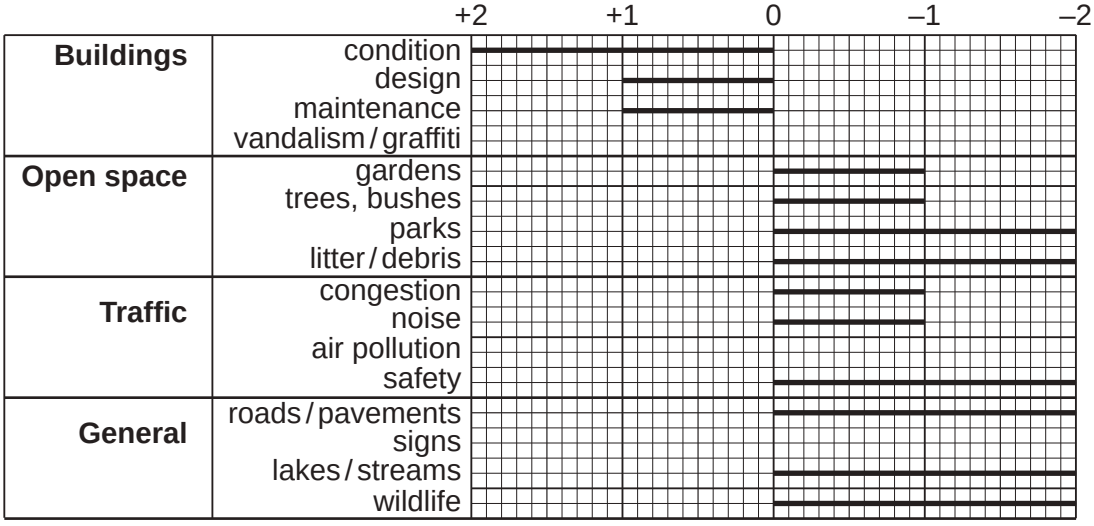


Fig. 2.7

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(iv) Fig. 2.7 shows that the score for condition of the buildings was the same at sites 1 and 2. Identify **one** other description of the buildings which also had the same score at sites 1 and 2.

.....[1]

(v) Use data from Fig. 2.7 to calculate the difference in the total score for the **Open space** category between Sites 1 and 3.

.....[1]

(vi) What conclusion would the students make about **Hypothesis 2:** *The overall quality of the environment is better in the older housing area*? Support your decision with evidence from Fig. 2.7.

.....

.....

.....

.....

.....

.....

.....[4]

(e) The students did the same environmental quality survey at another local site which had not been developed and was still covered by trees and bushes. Their completed survey sheet is shown in Fig. 2.8 (Insert).
Suggest reasons for the positive scores given by the students for this site on Fig. 2.8.

.....

.....

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.....

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.....[4]

[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY

Paper 0460/12
Paper 1

Key messages

In order for candidates to perform well on this paper they should:

- follow the examination rubric correctly by answering 3 questions, one from each of the sections
- read through the entire paper and study the resources provided before selecting the three questions with care
- answer all parts of the three questions they choose in the spaces provided
- respond in the correct way to command words and words which indicate the focus and context of each part. Candidates tend to miss important 'key words' which result in lost marks, e.g. **1(a)(iii)** 'shape' **2(c)** 'housing' **6(a)(iv)** 'local'
- be familiar with the meanings of geographical words and phrases and confident in their use
- answer within the spaces provided in the question and answer booklet and be guided by the mark allocations in order to write answers of an appropriate length
- write clearly and legibly, avoiding vague words or statements which need to be qualified or elaborated
- ensure that ideas are developed and ideas linked when extended writing is required. This is particularly important in the case studies
- use various types of graphs and diagrams with confidence and be able to interpret them to support ideas
- interpret photographs and maps with precision, looking at them carefully and referring to the evidence in them. When the word 'only' is used in a question no credit will be awarded for information which is derived from another source, including knowledge
- understand that describing a distribution from a map and describing the location of a specific feature require different types of response
- have a wide range of case studies, at different scales, and choose them with care to fit the questions selected
- include appropriate place specific information in case studies, however this should not be part of long introductions or surplus background information which simply waste time and space and are not credited.

General comments

This was the third March examination testing this syllabus and the entry was increased in size. The most able and well prepared candidates showed some very good geographical knowledge and understanding and competence in handling the required skills, thus performing very well across the paper. Most candidates made an attempt at all parts of their chosen questions and the paper differentiated effectively between candidates of all ability levels.

There were relatively few rubric errors and the presentation of answers from candidates was generally acceptable, though a few proved difficult to read in parts.

Questions 1 and **3** were the most popular questions, with **Questions 5** and **6** being of roughly equal popularity. There were good answers seen to all questions, including those requiring extended writing, particularly the case studies on population control, the impacts of an earthquake, the reasons for deforestation and the impacts of an economic activity on the natural environment. The best of these answers were well focused, with developed or linked ideas and place specific information. Weaker responses were poorly focused or generic with disparate lists of brief points. Some contained long and unnecessary introductions, which were not relevant and did not gain credit.

The following comments on individual questions will focus upon candidates' strengths and weaknesses and are intended to help centres prepare their candidates for future examinations.

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Comments on specific questions

Question 1

(a) (i) Most candidates estimated the percentage correctly..

(ii) Most candidates recognised the decrease in population and many gave inaccurate percentage figures. Some candidates only gave male or female statistics rather than the overall percentages.

(iii) Despite the emboldening of the word 'shape' in the question many candidates wrote about age groups, birth rate or death rate. Some others did not compare the two pyramids. Many of the candidates who interpreted the question correctly scored full marks, though some scored two marks by only writing about the base and apex of the pyramid.

(iv) This was well answered by most candidates with many scoring full credit with comprehensive answers giving many reasons for changes in both age groups.

(b) (i) Many candidates gained full credit for a correct calculation. The most common error made was not including the negative figure for net internal migration in the calculation.

(ii) Candidates who correctly understood the focus of the question scored well, with all the challenges given in the mark scheme being suggested. Some candidates referred vaguely to lack of resources, facilities and amenities which were not credited unless qualified or more precise. Despite the MEDC focus (Australia) a number of candidates focussed too much on challenges faced in an LEDC, such as the growth of squatter settlements, whilst others focussed incorrectly on challenges resulting from underpopulation rather than population growth.

(c) Most candidates used the 'one child policy' in China as their case study, although others used pro-natalist policies, such as those in Singapore or France. There were many excellent responses, with appropriate place details and references to various aspects of the policy in their chosen country. Some candidates restricted their answers to simply describing incentives or penalties rather than giving more wide-ranging descriptions, whilst others did not focus on the demand of the question and wrote about the need for the policy and/or the negative impacts of it.

Question 2

Very few candidates answered this question and high marks were not common.

(a) (i) Most candidates answered correctly.

(ii) Most candidates plotted and shaded correctly. A few mis-read the scale and plotted at 24.

(iii) Most candidates identified the increasing proportion of urban population over time though relatively few candidates gave accurate statistics for two years to back up their point with evidence.

(iv) Whilst a significant number of candidates misunderstood the question and focussed on natural population growth, most realised that they should concentrate on reasons for rural to urban migration and explained this by reference to appropriate pull factors.

(b) (i) Most candidates correctly identified appropriate countries.

(ii) Many candidates found the question difficult and some focussed incorrectly on reasons for movement to an urban area, repeating their answers to **(a)(iv)**, or they described the relative 'attractions' of living there. Candidates who realised what the question was about scored marks for reference to inability to buy houses and the lack of housing stock.

(c) There were very few high quality answers which focussed on specific areas of a city. Dharavi (Mumbai) was a popular case study, as was New York, although most answers tended to be vague, with simple statements at Level 1, and little by way of development, linked ideas or place detail. Some candidates did not focus sufficiently on 'housing conditions' as required but wrote about general improvements to urban areas, such as transport infrastructure and service provision.

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Question 3

(a) (i) Most candidates correctly selected ‘strato-volcano ‘.

(ii) Few candidates recognised the crater and the secondary cone. Despite the positioning of the arrows on Fig. 3.1 many gave ‘vent’ for one or both answers.

(iii) Answers seemed roughly equally divided between those which correctly described specific hazards and those which wrongly described the effects of the hazards. Correct answers often referred to lava and ash, however there were some very impressive references to other hazards, such as lahars.

(iv) There were many good answers which included ideas from the mark scheme such as physical warnings of a possible eruption, prediction and planning strategies such as evacuation. Some weaker responses suggested that ‘few people live around volcanoes’ or gave the benefits of living near a volcano.

(b) (i) Many answers referred to features which could not be seen, such as the volcano being extinct/dormant or having lots of grass/vegetation growing on it, or features which were not relevant such as the road or cars. Many thought that the sides were gently sloping which clearly they are not. Candidates who scored marks usually did so by reference to the crater, though others mentioned the cone and/or ash or bare rock. Few responses referred to the top of the volcano having been removed.

(ii) This differentiated well. It is a familiar topic and candidates who knew what a constructive boundary was scored well, making several relevant points and including a labelled diagram. However many candidates incorrectly wrote about and drew a destructive boundary, for which they gained no credit.

(c) Haiti, Christchurch, Nepal and Kobe were the most popular case studies and there were some excellent detailed responses, some containing place specific and statistical information. Weaker answers simply listed points, such as damage to buildings, death and injury without any attempt to develop them (Level 1). A significant number of candidates wrote long and irrelevant introductions, many explaining the cause of their chosen earthquake, despite the question focus on ‘impacts’.

Question 4

(a) (i) Most answers were correct.

(ii) Answers were generally disappointing, with few candidates scoring both marks. Many responses suggested that candidates were not familiar with ‘range’ and ‘annual’.

(iii) Where candidates made use of the information provided in Fig. 4.2, they usually gained some credit by referring to latitude and, less frequently, insolation from the sun at a high angle. Weaker responses did not really understand the reasons affecting temperature and wrote about vegetation and why the area is dry.

(iv) As in **(iii)** the question discriminated well. Stronger responses showed a good understanding of why the area is dry with reference particularly to latitude, high pressure and descending air. Many candidates referred to the prevailing wind and cold ocean current which were shown on the map, but few showed any real understanding of how they influenced rainfall amounts.

(b) (i) The majority of candidates correctly identified Kisangani. Their justifications were generally correct, although weaker answers did not contain sufficient detail or comparison to gain credit, e.g. ‘high temperatures’ and ‘high rainfall’.

(ii) This discriminated very well. The most common responses referred to emergents, rapid growth of vegetation and drip-tips or waxy leaves. Whilst good candidates showed how the characteristics were influenced by the climate, weaker responses did not make this link as the question required.

(c) A few excellent responses were seen with the Amazon rainforest being the most popular choice. Whilst many candidates focussed on the Amazon, there were also detailed answers about the rainforest in Borneo. Many candidates gave valid reasons for deforestation, though weaker ones

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tended to be brief lists and so scored only at level 1. Stronger responses developed the reasons and some included place details. Weaker answers tended to include irrelevant detail about the effects of deforestation on the local people and natural environment.

Question 5

(a) (i) Most candidates correctly completed HDI.

(ii) Many candidates stated that the HDI of Western European countries were higher and/or made this comparison using statistics. However, relatively few observed the other difference, that the range of values is greater in South America.

(iii) This was another good discriminating question. Candidates who knew how HDI was derived tended to score full marks, using the term composite indicator and identifying the different components used in the calculation. They also referred to the 0 – 1 scale which enables comparison of different countries or change over time.

(iv) Whilst there were a significant number of answers which gained full credit, many candidates stated valid indicators which are measurable but did not explain how they can be used to measure development, explaining instead why the indicators showed differences in development. Weaker answers gave vague ideas rather than ones which are specifically measurable, such as ‘quality of life’ or ‘economic development’.

(b) (i) Generally the images were used well by candidates, most of whom correctly matched them to the types of economic activity.

(ii) This differentiated well with most, but not all, candidates making reference in some way to the level of economic development. The stronger responses further developed this idea by detailed reference to skills, mechanisation and resources for example. Weaker responses simply described how employment structure varies in countries at different levels of economic development, but did not explain why this is so. Some simply described the three sectors and gave examples, but did not explain their varying importance as required.

(c) Answers varied with examples at various scales from locations within India and Amazonia being the most common. Whilst there were some excellent answers, including developed descriptions and place detail, many lacked development, simply listing a variety of impacts, including those on people which were not relevant. Some answers, especially those about ‘industry’ in India and ‘deforestation’ in Amazonia were vague and did not specify the type of ‘economic activity’ which limited the marks which could be scored.

Question 6

(a) (i) Many candidates found it difficult to give a concise answer which did not include ‘process’ or ‘processing’. The strongest answers focussed on ‘changing’ or ‘refining’ raw materials to produce a finished product. Ideally such answers should not contain the words ‘assembly’ or ‘manufacturing’ as the syllabus distinguishes between manufacturing, assembly and processing industries.

(ii) Many candidates scored two marks, usually one point referred to being near a water body. Some weaker responses references things which were not shown specifically in the image, such as pollution of various types.

(iii) Most candidates correctly placed the six labels. The most common error was to include sugar as a raw material and sugar cane as an output.

(iv) Candidates generally scored well with suggestions about air and water pollution, with the consequent impacts on wildlife and vegetation. Candidates should be reminded that the word ‘pollution’ without any qualification is not credited in any answer on this paper.

(b) (i) Many candidates identified the main area of states and better responses also referred to the northern exceptions. Some candidates did not support their ideas by identifying relevant states. Weaker answers merely listed all the states in the category with no reference to the distribution.

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(ii) This question allowed good discrimination. The best answers gave a variety of advantages and disadvantages as listed in the mark scheme whilst others referred to little more than jobs and money. Some candidates incorrectly focused on advantages and disadvantages for the TNC rather than the LEDC.

(c) Many candidates found difficulty in identifying a specific factory or industrial zone therefore many answers were general in their explanation of how location was influenced by different factors. Many candidates simply stated the location factors at level 1 but did not develop their explanations by explaining their influence by reference to the specific location of the factory or industrial zone chosen. Some industrial cities, especially in India, were named but there was little detail on specific areas or industries. One notable exception to this was the case study based on steel production at Pipri, Karachi, Pakistan, which produced a number of impressive answers with developed ideas and plenty of place detail.

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GEOGRAPHY

Paper 0460/22
Paper 2

Key messages

- When answering map work questions candidates should try keep responses relevant to the question and focus on the key words in the question. Further details are given later in this report in the comments on **Question 1(b)**, **(c)** and **(f)**.
- When answering photograph questions, candidates should concentrate on what can be seen in the photograph and avoid speculation for which there is little or no evidence.

General comments

The response to the paper was very variable. There were good answers to all the questions, but candidates found some aspects of each question more difficult.

Comments on specific questions

Question 1

(a) Candidates showed good skills of locating the features shown on Fig. 1.1 then identifying them using the key. Full credit was common. **A** was other major buildings (or industry), **B** was coniferous or mixed forest, **C** was marsh and **D** was low rise buildings.

(b) For the description of the physical and human features of the river, examiners allowed a wide variety of responses including: flows north east, at least 6 m wide, variable width, meanders, marsh, bridges, marina and gentle gradient. Most candidates scored some of these points but there was a tendency to write long, irrelevant answers describing land use around the river, which was not given credit.

(c) Most responses ignored the brief to describe the shape of the coastline and instead described land use near the river. Examiners gave credit for bays, headlands, islands and the straighter coastline in the south.

(d) This was well answered with most candidates quoting the tourist evidence of coastal location, leisure or second homes and bathing.

(e) Responses were generally accurate in giving measurements from the map. For the distance measurement examiners allowed answers within a tolerance of 3000 to 3200 m. The compass direction was south east, the bearing was within a tolerance of 127–131°, and the correct grid reference was 632031.

(f) As in **parts (b)** and **(c)**, there were many long, irrelevant answers. Responses tended to describe the land use of the firing range and often failed to comment on the relief which was required by the question. Credit was given for the flat or gently sloping relief, lowland, maximum height of 10 m, and the slightly higher or steeper land near the coast.

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Question 2

(a) An large number of candidates failed to plot 210 000 migrants in 2003 correctly.

In **part (ii)**, most candidates described the international migration accurately and in detail, with only a small minority describing the wrong graph. Most commonly, responses referred to the overall decrease from 330 thousand to 130 thousand with small increases in 2006 and 2011 and least in 2010.

Part (iii) was a more demanding question but many candidates noted that the mostly positive net migration was responsible for California's population increase.

(b) In **part (i)**, most candidates added the internal and international migration figures for Contra Costa to give a total immigration of 7768. Most noted that Santa Clara had the greatest internal emigration and Alameda had the greatest growth due to migration. Some candidates suggested that the latter was also Santa Clara, forgetting to deduct the negative internal migration for the positive international migration.

Question 3

(a) Candidates described the distribution of air pollution in Delhi very well. They referred to the high level in the centre, very high level in Dwarka, medium or low levels in the outer areas and higher levels along the roads.

(b) Describing the pattern of air pollution during the day proved more difficult. Those responses that referred to precise times from Fig. 3.2, e.g. medium levels between 01:00 and 10:00, gained the most credit.

(c) Candidates quoted a variety of evidence from Figs. 3.1 and 3.2 for and against vehicles being an important source of pollution. As evidence for this, they referred to the higher levels along roads and in the evening rush hour. As evidence against, they referred to the high level at night when fewer vehicles were on the roads and lower level during the morning rush hour. Some noted that the very high level at Dwarka was not completely along a road. A minority of responses ignored the instruction to use evidence from Figs. 3.1 and 3.2 in their answers.

Question 4

(a) Few candidates knew that water flow through the rock was groundwater flow but more knew that rain soaking into the ground was infiltration.

(b) To reduce flooding and erosion, the channel in Fig. 4.1 had been straightened, deepened and strengthened with stone walls. Few candidates scored more than one of these points. There was no evidence in the photograph that the banks had been raised.

When describing and explaining the differences in the river between the two Figs., candidates generally scored at least two of the four marks available. The best answers described the higher discharge, greater load and suspension load (examiners allowed 'brown' or 'muddy' water) in Fig. 4.2. As explanation, candidates suggested that rainfall, faster flow and a wider channel contributed in Fig. 4.2.

Question 5

(a) The majority of candidates were able to identify the maximum-minimum (or Six's) thermometer and the wet and dry bulb thermometer (or hygrometer).

(b) Most candidates correctly gave the present temperature as 25°C, the maximum temperature since in instrument was re-set as 30°C and the minimum temperature since in instrument was re-set as 10°C. However, it was common for incorrect figures for the last two temperatures of 35°C and 5°C to be given because candidates had read the temperature from the wrong end of the index.

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(c) Most candidates recognised that the air was unsaturated because the two thermometers did not show the same temperature. A few went on to give a fuller explanation, saying that evaporation of water would cool the wet bulb. Latent heat was not mentioned.

Question 6

(a) Although correct answers were common, many candidates failed to recognise that chemical fertiliser was an input and crops were an output.

(b) When describing the fields and land use in **part (i)**, full marks were common. Candidates often referred to arable farming, large, rectangular fields, roads, buildings, flat land, ploughed or bare areas and areas with trees. In **part (ii)**, most recognised the ponds or lakes or reservoirs as evidence for irrigation. The evidence given for commercial farming was usually the large fields, but many commented on the large buildings, possibly for storage, and large areas without housing.

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GEOGRAPHY

Paper 0460/42
Alternative to Coursework

Key messages

Here are a few messages to pass on to candidates for them to consider in their preparation. These have been suggested by examiners based on scripts they have marked:

- When answering hypotheses questions that ask whether you agree or not, give your opinion at the start of your answer before any supporting evidence. This will usually be *Yes, No* or *Partially/To some extent*. Do not just copy out the hypothesis if you agree with it. It is important to make a decision and state it as well as provide the evidence for your choice. Be clear in your decision – expressions such as '*might be true', 'could be false*' are too vague.
- When giving figures in an answer always give the units if they are not stated for you, e.g. data evidence in **Question 2(c)(iii)** should refer to metres and millimetres.
- When shading graphs, use the same style as that provided in the question and make sure your pencil gives a good dark image. Check you understand the scales used and the importance and style of any plots already provided, e.g. on **Question 1(b)(iii)** some candidates shaded the cross-hatching at the bottom of the divided bar graph in a different direction to the one shown and the key.
- When completing pie charts or divided bar graphs, complete these in the order of the data given and in the order of the key, e.g. **Question 1(b)(iii)** and **Question 1(c)(iii)**. Make sure your shading matches the key, e.g. if one shading is horizontal lines and another diagonal, make sure they do not look similar as happened sometimes on the pie graph in **Question 1(c)(iii)**.
- When you think you have finished, go back and check that all graphs have been completed; many candidates lose easy marks by missing out graphs, e.g. **Question 1(b)(iii)** on this paper.
- Read questions carefully and identify the command word, e.g. *Describe..., Explain…* A question that asks *'Why?*' requires a reason to be given not a description. If a question asks for data, e.g. **Question 2(c)(iii)** then you must use statistics from resources whereas evidence could be a qualitative answer.
- Check you are using the resources that a question refers you to, e.g. **Question 2(c)(iii)** Table 2.2 and Fig. 2.3. If exact figures are given in a table, these should be the ones referred to in evidence rather than estimating from a graph.
- Take into account the marks awarded. Examiners do not expect you to be writing outside the lines provided, so do not write a paragraph when only two lines are given – this wastes time.
- It is important that, when candidates write the remainder of their answer elsewhere, that they signal it by writing something like – *'continued on page 17'* to ensure it is seen. It needs also to be noted that some candidates gave the wrong sub-section number by their extra work which made it more difficult to match to their earlier answer and credit correctly.

General comments

The vast majority of candidates found this examination enabled them to demonstrate what they knew, understood and could do. Weaker responses scored well on the practical questions such as drawing graphs or diagrams and making choices from tables. Stronger responses scored well on the more challenging sections requiring judgment and decision-making on hypothesis choices with evidence and other written answers. **Question 1** on shops and services was much more accessible to candidates than **Question 2** on coastal processes. The paper was judged as fair and appropriate with no time issues for over 370 candidates entered for it.

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There is less general advice to be given for areas for improvement in this paper. As there are no question choices to make, it is difficult to miss sections out – though candidates do (especially completion of graphs) – and there were no reports of time issues as the booklet format does not allow or encourage over-writing of sub-sections.

Most points for teachers to consider, when preparing candidates for future Paper 42 questions, relate to misunderstanding or ignoring command words, the use of equipment in fieldwork and the importance of experiencing fieldwork – even if is only in the school grounds or simulated in the classroom. Particular questions where candidates did not score well often related to them not fully reading the question or just completely missing out straightforward graph completions. Such failings mean that some candidates do not obtain a mark in line with their geographical ability and is an area that Centres should work on.

Centres need to be aware that, although this is an *Alternative to Coursework* examination, candidates will still be expected to show that they know about fieldwork equipment, how it is used and fieldwork techniques. Some fieldwork experience is vital even if there is only limited opportunity within the Centre. Familiarity with maps, tables and the various graphs listed in the syllabus is also important for this examination.

Comments on specific questions

Question 1

(a) (i) For this question candidates had to use a scale for distance and compass direction to locate a feature – using a key – and the majority of candidates working out that the department store was located 90 metres north west of the shop selling bread and cakes. Incorrect answers included giving numbers from the key including number 8 which was the bread and cakes shop. The bank was also a frequent incorrect answer; this met the distance requirement but was not north west of the bread and cakes shop**.**

(ii) Most candidates could identify two services from Fig 1.1, the most popular being travel agent, banks, and hairdresser. A few gave goods instead of services such as cameras, gifts and souvenirs. A small number used their own knowledge to list goods or services that were not on Fig. 1.1 or even in the key.

(iii) Most candidates correctly suggested reasons linked to accessibility and transport including recognising the central location and the bus station. A second reason listed by many candidates was that there would be more customers there so more profit or revenue for the shops. Some also suggested reasons connected with linkage and the existence of other shops and services which could be used in the same visit. It was not accepted as a reason that a large population lived in the town centre.

(iv) This question was answered well by many candidates. They accepted that the hypothesis was true and then usually quoted the relative number of total shops and services, i.e. 206 in the centre and 77 on the edge; this was a reserve data mark. A second data mark could have been obtained by comparing the numbers of a chosen shop or service between the centre and edge. To justify variety, marks were also available for listing shops or services that existed in the centre but not on the edge such as museums, antiques, art gallery.

(b) (i) Almost all candidates identified the two correct statements (Rows 1 and 3) about convenience goods.

(ii) It was important to note that the question was about services not goods that were found on the edge of the town, not in the centre. This was well done although a few candidates either gave services instead of goods or chose examples from Fig 1.1. instead of Fig 1.2 which showed the edge of town. Acceptable answers included fast food, bread and cakes and the chemist. Incorrect answers included any goods, e.g. antiques, or service choices from the town centre, e.g. bus station.

(iii) The vertical divided bar graph, which required three correct plots plus the correct shading was completed well by most candidates. A few plotted 13 correctly but misplotted the 56 and 77 points; a small number cross-hatched the bottom part in the wrong direction.

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(c) (i) Many candidates suggested making changes or additions to the questionnaire which had already been decided and was shown for reference in the Insert. The candidates could have suggested three pieces of advice the teacher would give about using the questionnaire with people. These could have included being polite, choosing a sample method, working in pairs and asking people of different ages and gender. Many candidates focused on being polite, not forcing people to take part, and not asking people who looked busy which were all part of the same advice rather than separate ideas so only gained 1 mark not 3.

(ii) This was the most successful question on the paper; not quite all candidates correctly plotted the two bars though. A small number misread the scale – plotting at 52 per cent instead of 56 per cent – and others made no attempt at it but these were a very small minority.

(iii) The pie graph, while well done by most candidates, provided some challenges to others. Some plots were made in the wrong or reverse order and the two line shadings were sometimes too similar to credit.

(iv) This proved to be a more challenging hypothesis question than the earlier one in this question. Most candidates did recognise that the hypothesis was incorrect because, although the reasons were the same, their importance in terms of relative data were very different in the town centre compared to the edge of town. They needed to compare the main reasons with data, e.g. 51per cent chose the centre for a wide range of shops but 41 per cent chose the edge for good parking. Another difference would be mainly shopping in the centre for gifts/souvenirs but on the edge for clothes/jewellery. The best answers did this but others just listed the reasons with percentages in any order and did not compare these reasons as indicators of importance.

(d) Many candidates phrased their hypothesis as a question or as a statement to be investigated. The better responses realised that they had to suggest a hypothesis that was not similar to the two in the question, i.e. not involving buying goods or services and not involving reasons for shopping at either centre. The weaker responses suggested hypotheses that were almost the same as the two in the question or ones that were inappropriate, e.g. referring to the income or wealth of the shopper or how happy they were. The best hypotheses included where people came from, how far and how they had travelled, how often they visited and when they shopped. These usually had an appropriate question to go with the hypothesis.

Question 2

(a) Candidates found it difficult to give appropriate, specific precautions for the dangers listed. Ideas related to staying away from the cliff were accepted but the better answers were more precise suggesting avoiding the edge or base of the cliff. Wearing hard hats or helmets was not accepted; the students should not be in a location needing those. Similarly, while staying away from the water was accepted, more specific answers included not going in too deep to measure the waves. Appropriate clothes such as waterproofs and raincoats were accepted in order to protect themselves from rainfall but not postponing the fieldwork to another day or checking the weather forecast. Inappropriate answers also included tying themselves to rocks, working in groups and using a cell phone.

(b) (i) The better responses appeared to have had some experience of measuring profiles and could state the sequence of events in a logical and appropriate order. This included using marker poles vertically along a transect, placing the marker poles at changes of slope and using a clinometer to measure angles as well as measuring the distances between the poles. They also referred to the diagram in their answer. Weaker responses appeared to ignore the diagram and suggested poles were placed at equal distances up the slope and that the clinometer was used to measure distance.

(ii) Although most candidates agreed with the hypothesis simply by observing the two profiles, providing supportive evidence for the comparative steepness of the two beaches was not well done. Most candidates gave data for comparative height along the two beaches but ignored any reference to comparative distance which was essential to compare the gradients and judge steepness. While recognising that Bay Beach was higher, with data given for heights, it was not stated that Bay Beach was a shorter distance thereby being steeper than Long Beach. Only a small number of candidates referred to the gradient but those that did often worked it out to 3 significant figures. A few candidates chose sectors of the profile to exemplify how the gradient rose at Bay Beach but was flat at Long Beach which was credited.

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(c) (i) Stronger responses to this question suggested using a quadrat, though they often referred to it as a quadrant, and did suggest a sampling method – random or systematic – to choose the three pebbles at each site. They also suggested an appropriate tool to measure the size such as a pebbleometer, calliper or tape measure/ruler. Very few responses specifically referred to measuring the length of pebbles in millimetres which would have gained credit.

(ii) Almost all candidates plotted the point accurately. A few misread the scale, some put a cross instead of a point and others put the plot on the wrong vertical line. As with many straightforward graphs on this paper, a few did not attempt it.

(iii) This question was done well; most candidates chose the correct hypothesis and gained a second mark for stating that it only applied to Bay Beach. The question clearly stated 'support your decision with data' so statistics were required for 2 marks here. Quite a few gave the start and end statistics to demonstrate that Bay Beach pebbles became larger towards the back of the beach and that the size of Long Beach pebbles was more inconsistent, rising and falling too much to make the hypothesis work. Some candidates chose data from different parts of the beach profiles but this was not credited as points close to or at the start and end of the profile were needed to give an overall judgement related to the hypothesis.

(iv) Most candidates found this a difficult question. Almost all candidates chose to refer to processes of erosion and deposition at the low or high water mark when what was required was an understanding of the different impacts of swash and backwash on the distribution of beach material. Only a few candidates did this but their answers were vague regarding the related impacts. It was surprising that so few referred to larger material being at the back of the beach due to the presence of cliffs and rock falls.

(v) Again a challenging question for many candidates. The better answers suggested taking more samples than three pebbles at existing sites or reducing the intervals thereby creating more sites or getting another student to check the measurements at the time. Answers that were too vague included the generic 'repeat the experiment', 'do it another day/time' and 'do it in pairs or groups' without any suggestion as to how these would make the fieldwork more reliable.

(d) (i) Most candidates understood that the best way to measure wave frequency was to count the waves in a fixed period of time however this would get limited credit as it is important to fix a place – a pole, a boulder, a point on the beach – and count the waves that pass that place in a fixed period of time – usually a minute; not a second or an hour as some candidates suggested. A small number suggested using a float but had little idea how this would help measure wave frequency. A few irrelevant answers suggested measuring river velocity and measuring the speed of waves along a river. A significant minority of candidates did not attempt this question.

(ii) Many candidates gave good answers that showed that they had studied the characteristics of destructive and constructive waves and could make sound comparisons between them. There was good use of terms such as swash, backwash, amplitude and wavelength though some candidates did get the roles of swash and backwash the wrong way round describing destructive as constructive and vice versa. Some candidates included ideas about erosion and deposition which were not relevant as the question only wanted a description of how the waves were different, not what they did.

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Grade thresholds – March 2019

Cambridge IGCSE™ Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the March 2019 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 12	75	50	41	33	29	25	20	16
Component 22	60	41	35	30	26	23	20	17
Component 3	60	50	42	35	28	22	17	12
Component 42	60	38	33	29	25	21	17	13

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AY	03, 12, 22	180	156	132	109	93	78	64	50
BY	12, 22, 42	165	144	123	103	90	77	64	51

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Survey Map

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When printing, select ‘Actual size’.

Do not select ‘Fit’ as this will re-size the map.

You may need to change the paper size to A3.

Ensure the orientation is Portrait.

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1:50 000 Scale

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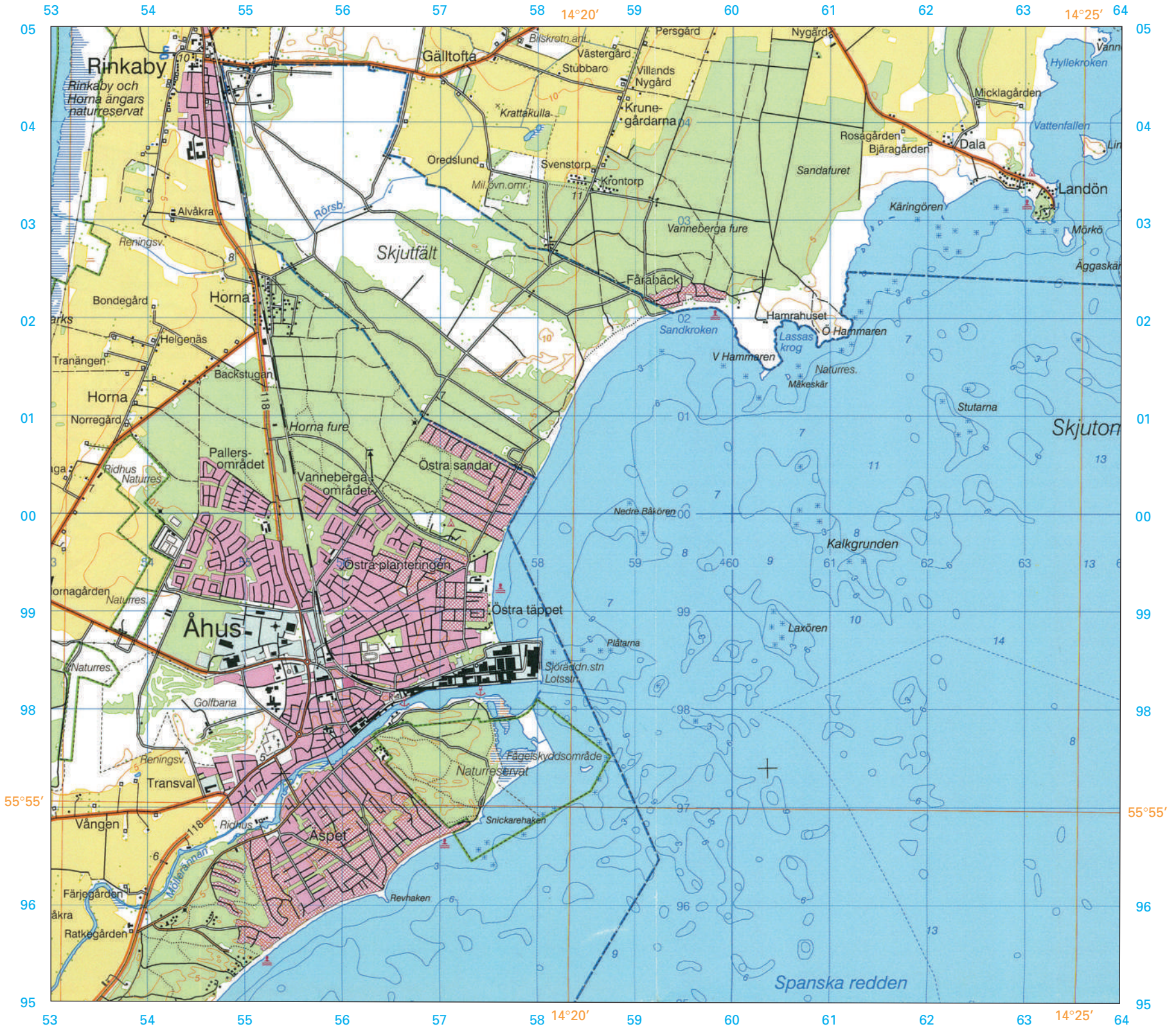

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Legend

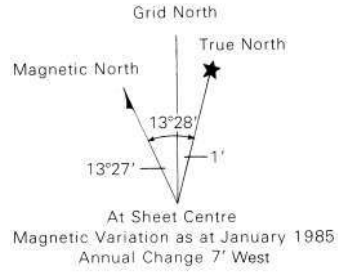
- National boundary with cairns
- County boundary
- Municipality boundary
- Boundary of National Park; nature reserve
- Boundary of other area
- Prohibited area for cross-country vehicles
- Boundary of firing range
- Boundary of military restricted area
- Motorway
- Public road, at least 7 m wide
- 184 Public road, 5–7 m wide; road number
- Public road, less than 5 m wide
- Public road under construction
- Through street; main street
- Street; street in precinct
- Private road, good standard; milestone
- Private road with barrier; avenue
- Private road, poor standard; turning place
- Approach road, park road, cycle path
- Tractor track; foot path
- Illuminated track; hiking trail
- Railway, double track electrified
- Railway, not electrified
- Railway, narrow gauge
- Railway station; tunnel
- Crossing, overpass or underpass
- Runway, surfaced; unsurfaced
- Aerial cableway, ski lift; gas pipeline
- Electricity transmission line, national
- Electricity transmission line, reg.; transformer

- Precincts
- High-rise buildings
- Low-rise buildings
- Leisure homes, second homes
- Industrial area
- Rock outcrop; boulders
- Coniferous and mixed forest
- Forest of mountain type
- Deciduous forest; other open land
- Arable land; orchard
- Marsh; marsh liable to flooding
- Peat cutting; limestone bog
- Mast; tower
- Windmill; wind generator
- Chimney; cistern
- Sawmill; timber depot
- Settlement remains; ruin
- Natural monument, botanical; geological
- Ms Monument; ancient monument of special interest
- K Building of cultural and historical value
- Bathing; camp site; marina
- Lay-by; wind shelter
- Belt of forest; small forest stand
- Castle; manor; farm
- Dwelling house, industrial building; hut
- Other major building
- Parish church; other church

- Cemetery; bell tower
- Sports Ground; football ground
- Trotting track
- Shooting range, large; small
- Mine shaft, large; small
- Watercourse, less than 6 m wide
- Watercourse, at least 6 m wide; footbridge
- Underground watercourse; flume line or chute
- Opening bridge; ferry route
- Lock; direction of flow
- Waterfall; rapids
- Dam structure; landing-stage
- Jetty; lighthouse; pier
- Shoreline
- Diffuse shoreline
- 3 6 Depth contour lines; shoal (rock, awash)
- 15 Depth in metres; navigable fairway, channel
- Contour lines, vertical interval 5 m
- Cutting; depression
- △ 00 Triangulation point
- .00 Measured height or surface

Scale 1 : 50 000

0 1 2 3 4 5 km



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GEOGRAPHY **0460/12**

Paper 1 **February/March 2019**

INSERT

1 hour 45 minutes

6717869870-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Fig. 2.2 for Question 2, Figs. 3.1 and 3.2 for Question 3, Figs. 5.2, 5.3 and 5.4 for Question 5, and Fig. 6.1 for Question 6.

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Fig. 2.2 for Question 2

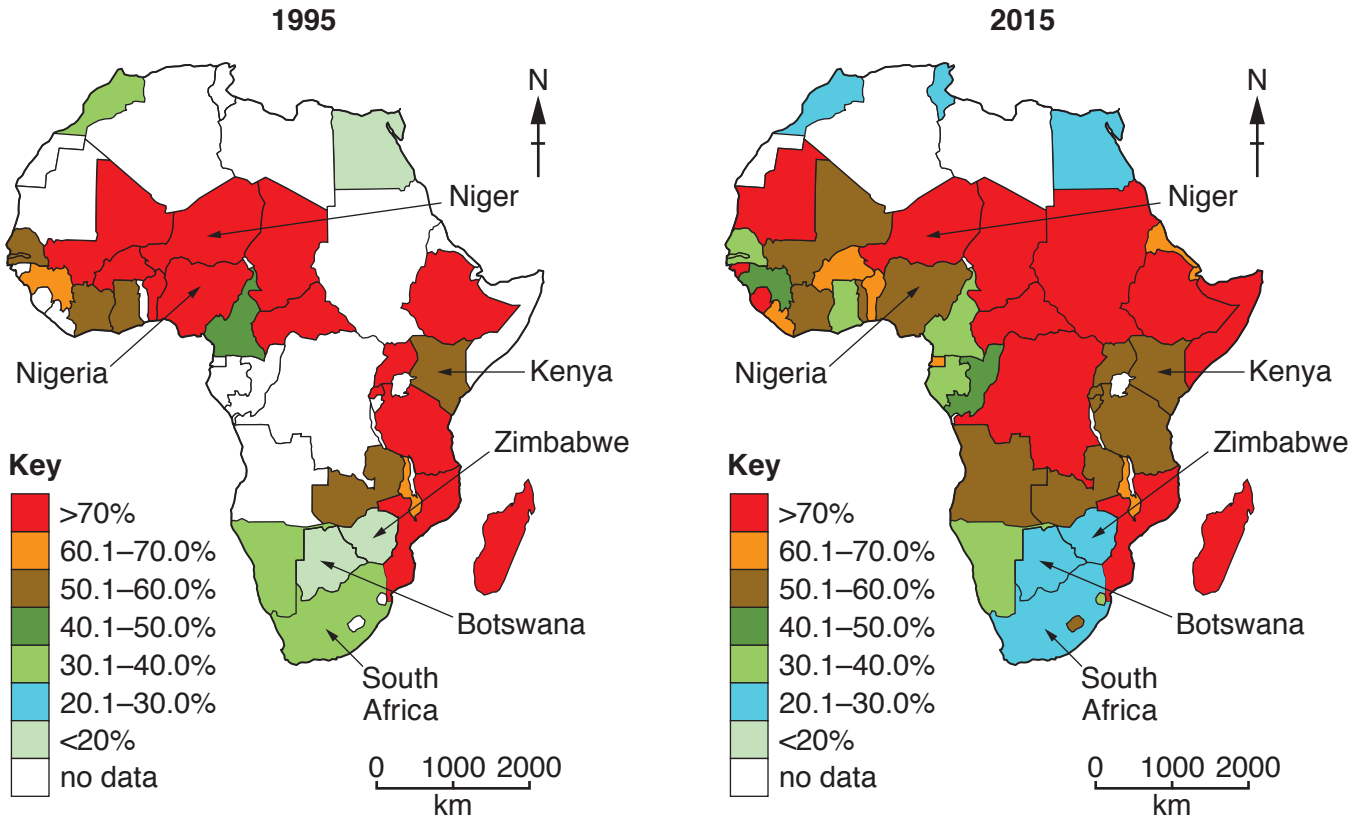

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Fig. 3.1 for Question 3

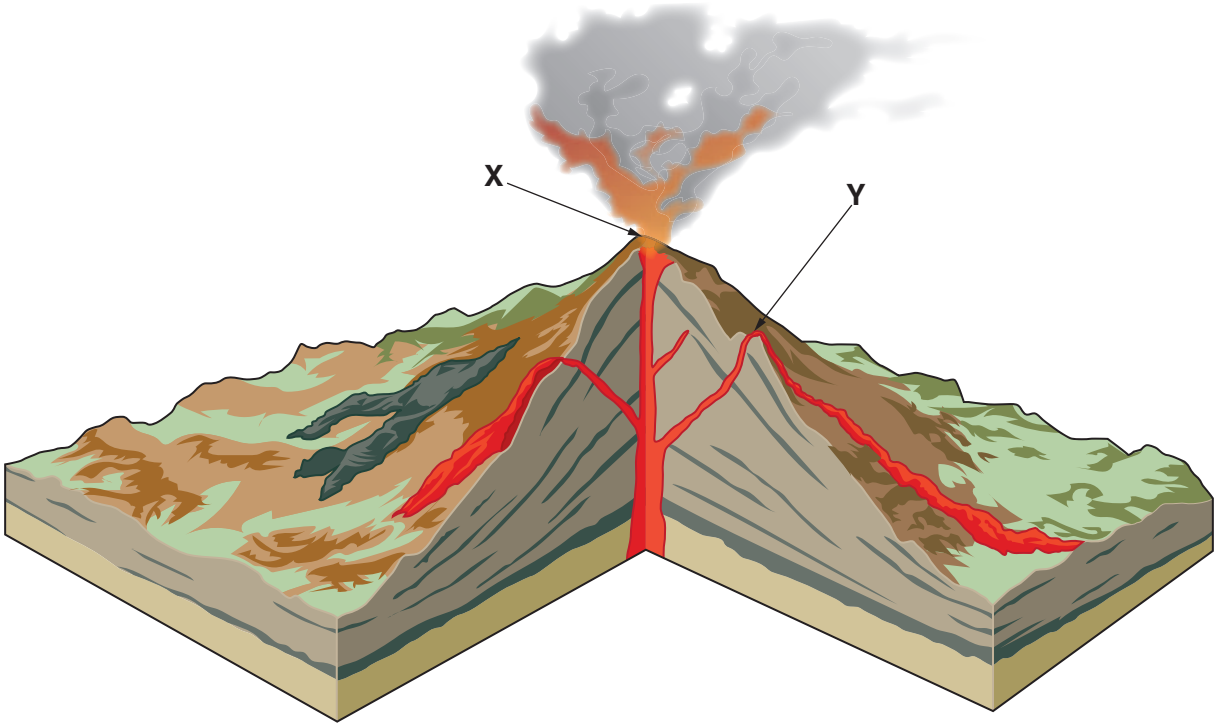
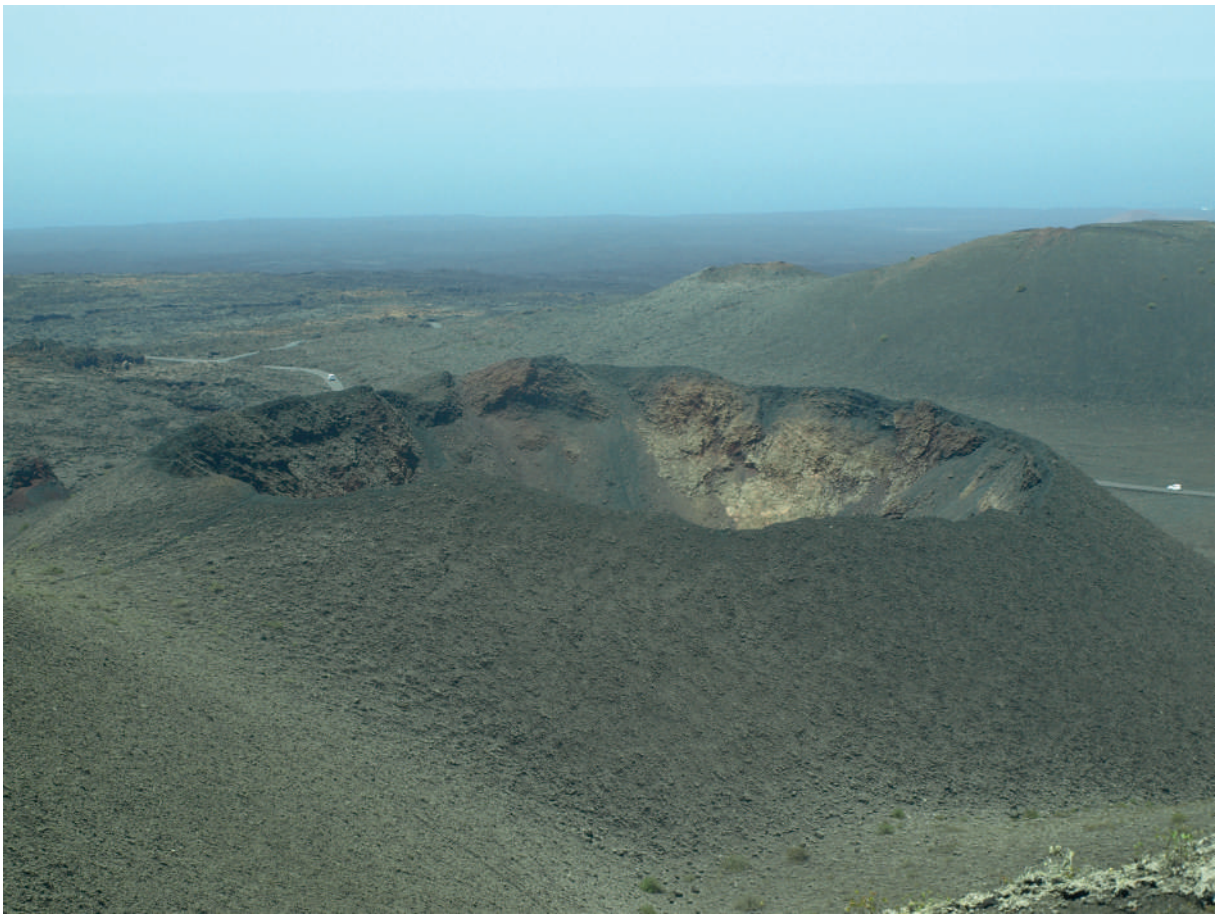


Fig. 3.2 for Question 3



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[Turn over

Fig. 5.2 for Question 5



Fig. 5.3 for Question 5



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Fig. 5.4 for Question 5



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Fig. 6.1 for Question 6



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GEOGRAPHY **0460/22**

Paper 2 **February/March 2019**

INSERT

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Fig. 4.1 for Question 4



Fig. 4.2 for Question 4



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Fig. 6.2 for Question 6



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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **February/March 2019**

INSERT

1 hour 30 minutes

1457543600-I

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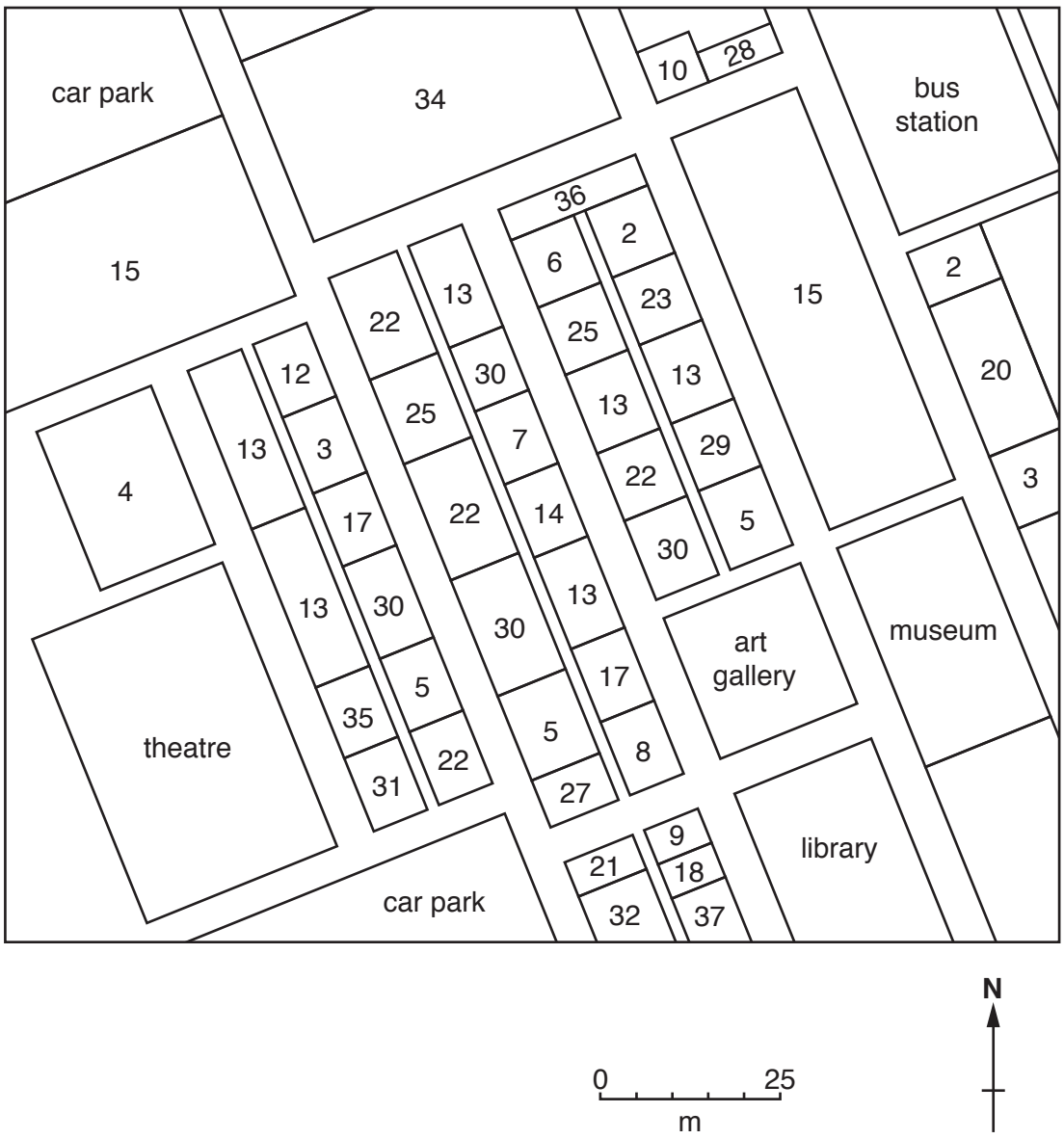
Fig. 1.1 for Question 1

Part of the town centre shopping area



Key to Figs. 1.1 and 1.2

1	Accessories for clothes	14	Confectionery and sweets	27	Musical instruments
2	Antiques	15	Department store	28	Newspapers
3	Art supplies	16	Electrical goods	29	Optician
4	Bank	17	Fast food	30	Restaurant
5	Bar / café	18	Fishmonger	31	Shoes
6	Beauty and health	19	Florist	32	Solicitors
7	Books	20	Furniture	33	Sports goods
8	Bread and cakes	21	Grocer	34	Supermarket
9	Butcher	22	Gifts / souvenirs	35	Toys
10	Cameras	23	Hairdresser	36	Travel agent
11	Cell phones	24	Household goods	37	Wine and beer
12	Chemist	25	Jeweller		
13	Clothes	26	Leather goods		

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Fig. 1.2 for Question 1

Edge of town shopping area

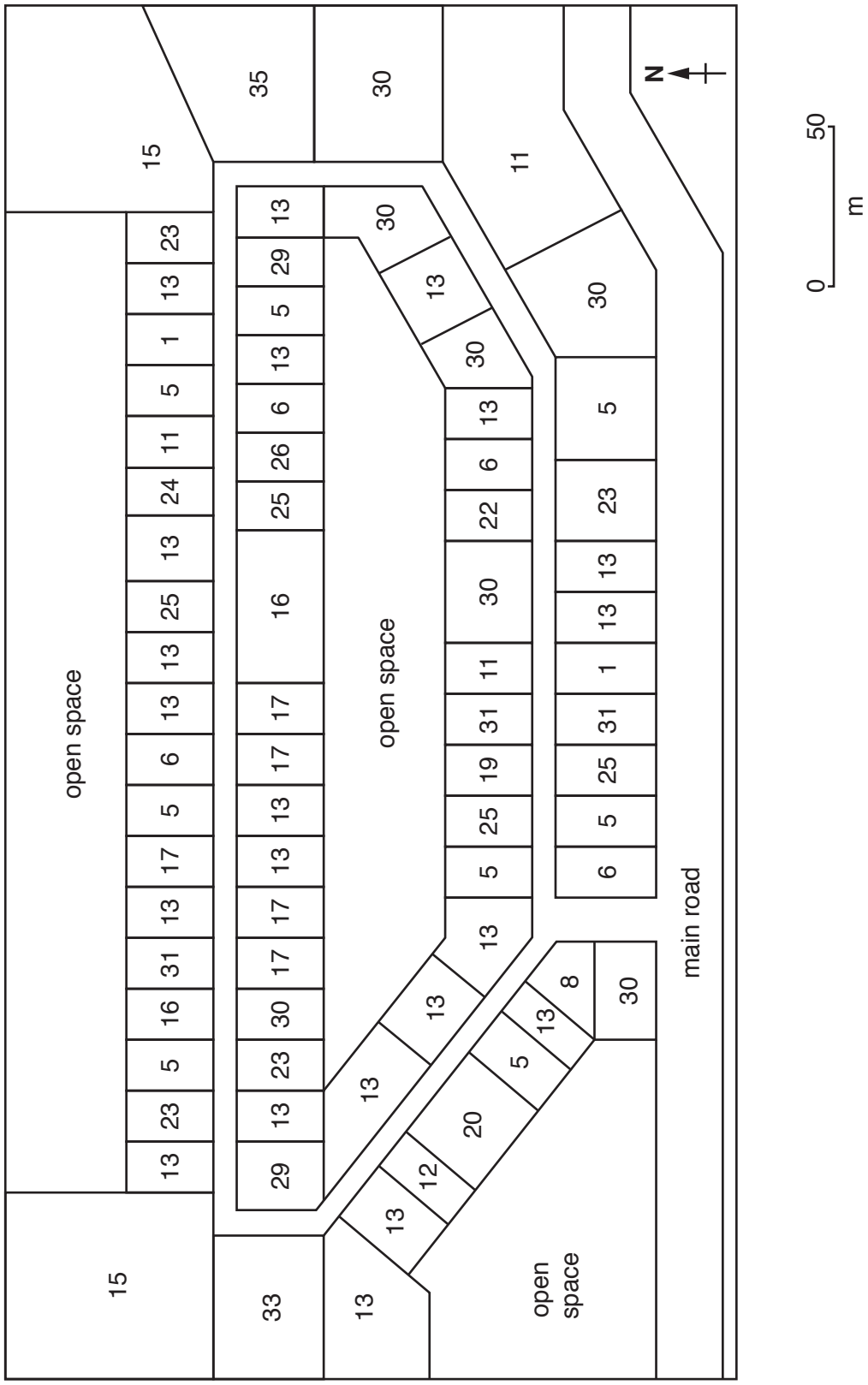

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Table 1.1 for Question 1

Number of shops and services in the town centre and edge of town shopping areas

Type of shop or service	Town centre	Edge of town
Accessories for clothes	3	2
Antiques	3	0
Art gallery	1	0
Art supplies	3	0
Bank	4	0
Bar / café	20	8
Beauty and health	6	4
Books	2	1
Bread and cakes	4	1
Bus station	1	0
Butcher	1	0
Cameras	1	0
Cell phones	3	2
Chemist	2	1
Clothes	39	21
Confectionery and sweets	3	0
Department store	3	2
Electrical goods	2	2
Fast food	6	4
Fishmonger	1	0
Florist	2	1
Furniture	3	1
Grocer	2	0
Gifts / souvenirs	21	1
Hairdresser	8	4
Household goods	4	1
Jeweller	11	4
Leather goods	3	1
Library	1	0
Museum	1	0
Musical instruments	1	0
Newspapers	3	0
Optician	5	2
Restaurant	15	7
Shoes	6	4
Solicitors	2	0
Sports goods	1	1
Supermarket	3	1
Theatre	1	0
Toys	3	1
Travel agent	1	0
Wine and beer	1	0
Total	206	77

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Table 1.2 for Question 1

Results of classification

Classification	Town centre shopping area	Edge of town shopping area
Number of shops selling convenience goods	38	**13**
Number of shops selling comparison goods	108	**43**
Number of services	60	**21**

Table 1.3 for Question 1

Answers to Question 1: Why did you come shopping here today?

Reason given	Town centre (%)	Edge of town shopping area (%)
Near home	3	15
Near work	22	3
Visitor to the area	14	1
Good parking	2	41
Wide range of shops	**51**	18
Good value for money	**8**	22

Table 1.4 for Question 1

Answers to Question 2: What are the main items you are buying here today?

	Town centre (%)	Edge of town shopping area (%)
Food and drink	8	30
Gifts / souvenirs	36	7
Furniture / electrical goods	15	**22**
Clothes / jewellery	26	**35**
Other	15	**6**

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[Turn over

Fig. 1.4 for Question 1

Shopping questionnaire

Shopping area: .....

Date: ..... Time: .....

Excuse me, I'm a student at The International School. Please could you answer two questions to help me with my geography fieldwork?

1. Why did you come shopping here today?

☐	Near home	☐	Near work
☐	Visitor to the area	☐	Good parking
☐	Wide range of shops	☐	Good value for money

2. What are the main items you are buying here today?

☐	Food and drink	☐	Gifts / souvenirs
☐	Furniture / electrical goods	☐	Clothes / jewellery
☐	Other		

Thank you very much for your help and time.

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Fig. 2.1 for Question 2

Students' method to measure beach profile from the low water mark to the back of the beach

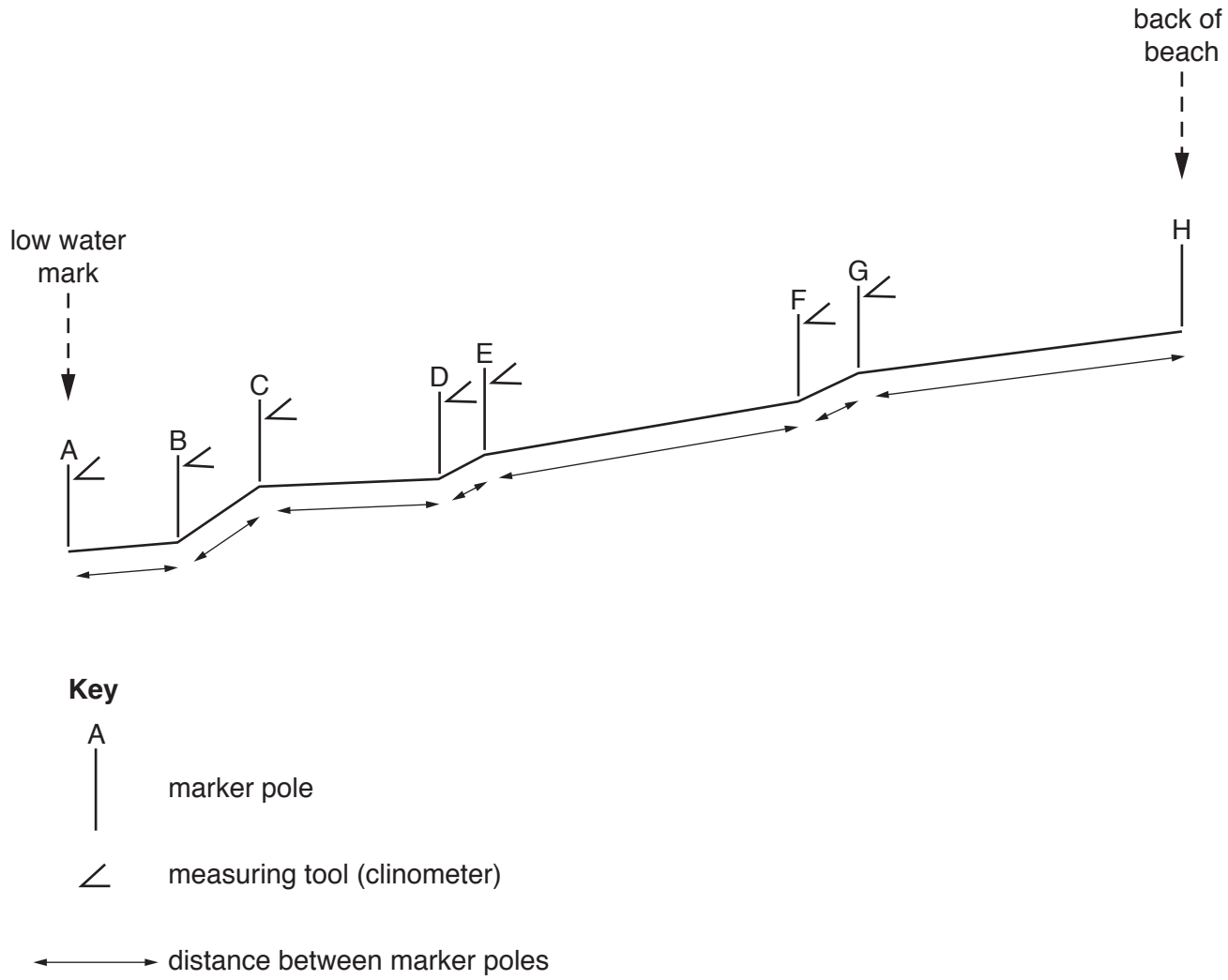

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Table 2.2 for Question 2

Average size of beach samples

Distance from low water mark (m)	Average size of beach materials (mm)	
	Long beach	Bay beach
0	9	19
2	3	23
4	7	35
6	12	41
8	5	39
10	13	**47**
12	19	51
14	6	72
16	18	60
18	4	81
20	11	95
22	3	
24	8	

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GEOGRAPHY **0460/12**

Paper 1 **March 2019**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	4.0 to 4.2	**1**
1(a)(ii)	It is predicted to decrease (1) From 11.9–12.1% to 7.9–8.1% (2) Note: Accept separate male and female percentages 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: Base will be narrower/smaller; Top will be wider/bigger; It will be less pyramid shaped/more rounded/the base will have straighter sides etc. 3 @ 1 mark	**3**
1(a)(iv)	**Young dependents:** Birth rates will be reduced/less children will be born/people want smaller families; Education about/access to/can afford contraception/family planning; More women working/being educated/female equality; Reduced infant mortality rate; Less need for child labour; Later marriage; Anti-natal policies etc. **Old dependents:** Reduction in death rates/longer life expectancy; Better health care/more doctors/nurses/medicines/vaccinations; Better water supply/sanitation/hygiene; Improved care for the elderly/old age homes/pensions; Better food supply/balanced diet; Healthier lifestyle etc. MAX 3 on young/old. 4 @ 1 mark	**4**
1(b)(i)	(Births – deaths) = 1.1million (1) (Net migration) = 0.9 million (2) (Overall population growth) = 2.0 million (3) 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as: Need to provide more housing/less land to live on/homelessness; Need to provide more health care; Need to provide more educational facilities; Traffic congestion; Loss of green belt land/natural vegetation/deforestation; Specified pollution (air/water/noise); Less food supply/farmland; Unemployment; Pressure on water supplies; Need to integrate international migrants/specific problems resulting from migration etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe a population policy used to influence growth rate. e.g. One Child Policy; Level 2 (4–6 marks) More developed statements which describe how a population policy is used to influence growth rate NOT the impacts. **Note:** Credit different approaches within a policy, so for example, when marking a China One Child Policy answer, ideas will often cover the following: Incentives; Penalties; Exceptions; Enforcement **Note:** Credit only 1 L2 mark for each of these four ideas above, although credit should also be given for other ideas such as developing the idea such as applying to have a child/increasing the age of marriage which do not fit the four ideas above. e.g. One Child Policy and free education L2; One Child Policy and use of fines if more than one child L2; One Child Policy and parents not penalised if they have twins or a child is disabled L2; One Child Policy and Granny Police check if couples are conforming to law L2. **Note:** If another country is given, generally apply the same principle, but other ideas in the Content Guide will be relevant, e.g. gender equality acts or educating women etc. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference, which can be named parts of the chosen country, population data, reference to a specific named policy/specific details about it etc.	**7**

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Question	Answer	Marks
2(a)(i)	45–47 (million)	**1**
2(a)(ii)	Completion of bar 1 mark for correct plotting 1 mark for shading 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: A greater proportion/more people are living in urban areas/lighter colour on graph increases as year increases/lower proportion/less people living in rural areas; Any valid statistics with year – 2 dates and 2 figures needed (MAX 1); 8× increase in urban areas but same number in rural areas in 2050 as in 2000; In 2000 more people lived in rural than urban areas, but from 2035 onwards more will live in urban than rural areas etc. 3 @ 1 mark	**3**
2(a)(iv)	Accept pulls or pushes, but do not double credit. Ideas could relate to: Migration to cities/from rural areas/rural areas become built up/cities spread to surrounding countryside; Employment/higher wages; Water supply/sanitation; Food supply; Health care; Education; Entertainment/bright lights etc. 4 @ 1 mark	**4**
2(b)(i)	Increased: Botswana, Zimbabwe Decreased: Nigeria, South Africa Stayed the same: Kenya, Niger 3 @ 1 mark	**3**
2(b)(ii)	Ideas such as: Populations are growing rapidly/high natural population growth; There are not enough houses; Many people have migrated to urban areas/rapid urbanisation; People cannot afford to buy houses/poverty/lack of work/cheaper; There is limited building space; Lack of investment in housing from local authorities etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the strategies used to improve housing conditions. Level 2 (4–6 marks) Uses named example. More developed statements which describe the strategies used to improve housing conditions. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe the strategies used to improve housing conditions, with some place specific reference. Content Guide: Answers are likely to refer to ideas such as: Self help schemes; Site and services schemes; Building of low cost local authority housing; Infrastructural improvements – electricity, water, sewage disposal etc. Place specific reference is likely to consist of: Locational details; Specific details of the schemes; Named parts of urban areas etc.	**7**

Question	Answer	Marks
3(a)(i)	Strato-volcano	**1**
3(a)(ii)	X = Crater Y = Parasitic/secondary cone/secondary crater 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: Lava; Poisonous fumes; Ash; Blast from eruption; Pyroclastic flow; Mudflow; Volcanic bombs; Nuee ardentee; lahars etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
3(a)(iv)	Ideas such as: Signs of eruption/swelling of volcano/radan gas increases/smoke comes from the volcano before it erupts; Eruptions can be predicted/forecasted/people can be warned; People can be evacuated/evacuation routes are planned/evacuation centres built; Lava often moves slowly/does not travel far/affects a limited area; Eruptions are often ash clouds which do not cause many deaths; Properties can be protected from ash; Strategies can be used to divert lava/dig channels; Lava can be slowed down by spraying water on it; People are educated to stay safe in an eruption/drills; etc. 4 @ 1 mark	**4**
3(b)(i)	Features such as: Conical; Top has been removed; Crater; Steep sides; Bare rock/little vegetation/ash covered etc. 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: Plates move apart; Due to convection currents; Gap created between plates; Magma is forced upwards/rises/fills the gap; Due to pressure etc. 1 mark reserved for appropriate diagram 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the impacts of an earthquake. Level 2 (4–6 marks) Uses named example. More developed statements which describe the impacts of an earthquake. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Deaths; Injuries; Damage to property, Fires; Damage to gas/water pipes; Disruption of electricity supplies; Damage to roads; Damage to hospitals; Economic impact/damages to factories/offices etc. Place specific reference is likely to consist of: Locational details; named places within the area affected; specific details of damage etc.	**7**

Question	Answer	Marks
4(a)(i)	24.3 to 24.6 (°C)	**1**
4(a)(ii)	Temperature range = 8 (°C) Annual precipitation = 48 (mm) 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Low latitude/Tropics/on Tropic of Capricorn; In southern hemisphere; Sun overhead/high angle of sun/sun's rays are direct/more concentrated; Inland location/away from areas of sea/ocean; Small amount of cloud cover etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(a)(iv)	Ideas such as: Close to Tropic of Capricorn; High air pressure; Descending air; Air heats up; Wind direction over large areas of land/wind blows from inland/wind blows from land to sea; Cold current reduces water vapour in air/causes condensation to occur over the sea etc. 4 @ 1 mark	**4**
4(b)(i)	Kisangani (1 mark) Ideas such as: High temperatures throughout the year/low temperature range; High total/annual rainfall/it has the highest rainfall/there is no month with rainfall less than 100 mm/high rainfall every month; No seasons etc. Note: Accept statistics as alternative to statements. 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: Lots of vegetation/rapid growth due to constant/lots of rainfall; High temperatures throughout the year encourage rapid growth/lots of vegetation; Emergents/lianas reach for sun/very tall due to competition from dense vegetation; Evergreen due to constant growing season/all year round rain/high temperatures all year; Drip tip leaves to shed water; Broad leaves to obtain more sunlight; Buttress roots for stability/due to marshy ground; Shrubs/ground cover in clearings/where there is sunlight etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why deforestation has taken place. Level 2 (4–6 marks) Uses named example. More developed statements which explain why deforestation has taken place. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements which explain why deforestation has taken place including some place specific reference. Content Guide: Answers are likely to refer to: Road building; Logging; Mining; Dam building; Settlement building; Ranching; Commercial agriculture; Manufacturing/industry; Increasing population etc. Place specific reference is likely to consist of: Locational details; Named areas/development schemes etc.	**7**

Question	Answer	Marks
5(a)(i)	Human Development Index	**1**
5(a)(ii)	Europe is higher/has a higher average/South America is lower/lowest HDI in Europe is the highest in South America; Europe has a narrower range of values/South America has a wider range Note: Accept relevant comparative statistics as an alternative on each line. 2 @ 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Ideas such as: It takes into account a variety of factors/uses more than one indicator/composite indicator; Life expectancy/numbers of years in school/GNI are used (at least 2 needed); Gives an overall score from 0 to 1; Easy to carry out statistical comparisons between countries/change over time etc. 3 @ 1 mark	**3**
5(a)(iv)	Indicators such as: Average number of people per doctor/percentage dying from specified illness; Life expectancy; GDP/GNP/GNI/National Income **per capita**; Literacy/% completing secondary education; IMR/death rate; Birth Rate; Employment structure/% employed in primary/secondary/tertiary etc. 1 mark for identification of indicator with a further mark for explaining how it can be used. E.g. life expectancy (1) will be higher when a country is at a higher level of development. (2) 2 @ 2 marks	**4**
5(b)(i)	Primary = Fig. 5.4 Secondary = Fig. 5.2 Tertiary = Fig. 5.3 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: The structure will be dependent on level of development/how rich the country is/whether it is LEDC or MEDC; Proportion of primary economic activity tends to decrease in MEDCs/with development due to mechanisation; Proportion of primary economic activity tends to decrease in MEDCs/with development due to exhaustion of resources; Secondary increases as development occurs due to investment by TNCs; Secondary increases as more development occurs due to automation; Tertiary increases as development occurs due to education/skills increase; Tertiary increases as development occurs due to increase in wealth creating demand for services etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the impacts of an economic activity on the natural environment. Level 2 (4–6 marks) Uses named example. More developed statements which describe the impacts of an economic activity on the natural environment. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers could refer to any economic activity at any scale and are likely to refer to issues such as: Air pollution; Water pollution; Destruction of vegetation; Impacts on ecosystems/food chains; Impacts on climate/global warming; Acid rain; Soil erosion etc. Place specific reference is likely to consist of: Locational details/named areas within country/area chosen statistics etc.	7

Question	Answer	Marks
6(a)(i)	Changing (raw) materials/inputs into a (finished) product	1
6(a)(ii)	Features such as: Old; Large; Tall/7 storeys; Many windows; By the dockside/near the sea/near water/near a river; Delivery bays for boats; Flat roof; Chimney; Big sign etc. 2 @ 1 mark	2

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Question	Answer	Marks
6(a)(iii)	Inputs: electricity, sugar cane Processes: drying, packing Outputs: sugar, waste materials 1 mark for 1 or 2 correct 2 marks for 3, 4 or 5 correct 3 marks for 6 correct	**3**
6(a)(iv)	Ideas such as: Air pollution/gases/greenhouse gases; Water pollution/acid rain pollutes water; Kills wildlife/wildlife forced to move/extinction of species; Destruction of vegetation/deforestation; Impacts on ecosystems/food chains; Loss of habitats; Noise scares animals etc. 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: Mainly in southern India/south west/south east/west/centre/peninsular India; Clustered together; E.g. Karnataka/Maharashtra/Gujurat etc.; Isolated areas/some/few further north; E.g. Punjab/Haryana. Note: MAX 1 overall on examples IN CONTEXT 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Advantages such as: Employment/higher wages; Skills development; Multiplier effect; Improvement electricity/water supply; Improvement of transport network/roads/airports; Encourages development/economic growth/improves the economy; New technology; Government income / taxes etc. Disadvantages such as: Low pay; Exploitation; Profits go abroad/not kept locally/economic leakage; High paid jobs filled by foreigners; Specified pollution; Depletion of resources (or example); Traffic congestion; Competition for local industry; Can pull out at any time etc. MAX 4 for advantages/disadvantages 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe and/or explain the location of a factory or industrial zone. Level 2 (4–6 marks) Uses named example. More developed statements which explain the location of a factory or industrial zone. (**Note:** Max 5 if no named or inappropriate example or no valid description of location) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, which describe and explain the location of a factory or industrial zone including some place specific reference. Content Guide: Answers could refer to: Raw materials; Market; Power supplies; Communications; Inertia; Workforce etc. Place specific reference is likely to consist of: Locational details; Specific details of industry; Named/numbered roads etc.	**7**

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GEOGRAPHY **0460/22**

Paper 2 **March 2019**

MARK SCHEME

Maximum Mark: 60

Published

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- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
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- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	(other) major buildings	**1**
1(a)(ii)	coniferous and mixed forest	**1**
1(a)(iii)	marsh (liable to flooding)	**1**
1(a)(iv)	low rise buildings	**1**
1(b)	flows north east, wide/200 m/at least 6 m wide, wider downstream/variable width, meanders, marsh/floods, bridges/roads crossing, marina, small forest stand, gentle gradient, delta/mouth/reaches sea, one tributary	**4**
1(c)	straight at beginning/in south, altered by human activity, headland(s), bay(s), stack/island(s)	**2**
1(d)	coastal/near sea, leisure homes/second homes, bathing, sheltered bay	**2**
1(e)(i)	3000–3200 m	**1**
1(e)(ii)	south east	**1**
1(e)(iii)	127–131°	**1**
1(e)(iv)	632031 = 2 632042 = 1	**2**
1(f)	flat/gentle, low, 10 m, flat inland/north west, more hilly/higher/steeper in south east/along coast	**3**

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Question	Answer	Marks
2(a)(i)	correct plot of 210 thousand	**1**
2(a)(ii)	(overall) decrease, from 330 thousand to 130 thousand, by more than half/by 200 thousand least in 2010, 100 thousand in 2010 most in 2001/2 increase/higher 2005/6, increase/higher 2010/11 always positive	**3**
2(a)(iii)	total/net migration (mostly) positive, international immigration greater than domestic emigration, positive migration greater than negative migration	**1**
2(b)(i)	7768	**1**
2(b)(ii)	Santa Clara	**1**
2(b)(iii)	Alameda	**1**

Question	Answer	Marks
3(a)	high(er) in centre, low(er)/medium further away, very high/most in Dwarka/SW of centre/between Dwarka and South Delhi/near Dwarka, higher/medium along roads/low(er) away from roads	**3**
3(b)	01:00–10:00/night/early morning medium, 10:00–13:00/midday high, 13:00–18:00/afternoon medium, 18:00–21:00/evening high, 21:00–24:00/late evening/end of day/night very high, never low/always at least medium/average is medium	**2**
3(c)	For higher along roads/road junction/lower away from roads, high in evening/rush hour/18:00 Against highest area not in centre/not all along road, only medium for morning rush hour/journey to work, highest in the night when few cars/people asleep, medium/lower at Ghaziabad rod junction, high in centre is not just along roads Reserve one mark for each.	**3**

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Question	Answer	Marks
4(a)(i)	groundwater flow	**1**
4(a)(ii)	infiltration	**1**
4(b)(i)	straightened, deepened, strengthened/built from stone/walls to prevent erosion	**2**
4(b)(ii)	Description 4.2 higher flow/discharge, 4.2 more load, 4.2 water muddy/brown/dirty/suspension load Explanation 4.2 rainfall, 4.2 faster/more energy/more/powerful, 4.2 wider	**4**

Question	Answer	Marks
5(a)(i)	maximum-minimum/Six's thermometer	**1**
5(a)(ii)	wet and dry (bulb) thermometers/hygrometer	**1**
5(b)(i)	25 °C	**1**
5(b)(ii)	30 °C	**1**
5(b)(iii)	10 °C	**1**
5(c)	thermometers do not read the same/12 °C and 20 °C, evaporation, uses latent heat, cools bulb	**3**

Question	Answer	Marks
6(a)	fertiliser input, crops output	**2**

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Question	Answer	Marks
6(b)(i)	<u>Fields</u> rectangles/squares, crops/arable/cultivated, large, flat, variable size, some bare/ploughed/harvested, some with trees round/lines of trees, crops in rows <u>Other land use</u> roads, buildings, ponds/lakes/reservoirs/water bodies, area of trees	**3**
6(b)(ii)	<u>Irrigation</u> ponds/reservoirs/dams <u>Commercial</u> large/storage buildings/factory, areas with no houses/settlement, large fields/areas of land/large scale, crops in rows for machinery, machinery visible	**3**

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **March 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	Department store	**1**
1(a)(ii)	Library, bank, museum, art gallery, theatre, restaurant, bar / café, hairdresser, optician, solicitors, travel agent, bus station, beauty and health. No credit for number from key. (1 + 1)	**2**
1(a)(iii)	Reasons such as: Good accessibility / transport / bus station (1) Grew up with historic development of town (1) Large number of customers / large threshold / make more money / many people come here (1) Near to similar / complementary / other services / or e.g. such as bank for people to get money for shopping / restaurant to eat whilst spending the day shopping (1) (1 + 1)	**2**
1(a)(iv)	Hypothesis is **true** / **correct** / greater number and variety of shop and services in town centre – 1 mark reserve Stats to 2 max. Ignore 'only/just' refs. **Reserve data**: 206 shops / services in town centre compared to 77 in edge of town area (1RD) 42 different types of shop / service in town centre compared to 24 in edge of town area (1D) e.g. 21 gift shops in centre but only 1 on edge (1D) e.g. art gallery / antiques / bank in town centre but not on edge of town area (to 2 max for named examples of variety/difference). If no hypothesis conclusion credit evidence (1HA + 1RD + 2 or 1 + 1D)	**4**
1(b)(i)	Rows 1 and 3 are correct Convenience goods are bought more frequently than comparison goods (1) Convenience goods are usually cheaper than comparison goods (1) (1 + 1)	**2**
1(b)(ii)	Examples **Convenience goods:** bread and cakes, chemist, fast food, household goods, florist, department store (only credit once in either). (1) **Comparison goods**: accessories for clothes, bookshop, cell phones, clothes, department store, electrical goods, furniture, gift / souvenir, jeweller, leather goods, shoes, sports goods, toys, art supplies (1) (1 + 1)	**2**
1(b)(iii)	Drawing divided bar graph 1 mark for any 1 or 2 correct plots; 2 marks for three correct plots at 13, 56, 77. 1 mark for shading. (1 + 1 + 1)	**3**

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Question	Answer	Marks
1(c)(i)	Examples Introduce self / explain what survey is about / purpose of survey (1) Work in pairs/ work in group / not alone / not in large group (1) Decide how long to do the survey for / decide how many to ask (1) Go to different parts of the shopping area / not all in same area (1) Don't ask people you know (1) Don't block pavement / entrance to shops /doorways (1) Accept some people won't want to answer questions / are too busy / unwilling to talk/ do not have time / don't argue / be polite/ thank them (1) Ask a range or variety of people / only ask adults / choose people of different age / gender (1) Have a sampling method / decide on sampling size / ask every 10th person / use random or stratified sampling (1) Choose a time when there are plenty of people shopping / ask outside shops (1) (1 + 1 + 1)	**3**
1(c)(ii)	Completion of bar graph for town centre Wide range of shops = 51%, value for money = 8% (1 + 1)	**2**
1(c)(iii)	Completion of pie graph for edge of town shopping area. Must be plotted and shaded correctly clockwise. Furniture/electrical goods = 22%, clothes/jewellery = 35%, other = 6% 1 mark for plot at 59% (148° from top a/c) 1 mark for plot at 94% (22° from top a/c). 1 mark for shading. (2 × 1) + 1	**3**

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Question	Answer	Marks
1(c)(iv)	**No** / hypothesis is **false** / **incorrect** – 1 mark reserve Shoppers are attracted to shopping centres for different reasons (1) One / main reason attracted to TC is wide range of shops but at edge main reason is good parking (1) Another reason attracted to TC is near work but at edge it is good value for money / same percentage to centre and edge for different reasons (1) Credit paired data which compares the two centres. e.g. 51% to wide range of shops in TC and 41% for good parking at edge (1) 22% attracted by being near work at TC and 22% good value for money at edge (1) e.g. One /main reason is for gifts/souvenirs in TC but main is clothes/jewellery at edge (1) Credit data supporting above example i.e. 36% for gifts/souvenirs in TC but 35% for clothes/jewellery at edge (1) **Note: One max/reserve only for any paired data**. If no hypothesis conclusion and credit evidence (1HA + 1 + 1 + 1RD)	**4**
1(d)	Hypothesis must be stated as a question or statement. **TICK HA.** H People travel further to shop in the town centre Q Where do you live / how far have you travelled today? H People visit the town centre more frequently Q How often do you visit the shopping area? H Do people travel by different methods to the shopping centres? Q How did you travel here today? H More people over 50 shop in the town centre and more people under 50 shop at the edge of the town centre Q Which of the following age groups do you fit into? Can credit Q if hypothesis is inappropriate but Q is OK. (1H + 1Q)	**2**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(a)</td><td>
<table>
<tr><td>Possible threat to safety</td><td>Possible precaution</td></tr>
<tr><td>High cliff behind the beach</td><td>Keep away from base of cliff / overhang / beware falling rocks.
Don’t stand on edge of cliff
Don’t climb cliffs</td></tr>
<tr><td>Powerful waves breaking at the beach</td><td>Measure waves from safe position / not in sea / don’t go too far / deep into sea / face the sea</td></tr>
<tr><td>Heavy rain is forecast for the day of the fieldwork</td><td>Wear suitable / waterproof clothes / raincoats / wellingtons / umbrellas</td></tr>
</table>
(3 × 1)</td><td>3</td></tr>
<tr><td>2(b)(i)</td><td><u>Examples</u>

Put rope on beach / create transect line (1)
Place marker poles along transect line (1)
Put poles at each <u>break of slope</u> (1)
Measure distance between marker poles (1)
Ensure poles are vertical / perpendicular (1)
Same length of pole above surface at each point (1)
Hold clinometer next to top / at agreed height on marker pole / eye level (1)
Read off angle / degrees / angle of slope / angle of inclination (1)
Sight other marker pole at top / agreed height / put string connecting same point on each pole (1)
Repeat along transect / different places up beach (1)

No credit for naming marker pole or clinometer
(1 + 1 + 1 + 1)</td><td>4</td></tr>
<tr><td>2(b)(ii)</td><td>Hypothesis is true / bay beach has steeper profile – 1 mark reserve (✓HA).
<u>Credit data to 2 MAX.</u>

Long beach is longer beach and has lower height / bay beach is shorter beach and is higher (1)
Ref to part of profiles e.g., Long beach is flatter from D–F but bay beach is steeper (1)

Long beach increases 3.5–4 m in 24 m and bay beach increases 5–5.5 m in 20 m OR
Long beach increases 2.5 at 20 m and bay beach increases 5–5.5 m in 20 m (1D)

1 mark for paired gradient measurements
i.e. Long 1 in 6/7 / 0.16 / 16% and Bay 1in 4 / 0.25 / 25%. (1D)

If no hypothesis conclusion credit evidence

(1HA + 1 + 2D max)</td><td>4</td></tr>
</table>

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Question	Answer	Marks
2(c)(i)	Examples Put quadrat on ground / use quadrat (1) Select 3 stones / use random or systematic sampling method (1) Measure stone with tape / rule / callipers / pebbleometer (1) Measure longest axis / length (1) Read in mm (1) Add up measurements and divide by number of samples / calculate the average length (1) (3 × 1)	**3**
2(c)(ii)	Plot on graph 10 m = 47 mm.	**1**
2(c)(iii)	Results agree with hypothesis for **one** beach – 1 mark reserve (✓HA) Agree for bay beach / do not agree for long beach (1) Bay beach has consistent increase but Long beach is inconsistent / goes up and down / no pattern (1) Paired data to support conclusion to 2 marks (1 for each beach) e.g. Bay beach: 19 mm at 0 m / start and 95 mm at 20 m / furthest point(1) Long beach: 9 mm at 0 m and 8 mm at 24 m / furthest point(1) If no hypothesis conclusion credit evidence (1H + 1 + 2D)	**4**
2(c)(iv)	Examples Depends on strength of swash and backwash (1) Powerful swash throws all material up the beach / material thrown up beach during storms (1) Less powerful backwash can only carry the smaller material down the beach (1) Material from cliff at back of beach is larger (1) (1 + 1)	**2**
2(c)(v)	Examples Another student / group checks measurements of distance / angle / pebble size (1) Use a digital clinometer / electronic callipers(1) Measure more beach material samples (1) Measure every metre / reduce intervals (1) (1 + 1)	**2**
2(d)(i)	Examples Pick a rock on beach / person stands in sea / pole in sea / float in sea (1) Count number of waves breaking / going up beach / hitting stick / passing person (1) in 1/5/10 minutes / specified time (1) Use stopwatch / timer / clock / chronometer for timing fixed period (1) Repeat counting / count more than once and take average (1) Only credit 'specified time' once. (1 + 1 + 1)	**3**

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Question	Answer	Marks
2(d)(ii)	Examples: marks can be comparative or separate. Destructive waves have higher frequency / constructive lower frequency (1) Destructive waves are higher / steeper / bigger / larger amplitude **OR** constructive lower / flatter / smaller / smaller amplitude (1) Destructive waves are closer together / shorter wavelength OR constructive waves are further apart / longer wavelength (1) Destructive waves More than 10 per minute (1) Breaking wave plunges down / crashes down onto beach (1) Weak swash and strong backwash / stronger backwash / weaker swash (1) Constructive waves Less than 10 per minute (1) Breaking wave spills forward / gently rolls up beach (1) Strong swash and weak backwash / stronger swash / weaker backwash (1) (1 + 1 + 1 + 1)	**4**

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Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER					

6717866870

GEOGRAPHY **0460/12**

Paper 1 **February/March 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 2.2 for Question 2, Figs. 3.1 and 3.2 for Question 3, Figs. 5.2, 5.3 and 5.4 for Question 5, and Fig. 6.1 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **30** printed pages, **2** blank pages and **1** Insert.

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[Turn over

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about the population structure of India in 2001 and 2026 (predicted).

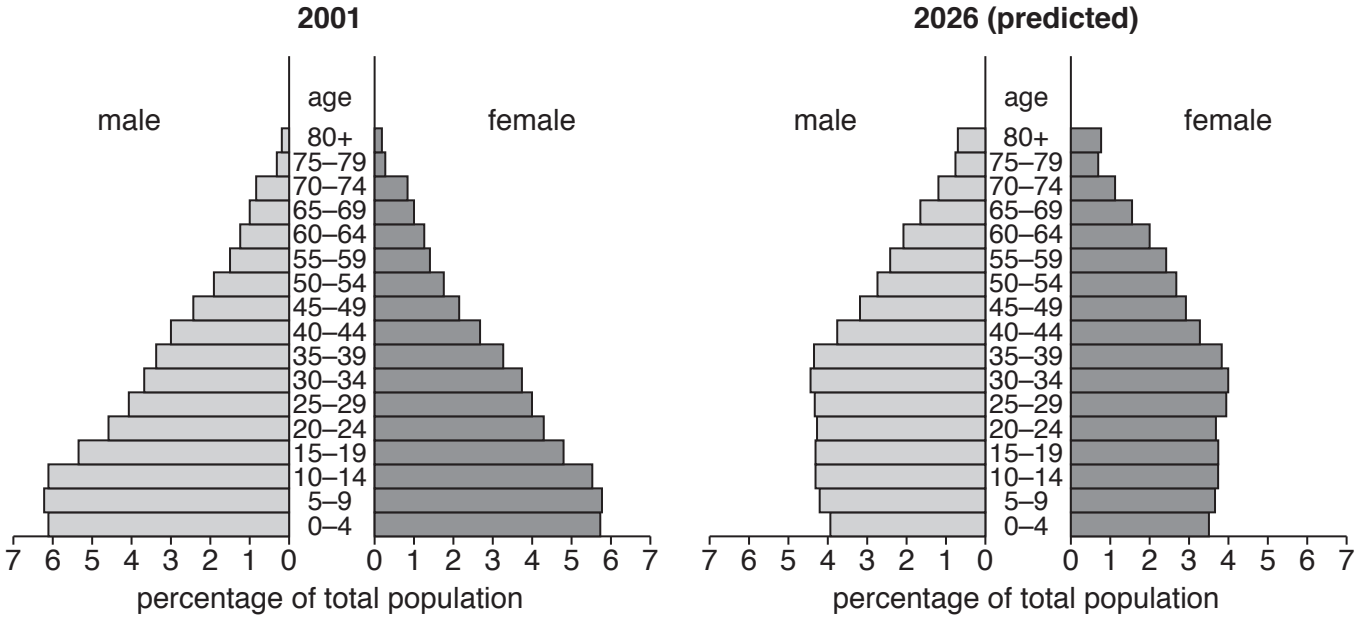

Fig. 1.1

(i) What percentage of the population of India in 2001 were female aged 25 to 29?

.....% [1]

(ii) Describe how the population aged 5 to 9 is predicted to change between 2001 and 2026. Use statistics in your answer.

.....

.....

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..... [2]

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(iii) Describe how the **shape** of India's population pyramid is predicted to change between 2001 and 2026.

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..... [3]

(iv) Suggest reasons for the changes in the percentage of young and old dependents in India which are predicted by 2026.

Young dependents .....

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Old dependents .....

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..... [4]

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(b) Study Fig 1.2, which shows information about the predicted change in population size in New South Wales, a state in Australia (an MEDC) between 2011 and 2031.

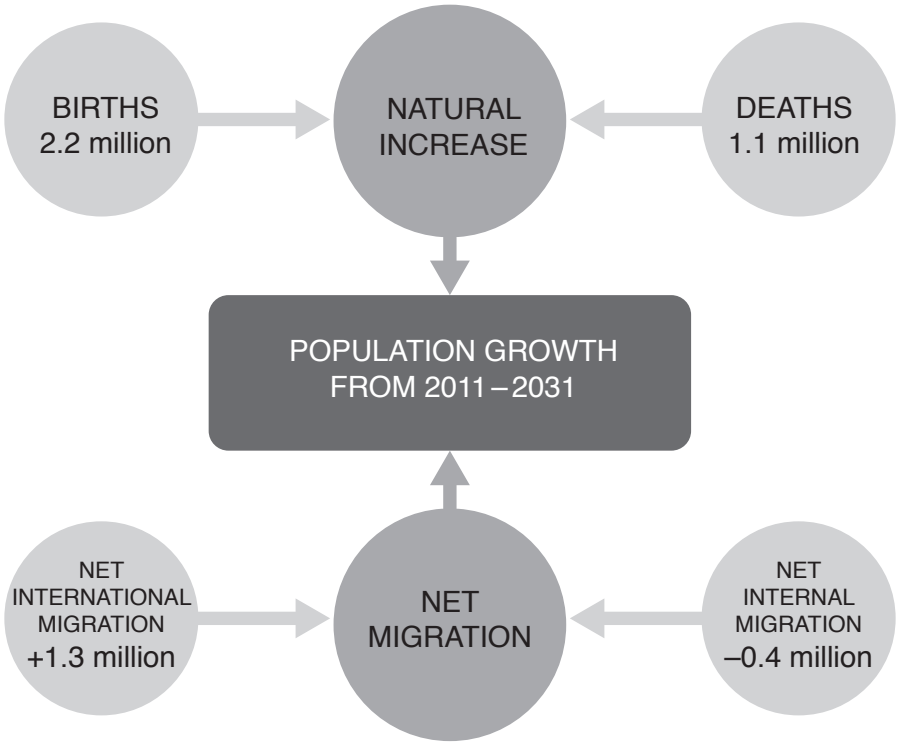

Fig. 1.2

(i) Calculate the overall population growth of New South Wales predicted between 2011 and 2031.
Show your calculations in the box below.

..... million

[3]

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(ii) Explain what challenges are likely to be faced in New South Wales as a result of this predicted population growth.

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..... [5]

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[Turn over

(c) For a named country you have studied, describe a policy which has been used to influence its population growth rate.

Name of country .....

.....

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2 **(a)** Study Fig. 2.1, which shows information about the population of Kenya (an LEDC in Africa) between 2000 and 2050 (predicted).

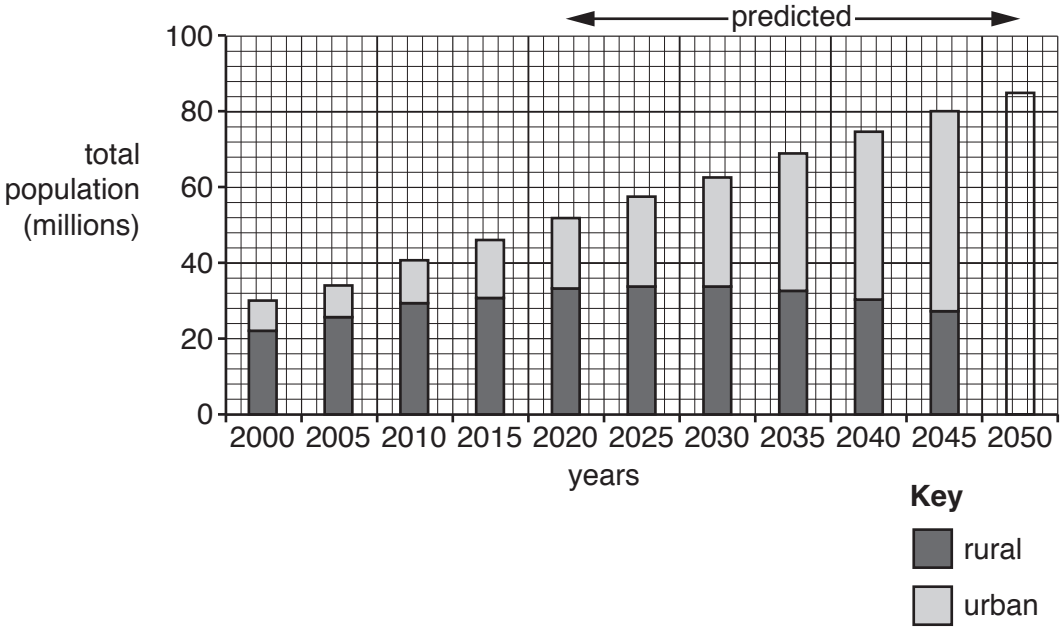

Fig. 2.1

(i) What was the total population of Kenya in 2015?

..... million [1]

(ii) **Complete the bar for 2050** using the following information:

Population living in rural areas 22 million

Population living in urban areas 63 million [2]

(iii) Use evidence from Fig. 2.1 **only** to show that urbanisation is occurring in Kenya.

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..... [3]

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(iv) Explain why urbanisation is occurring in LEDCs such as Kenya.

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..... [4]

(b) Study Fig. 2.2 (Insert), which are maps showing the percentage of people in African countries living in squatter settlements in 1995 and 2015.

(i) Identify a country which is labelled on Fig. 2.2 where the percentage of people living in squatter settlements:

– increased between 1995 and 2015 .....

– decreased between 1995 and 2015 .....

– was the same in 1995 and 2015. ..... [3]

(ii) Explain why a large percentage of the population in many cities in LEDCs are living in squatter settlements.

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..... [5]

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(c) For a named urban area you have studied, describe the strategies used to improve the housing conditions of the people who live there.

Name of urban area .....

.....

.....

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1 (Insert), which is a block diagram of a volcano.

(i) Name the type of volcano shown in Fig. 3.1. Circle **one** of the following:

extinct volcano shield volcano strato-volcano [1]

(ii) Identify the features labelled **X** and **Y** on Fig. 3.1.

X .....

Y ..... [2]

(iii) Describe **three** hazards for people which may occur when a volcano erupts.

1 .....

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2 .....

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3 .....

..... [3]

(iv) Explain why volcanic eruptions usually do **not** cause large numbers of deaths, even though many people live nearby.

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..... [4]

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(b) Study Fig. 3.2 (Insert), which is a photograph of a volcano in Lanzarote, one of the Canary Islands.

(i) Using Fig. 3.2 **only**, describe **three** features of the volcano.

1 .....

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2 .....

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3 .....

..... [3]

(ii) Explain why volcanoes erupt on constructive plate boundaries. Include a labelled diagram.

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[5]

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(c) Describe the impacts of an **earthquake** on a named area you have studied.

Name of area .....

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[Total: 25]

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TURN PAGE FOR QUESTION 4

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4 **(a)** Study Figs. 4.1 and 4.2, which are a climate graph and a location map of San Pedro de Atacama (Chile).

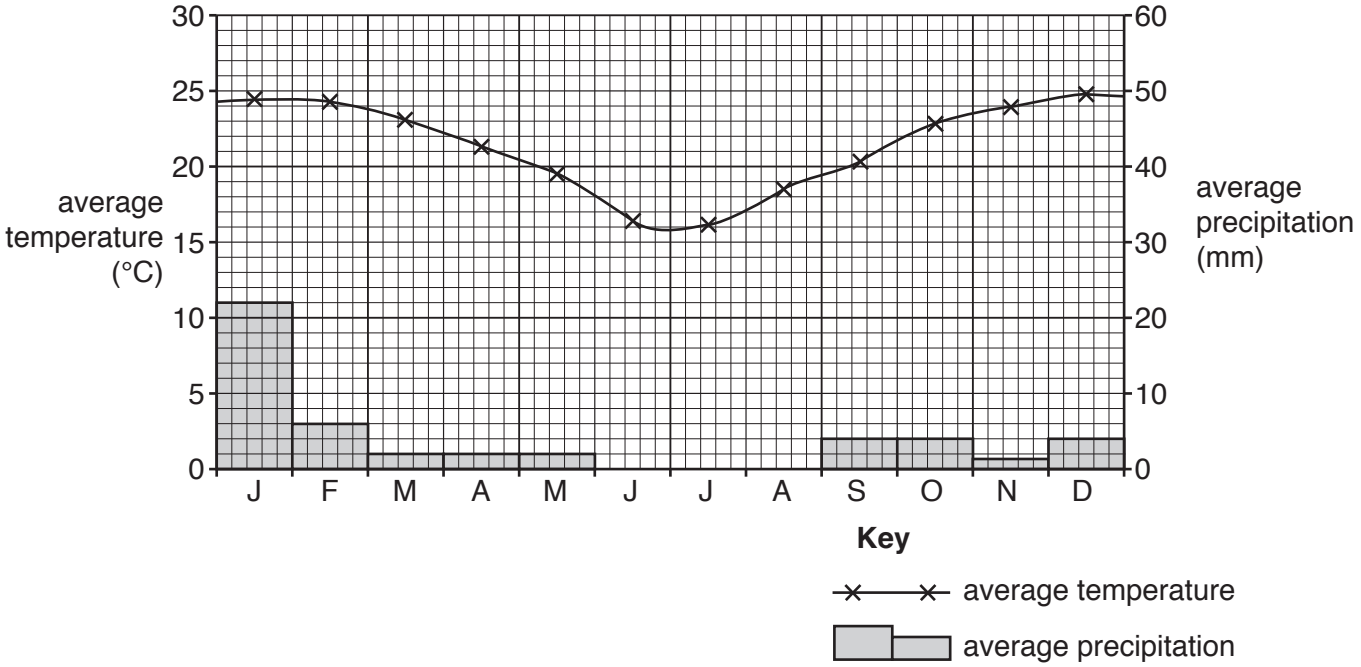

Fig. 4.1

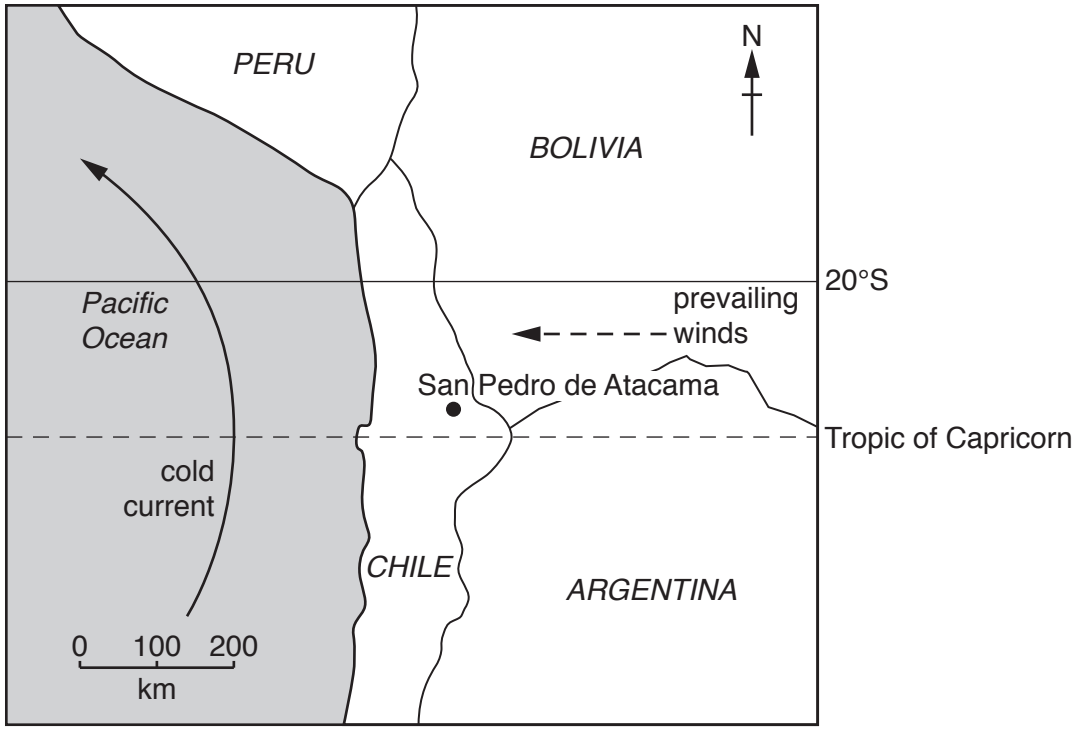

Fig. 4.2

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(i) What is the average temperature at San Pedro de Atacama in January?

.....°C [1]

(ii) Estimate the annual temperature range and annual precipitation at San Pedro de Atacama. Choose from the following:

8 19 24 48 60

Annual temperature range ..... °C

Annual precipitation ..... mm [2]

(iii) Suggest reasons why temperatures are high in San Pedro de Atacama in December and January.

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..... [3]

(iv) Using evidence from Fig. 4.2, explain why San Pedro de Atacama does not receive much rainfall.

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..... [4]

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(b) Study Fig. 4.3, which shows information about the climate of three places in the Democratic Republic of Congo.

Gemena

	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	31	31	32	31	31	30	29	29	30	30	30	31
Rainfall (mm)	35	55	125	145	165	155	180	215	195	215	120	45

Kinshasa

	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	30	31	31	31	30	28	27	28	30	30	30	30
Rainfall (mm)	155	135	170	195	125	10	5	5	35	155	255	170

Kisangani

	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Temperature (°C)	31	31	31	31	31	30	29	29	30	30	30	30
Rainfall (mm)	130	145	165	180	160	135	130	155	185	230	215	165

Fig. 4.3

(i) Which place, listed in Fig. 4.3, has the best example of an Equatorial climate? Justify your answer by referring to information from Fig. 4.3.

Name of place .....

Justification .....

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..... [3]

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(ii) Explain how the vegetation which grows in a tropical rainforest is influenced by the climatic conditions.

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(c) For a named area of tropical rainforest, explain why deforestation has taken place.

Name of area of rainforest .....

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about the HDI of selected countries in Western Europe and South America.

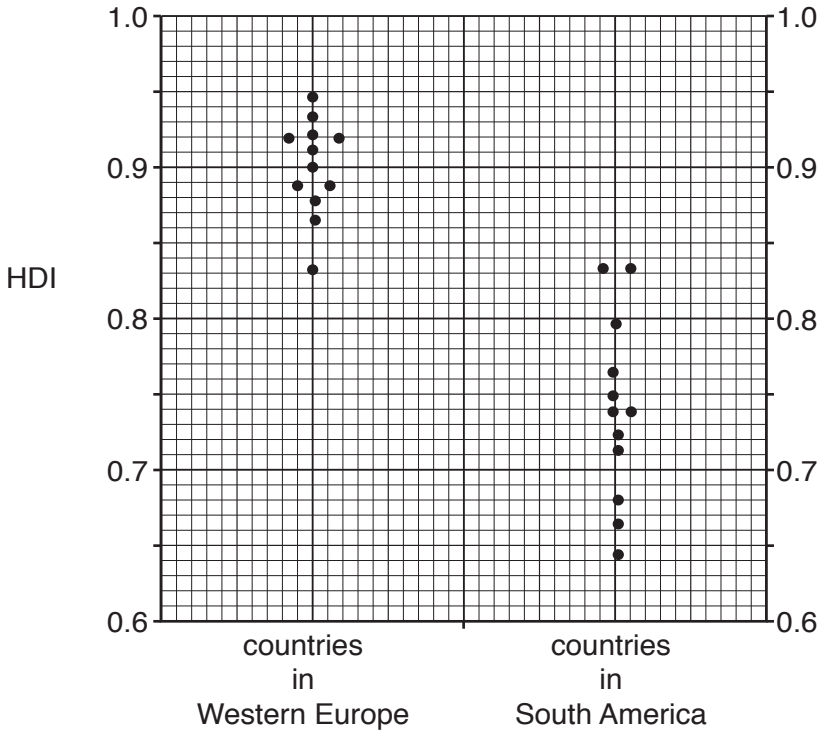

Fig. 5.1

(i) What is meant by the initials HDI?

H ..... D ..... I ..... [1]

(ii) Compare the HDI of countries in Western Europe and South America.

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..... [2]

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(iii) Explain why HDI is a useful method of comparing the development of countries.

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..... [3]

(iv) State **two** other indicators which can be used to measure development. For each indicator explain how it can be used to measure development.

Indicator 1 .....

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Indicator 2 .....

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..... [4]

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(b) Study Figs. 5.2, 5.3 and 5.4 (Insert), which are photographs of economic activities.

(i) In the table below, circle the **three** correct photographs to match each one with the correct type of economic activity.

Economic Activity	Photograph		
Primary	Fig. 5.2	Fig. 5.3	Fig. 5.4
Secondary	Fig. 5.2	Fig. 5.3	Fig. 5.4
Tertiary	Fig. 5.2	Fig. 5.3	Fig. 5.4

[3]

(ii) Explain why the importance of primary, secondary and tertiary activities varies between countries.

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(c) For a named country or area you have studied, describe the impacts of an economic activity on the natural environment.

Name of country or area .....

Economic Activity .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1 (Insert), which is a photograph of a sugar refinery (a processing industry).

(i) What is meant by a *processing* industry?

.....

.....

..... [1]

(ii) Using evidence from Fig. 6.1 **only**, describe **two** features of the sugar refinery shown.

1 .....

.....

2 .....

..... [2]

(iii) Insert the following words into the table below to show examples of inputs, processes and outputs of the sugar refinery shown in Fig. 6.1.

Choose from the words below.

electricity	packing	raw sugar cane
drying	sugar	waste materials

Inputs	Processes	Outputs

[3]

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(iv) Suggest ways in which factories, such as that shown in Fig. 6.1, may threaten the local natural environment.

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..... [4]

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TURN PAGE FOR QUESTION 6(b)

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(b) Study Fig. 6.2, which shows information about the contribution of manufacturing to GDP in India.

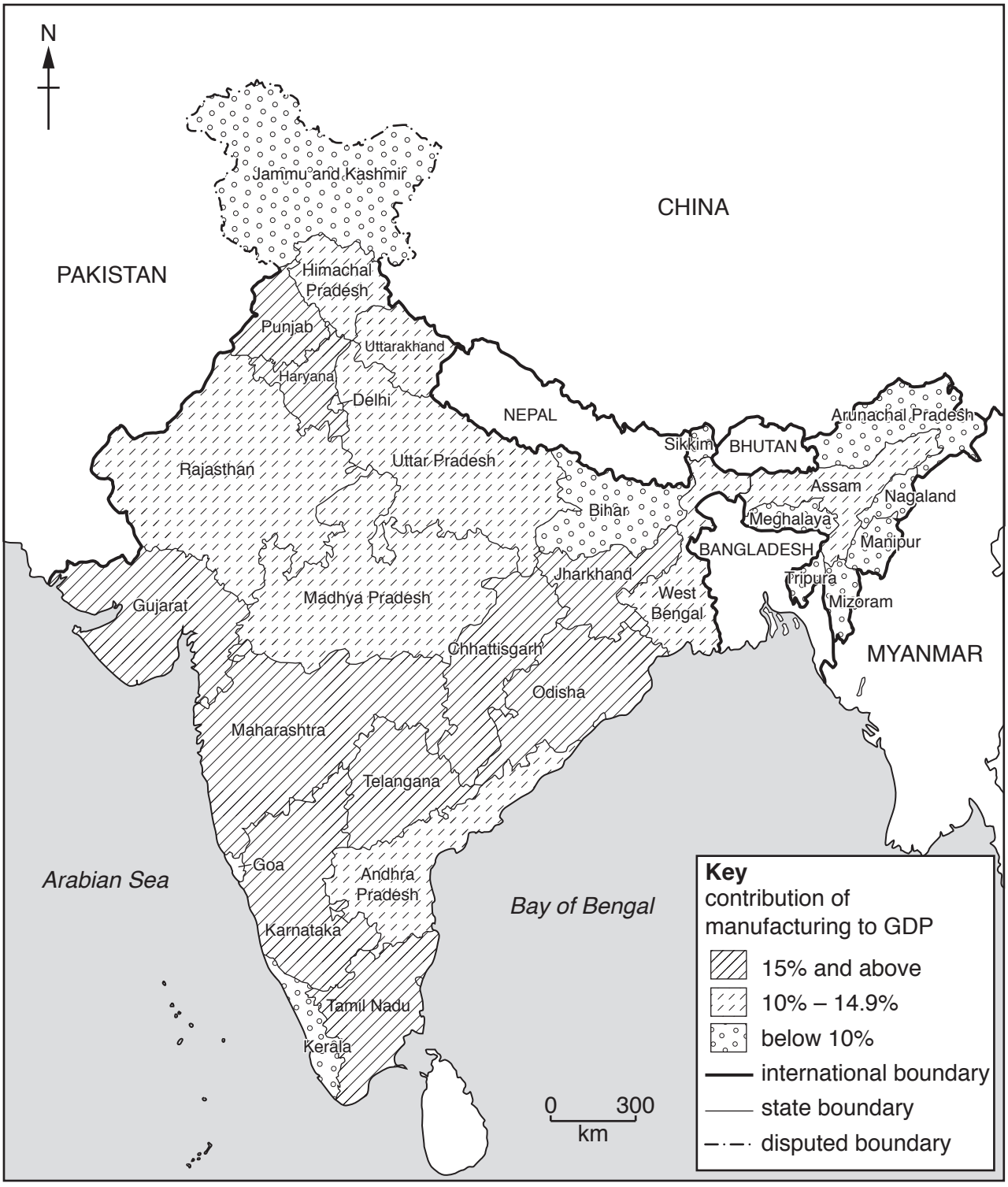

Fig. 6.2

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(i) Describe the distribution of the states in India where the contribution of manufacturing to GDP is 15% and above.

.....

.....

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..... [3]

(ii) Some industries in LEDCs are owned by transnational corporations (TNCs).
Explain how TNCs can bring both advantages and disadvantages to LEDCs.

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..... [5]

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(c) For a named example you have studied, describe and explain the location of a factory or industrial zone.

Name of factory or industrial zone .....

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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CANDIDATE NUMBER | | | | |

0070351993

GEOGRAPHY **0460/22**

Paper 2 **February/March 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 4.1 and 4.2 for Question 4, and Fig. 6.2 for Question 6.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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1 Study the map extract for Åhus, Sweden. The scale is 1:50 000.

(a) Fig. 1.1 shows the area around the mouth of the Möllerännan river in the main settlement of Åhus. Study Fig. 1.1 and the map extract, and answer the questions below.



Fig. 1.1

Using the map extract, identify the land use in each of the following areas shown on Fig. 1.1:

(i) area **A**

..... [1]

(ii) area **B**

..... [1]

(iii) area **C**

..... [1]

(iv) area **D**.

..... [1]

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(b) Look at the Möllerännan river in the south west of the map extract. Describe the human and physical features of the river.

.....

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..... [4]

(c) Describe the shape of the coastline between the main settlement at Åhus and the north edge of the map.

.....

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..... [2]

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(d) The location of the small settlement at Fårabäck is shown on Fig. 1.2.

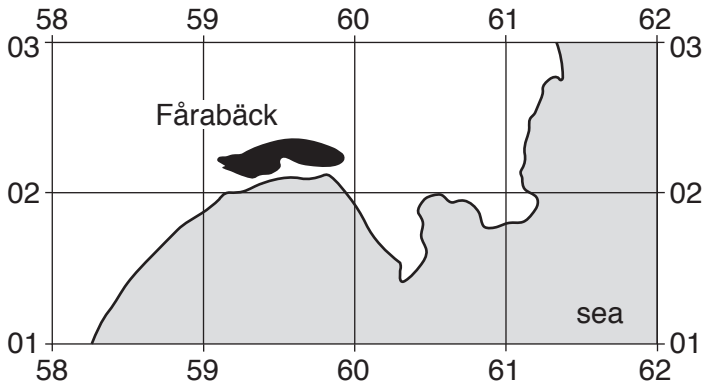

Fig. 1.2

Give map evidence that suggests that Fårabäck is a tourist settlement.

.....

.....

.....

..... [2]

(e) Find the small settlements of Nygård (6004) and Landön (6303) in the north east of the map extract.

(i) Measure the distance along the public road from the north edge of the map at Nygård to the end of the road at Landön. Give your answer in metres.

..... metres [1]

(ii) Give the compass direction **from** the end of the road at Nygård **to** the end of the road at Landön.

..... [1]

(iii) Measure the bearing **from** the end of the road at Nygård **to** the end of the road at Landön.

..... degrees [1]

(iv) What is the six-figure grid reference of the end of the public road at Landön? Tick **one** box below.

	Tick (✓)
031632	
642042	
632031	
033634	
632042	

[2]

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(f) Fig. 1.3 shows the area of a military firing range in the centre of the map extract. The area is surrounded by a thick, dashed blue line.

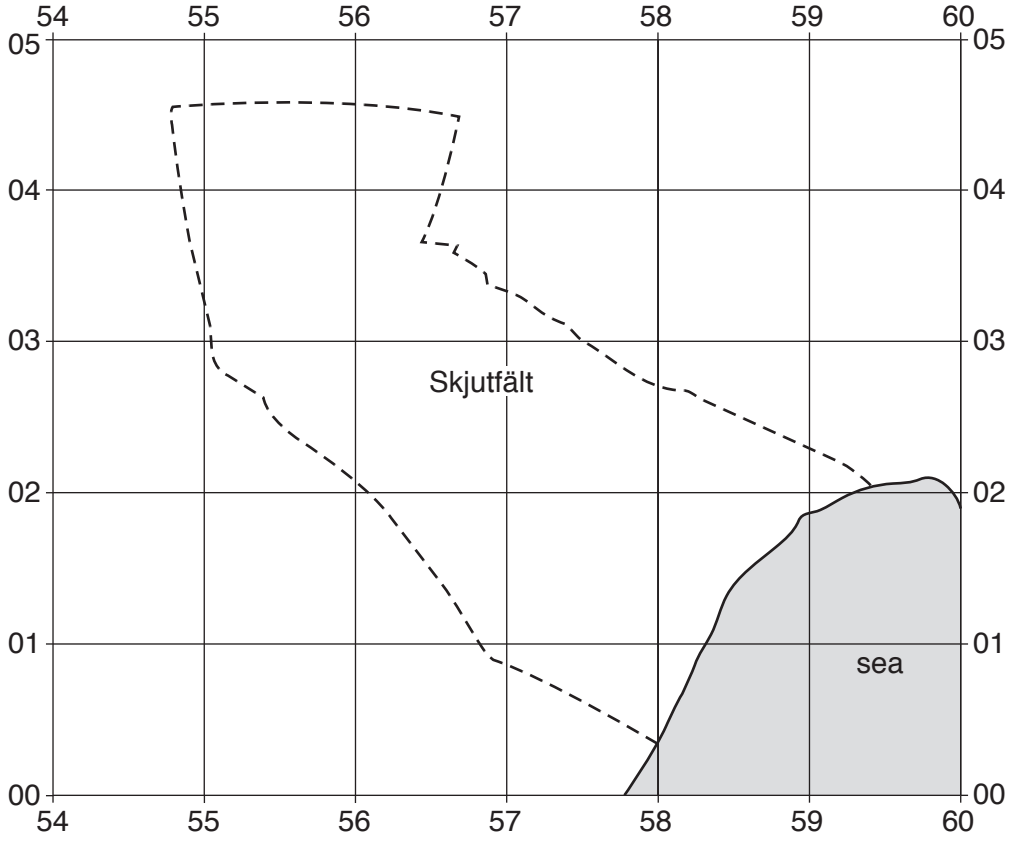

Fig. 1.3

Describe the relief of the area of the firing range.

.....

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..... [3]

[Total: 20]

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2 Fig. 2.1 shows population migration to and from California, USA, between 2001 and 2013.

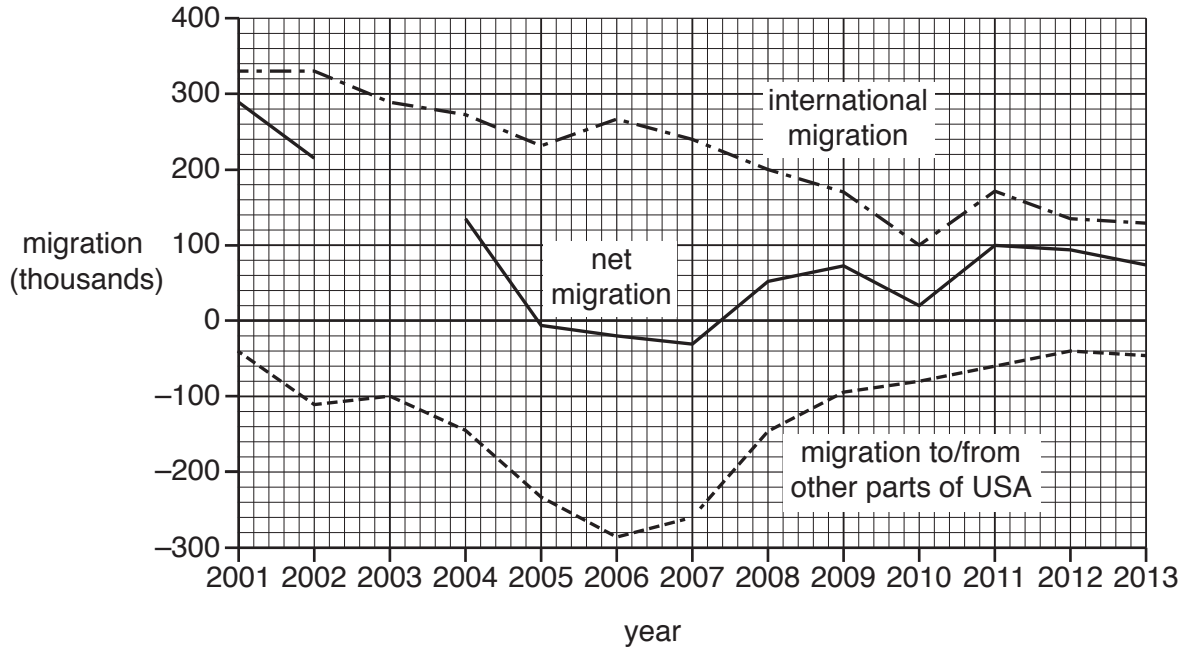

Fig. 2.1

(a) (i) **Complete Fig. 2.1** to show net migration of 210 000 in 2003. [1]

(ii) Using Fig. 2.1, describe **international** migration to and from California between 2001 and 2013. Use statistics and years in your answer.

.....

.....

.....

.....

.....

..... [3]

(iii) Migration has caused an increase in California's total population between 2001 and 2013. Use information from Fig. 2.1 to explain this.

.....

.....

..... [1]

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(b) Fig. 2.2 shows population migration for five areas of California from 2012 to 2013.

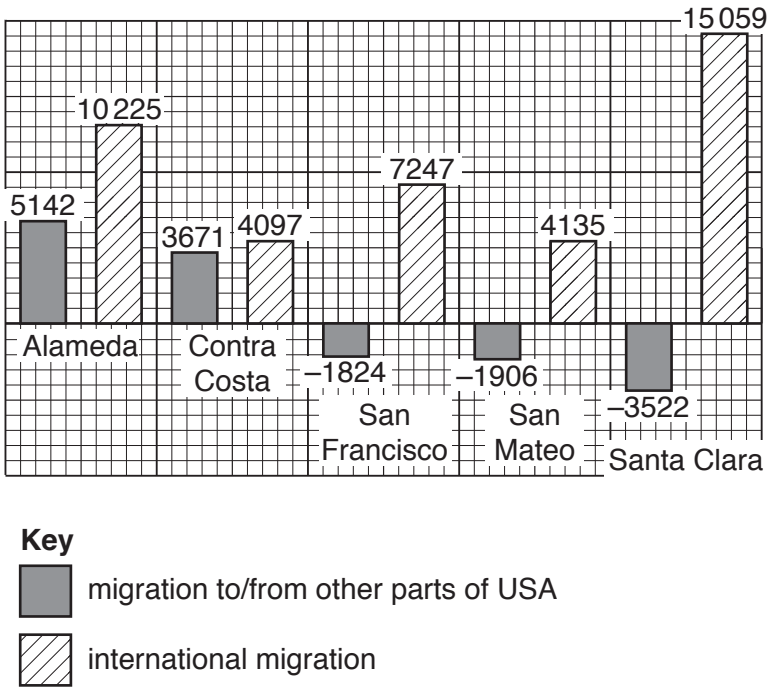

Fig. 2.2

(i) Calculate the population change due to migration in Contra Costa.

..... [1]

(ii) Which of the areas shown on Fig. 2.2 had the greatest number of people leaving for other areas of the USA?

..... [1]

(iii) Which of the areas shown on Fig. 2.2 had the greatest population growth due to migration?

..... [1]

[Total: 8]

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3 Fig. 3.1 shows air pollution by fine particles in the area around Delhi for one day.

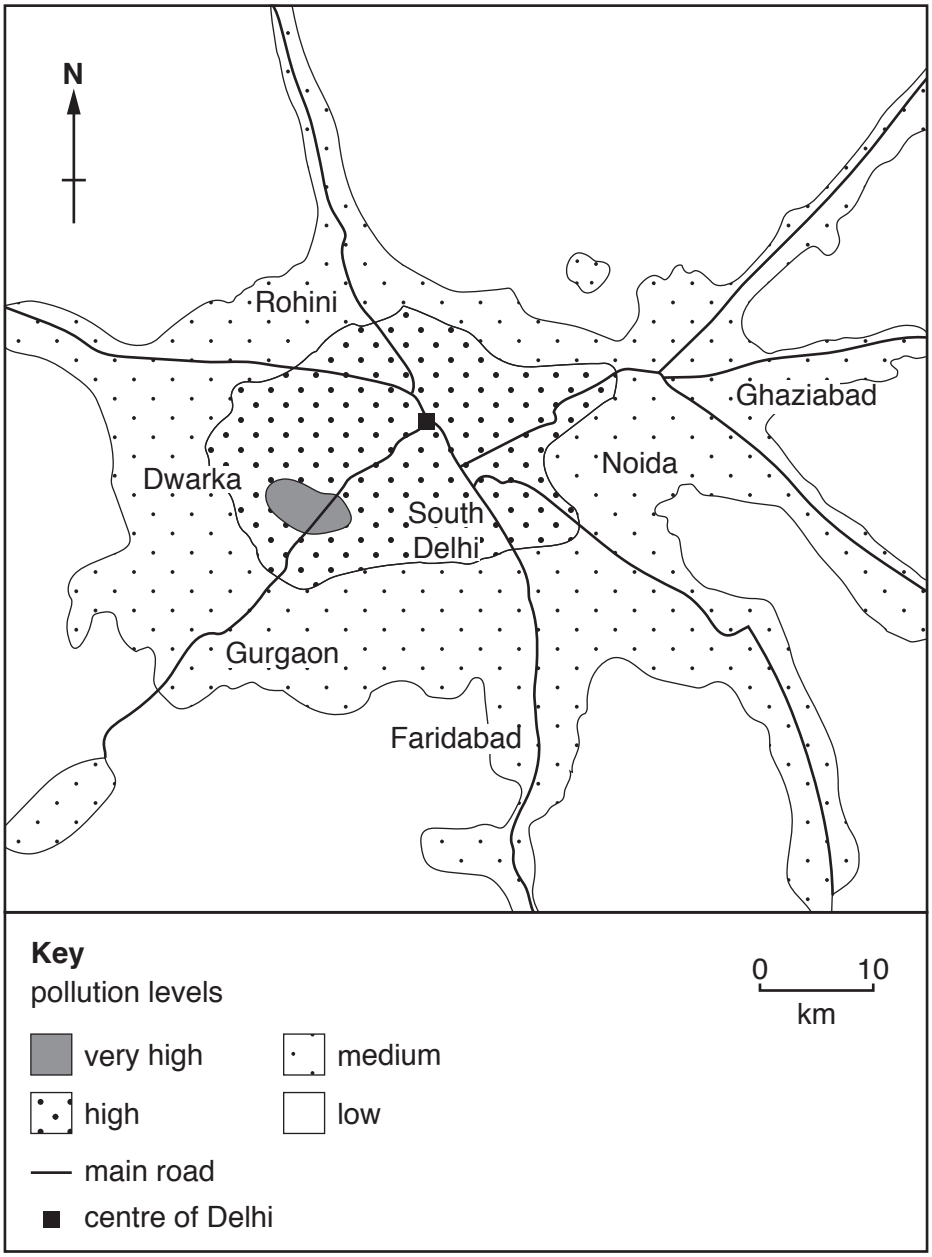

Fig. 3.1

(a) Describe the distribution of air pollution shown in Fig. 3.1.

.....

.....

.....

.....

.....

.....

..... [3]

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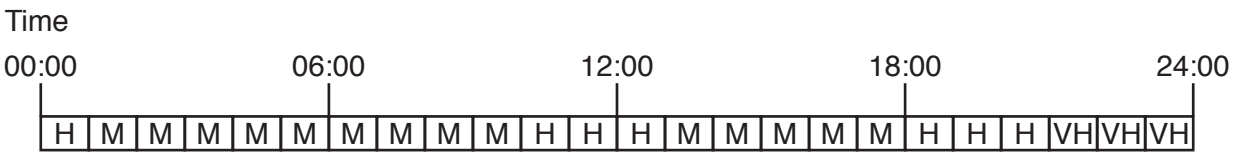
(b) Fig. 3.2 shows the pattern of air pollution by fine particles in Delhi for the same day.



Key

pollution level

L low M medium H high VH very high

Fig. 3.2

Describe the pattern of air pollution during this day.

.....

.....

.....

.....[2]

(c) Vehicles may be an important source of air pollution by fine particles in Delhi. Using Figs. 3.1 and 3.2, give evidence for and against this.

Evidence **for** vehicles being an important source of air pollution.

.....

.....

.....

.....

Evidence **against** vehicles being an important source of air pollution.

.....

.....

.....

..... [3]

[Total: 8]

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4 **(a)** Name the following processes which operate in a drainage basin. Choose your answers from the list below:

interception

infiltration

throughflow

groundwater flow

overland flow

(i) water moving through the rock

…… [1]

(ii) rain soaking into the ground.

…… [1]

(b) Figs. 4.1 and 4.2 (Insert) are photographs which show the same river in Madeira on two different days.

(i) Using Fig. 4.1, describe what has been done to the channel of the river to reduce flooding and erosion.

.....

.....

.....

..... [2]

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(ii) Describe and explain the differences in the river and its load on the day shown in Fig. 4.1 and on the other day shown in Fig. 4.2.

.....

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.....[4]

[Total: 8]

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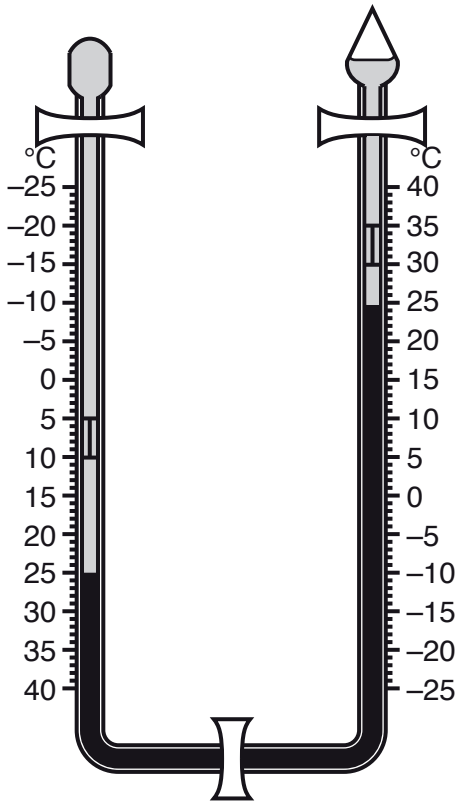
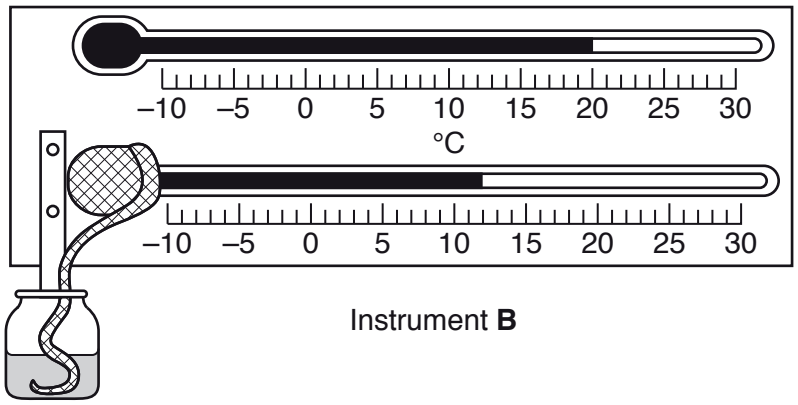
5 Study Fig. 5.1, which shows instruments **A** and **B**, which are used to measure the weather.



Instrument **A**



Instrument **B**

Fig. 5.1

(a) Name the two weather instruments.

(i) Instrument **A** ……..……

(ii) Instrument **B** ……..…… [2]

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(b) Using the information shown on Instrument **A**, state:

(i) the present temperature

.....

(ii) the maximum temperature since the instrument was reset

.....

(iii) the minimum temperature since the instrument was reset.

..... [3]

(c) Look at the information shown on Instrument **B**. Does this show that the air is saturated? Tick the correct box below.

	Tick (✓)
air is saturated (relative humidity is 100%)	
air is unsaturated (relative humidity is less than 100%)	

Using evidence from Instrument **B** on Fig. 5.1, explain your choice.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 8]

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6 **(a)** Fig. 6.1 shows an agricultural system.

Inputs	Processes	Outputs
Examples: climate machinery soil	Examples: harvesting sowing weeding	Examples: animals for sale meat milk ....

Fig. 6.1

Complete Fig. 6.1 by adding each of the following examples in the correct column.

crops chemical fertiliser

[2]

(b) Fig. 6.2 (Insert) is a photograph which shows an agricultural area in South Africa.

(i) Describe the fields and land use shown in the photograph.

.....

.....

.....

.....

.....

.....

..... [3]

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(ii) Give evidence from the photograph which shows that the agriculture in the area is:

irrigated (artificially watered)

.....

.....

.....

.....

commercial.

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.....

.....

..... [3]

[Total: 8]

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1457543600

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **February/March 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Calculator

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DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2 and 1.4 and Tables 1.1, 1.2, 1.3 and 1.4 for Question 1, and Fig. 2.1 and Table 2.2 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
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1 Students from a town in Portugal were learning about different types of shops and services. The students did fieldwork to compare shops and services in the old town centre with those in a new shopping area on the edge of the town.

They decided to test the following hypotheses:

Hypothesis 1: *There are a greater number and variety of shops and services in the town centre than in the shopping area on the edge of the town.*

Hypothesis 2: *The reasons why people go to the town centre shops and the shopping area on the edge of the town have the same importance.*

(a) To find out more about the shops and services the students drew land use maps of the town centre shopping area and the shopping area on the edge of the town. Fig. 1.1 (Insert) shows **part** of the town centre shopping area and Fig. 1.2 (Insert) shows the shopping area on the edge of the town.

(i) Use the key to identify the type of shop located 90 m north west of the shop selling bread and cakes in the town centre (Fig. 1.1).

..... [1]

(ii) Give **two** examples of services located in the area of the town centre shown in Fig. 1.1.

1 .....

2 ..... [2]

(iii) Suggest **two** reasons why many shops and services are located in a town centre.

1 .....

.....

2 .....

..... [2]

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(iv) The students used their maps to count the number of different shops and services in the two shopping areas. Their results are shown in Table 1.1 (Insert).
What conclusion would the students make to **Hypothesis 1:** *There are a greater number and variety of shops and services in the town centre than in the shopping area on the edge of the town*?
Support your answer with evidence from Table 1.1 and Figs. 1.1 and 1.2.

.....

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..... [4]

(b) The students knew that shops could be classified into two main groups: those which sold convenience (low-order) goods and those which sold comparison (high-order) goods.

(i) Which **two** of the following statements about different types of goods are correct? Tick (✓) your choices in the table below.

	Tick (✓)
Convenience goods are bought more frequently than comparison goods	
Convenience goods are produced locally, and comparison goods are imported	
Convenience goods are usually cheaper than comparison goods	
Convenience goods are more difficult to transport than comparison goods	
Convenience goods are better quality than comparison goods	

[2]

(ii) From Fig. 1.2 (Insert) give an example of a type of shop in the edge of the town shopping areas which sells

convenience goods .....

comparison goods. ..... [2]

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(iii) The students classified the shops and services in the two shopping areas. Their classification results are shown in Table 1.2 (Insert).

Use the results from Table 1.2 to **draw the graph** for the edge of town shopping area in Fig. 1.3 on the page opposite. [3]

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Fig. 1.3

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(c) To test **Hypothesis 2:** *The reasons why people go to the town centre shops and the shopping area on the edge of the town have the same importance*, the students decided to use a questionnaire with people in the two shopping areas.
This questionnaire is shown in Fig. 1.4 (Insert).

(i) Their teacher approved the questionnaire. Suggest **three** pieces of advice which she gave to the students about using their questionnaire with people who are shopping.

1 .....

.....

2 .....

.....

3 .....

..... [3]

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(ii) Table 1.3 (Insert) shows the results of Question 1 in the questionnaire.

Use the results from Table 1.3 (Insert) to **complete the graph** for the town centre in Fig. 1.5 below. [2]

Answers to Question 1:

Why did you come shopping here today?

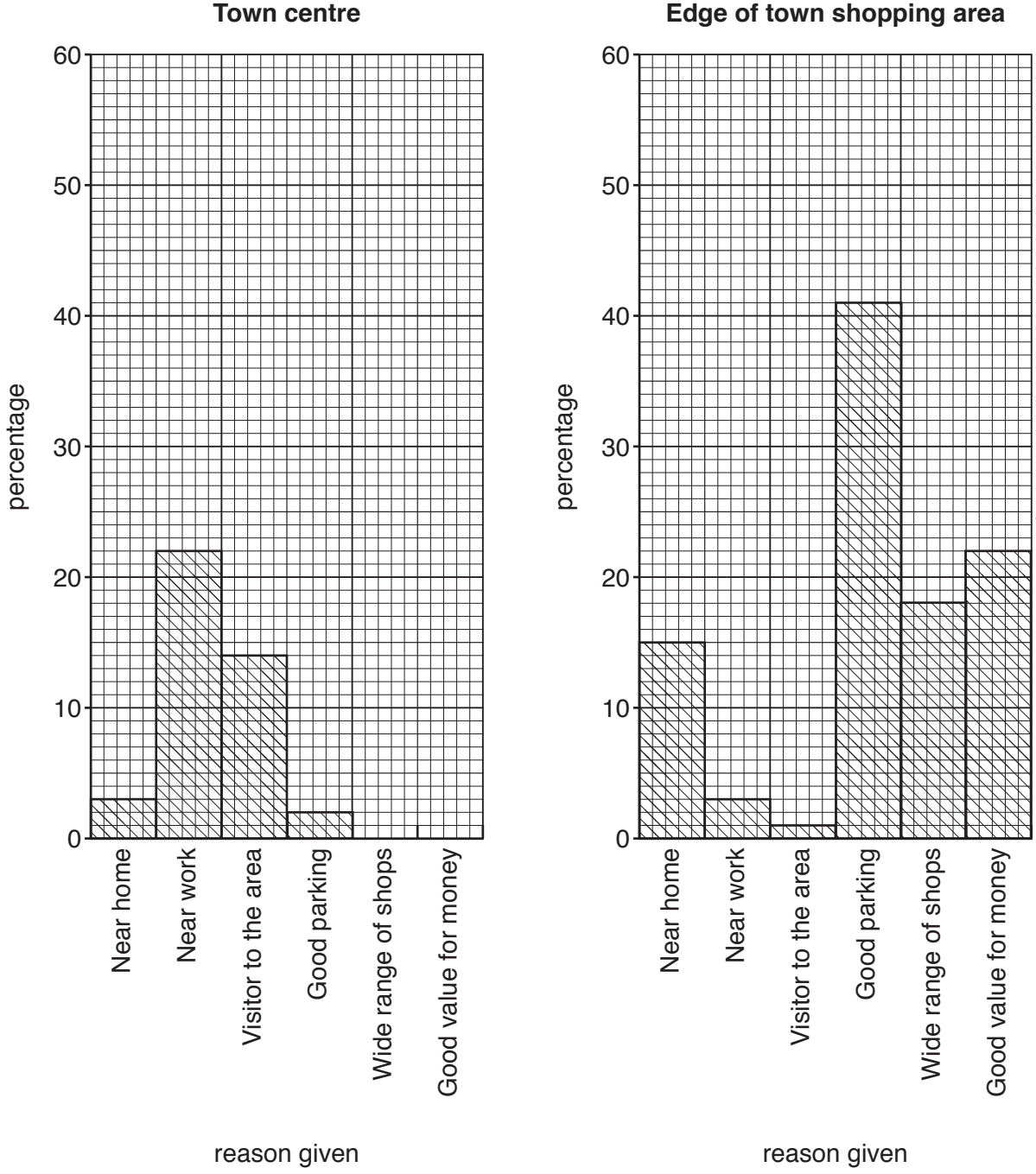

Fig. 1.5

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(iii) Table 1.4 (Insert) shows the results of Question 2 in the questionnaire.

Use the results from Table 1.4 (Insert) to **complete the pie graph** for the edge of town shopping area in Fig. 1.6 below. [3]

Answers to Question 2:

What are the main items you are buying here today?

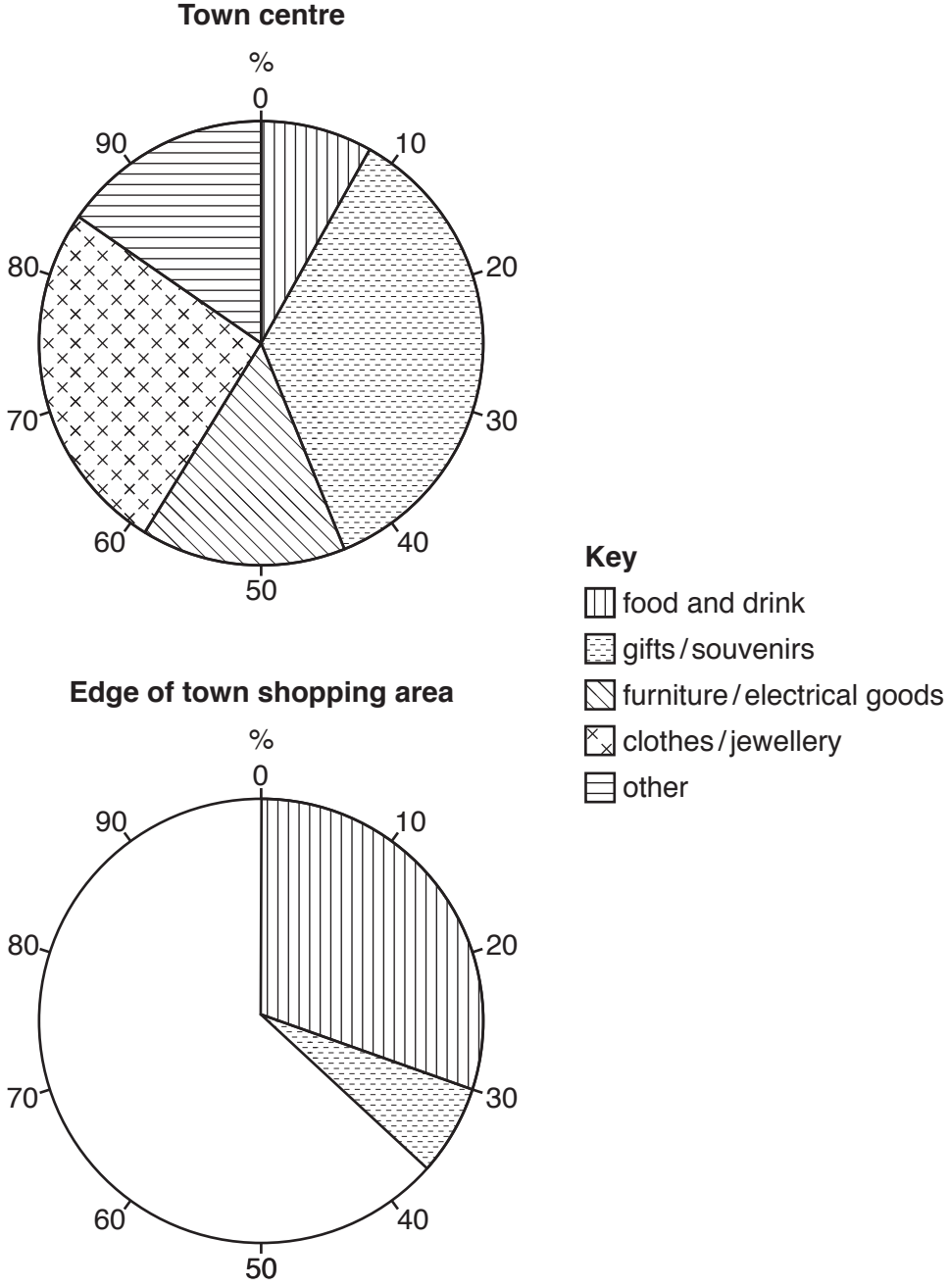

Fig. 1.6

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(iv) Do the results of the questionnaire support **Hypothesis 2:** *The reasons why people go to the town centre shops and the shopping area on the edge of the town have the same importance*?
Use evidence from Figs. 1.5 and 1.6 and Tables 1.3 and 1.4 to support your conclusion.

.....

.....

.....

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.....

.....

.....

..... [4]

(d) The students wanted to find out more about shopping patterns in the two shopping areas. Suggest **another** hypothesis which they could test and a question which they could add to their questionnaire to test this additional hypothesis.

Hypothesis

.....

.....

Question

.....

..... [2]

[Total: 30]

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2 Students from a school in Dorset in south west England carried out fieldwork to investigate the characteristics of two contrasting local beaches. One is a long beach on a straight coast and the other beach is in a sheltered bay surrounded by cliffs.

(a) Before they began their fieldwork their teacher reminded them of the need to be safe near the sea.

The table below shows three possible dangerous situations. Suggest **one** different precaution that the students could take to reduce the danger in each situation.

Possible danger	Possible precaution
High cliff behind the beach	....
Powerful waves breaking at the beach	....
Heavy rain is forecast for the day of the fieldwork	....

[3]

The students tested the following hypotheses in their fieldwork on the two beaches:

Hypothesis 1: *The bay beach has a steeper profile than the long beach.*

Hypothesis 2: *Beach material gets larger further away from the sea.*

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(b) To investigate **Hypothesis 1** the students measured the changing profile from the sea to the back of the beach. Fig. 2.1 (Insert) shows their method.

(i) Describe how the students measured the beach profile.

.....

.....

.....

.....

.....

.....

.....

..... [4]

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(ii) The results of the students' measurements on both beaches are shown in Fig. 2.2.

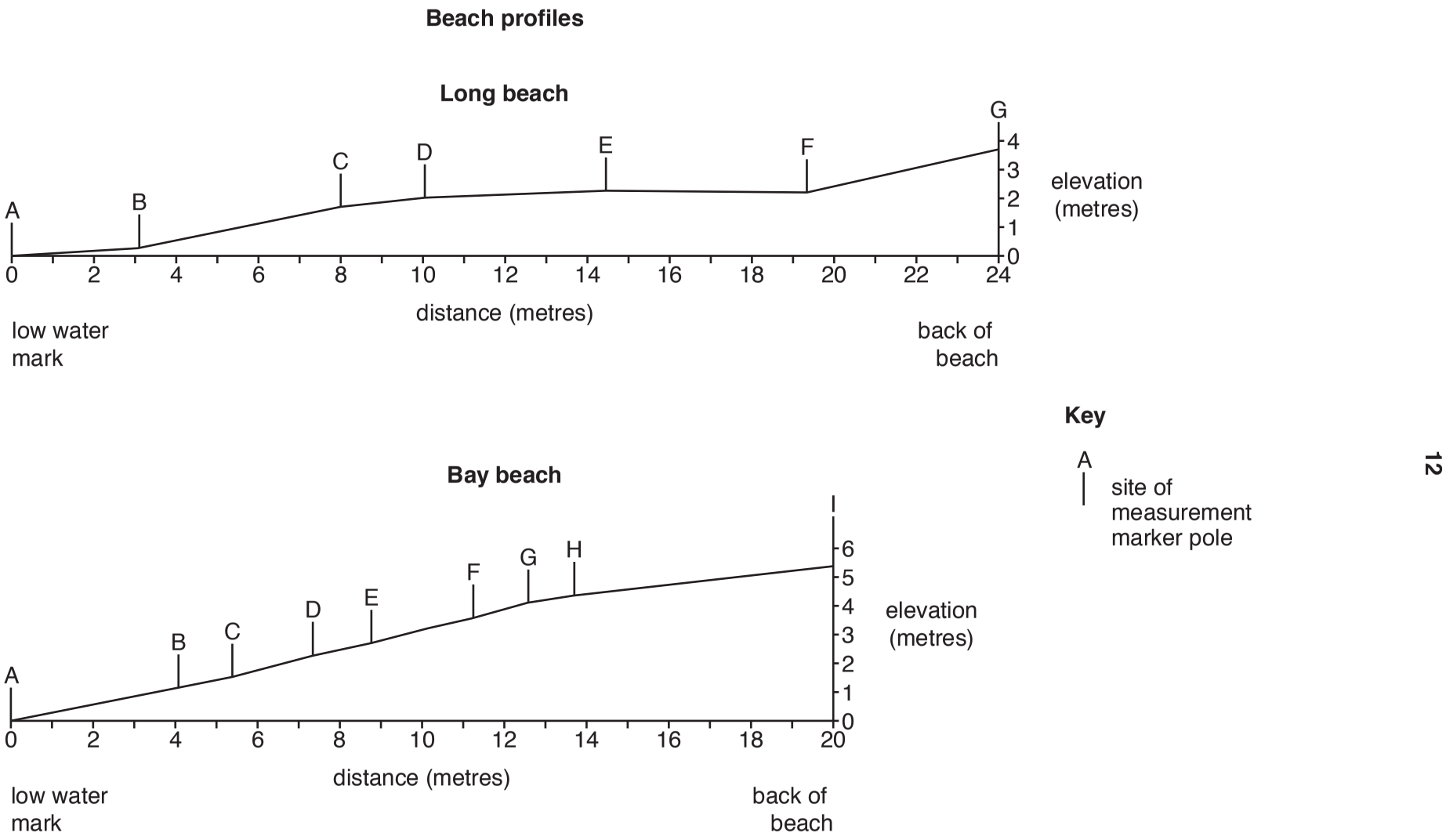

Fig. 2.2

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Is **Hypothesis 1:** *The bay beach has a steeper profile than the long beach* **true**? Support your conclusion with evidence from Fig. 2.2.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(c) To investigate **Hypothesis 2:** *Beach material gets larger further away from the sea*, the students measured the size of a sample of beach material every two metres from the low water mark to the back of the beach.

(i) A completed data recording sheet for one site is shown in Table 2.1 below.

Table 2.1

Data recording sheet

Location: Long beach	
Distance from low water mark: 6 m	
Beach material sample	Size of beach material (mm)
Sample 1	8
Sample 2	19
Sample 3	9
Average size	12

Describe a possible method the students used to collect the data shown in Table 2.1.

.....

.....

.....

.....

.....

..... [3]

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(ii) The average size of all the beach material samples are shown in Table 2.2 (Insert).

On Fig. 2.3 below, **plot the result** for 10 metres from the low water mark on the bay beach. [1]

Average size of beach materials at the two beaches

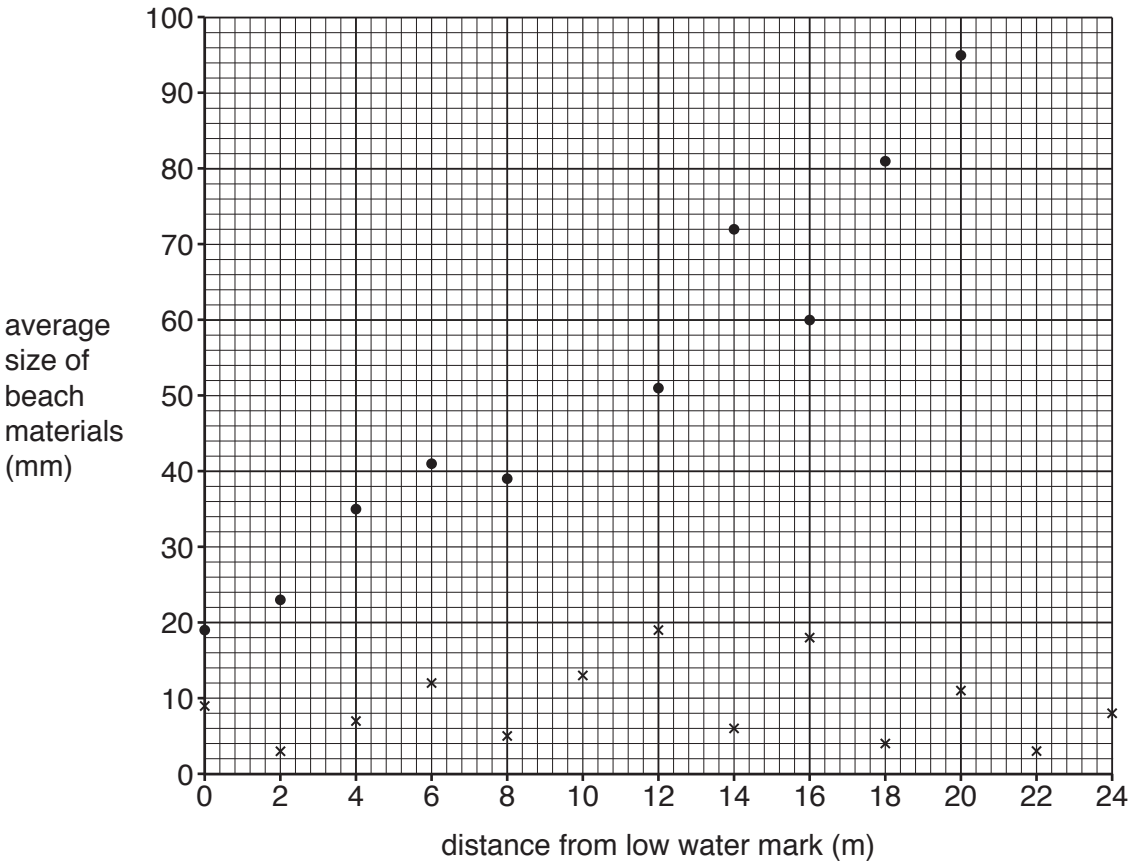

Fig. 2.3

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(iii) Do the results of the fieldwork agree with **Hypothesis 2:** *Beach material gets larger further away from the sea*? Tick your decision below and support your decision with data from Table 2.2 and Fig. 2.3.

	Tick (✓)
Results agree with Hypothesis 2 for both beaches	
Results agree with Hypothesis 2 for one beach	
Results agree with Hypothesis 2 for neither beach	

.....

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.....

.....

.....

.....

..... [4]

(iv) Suggest why the size of beach material varies between low water mark and the back of the beach.

.....

.....

.....

..... [2]

(v) Suggest **two** ways the students could have improved the fieldwork methods to make their results more reliable.

1 .....

.....

2 .....

..... [2]

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[Turn over

(d) (i) The students planned an additional piece of fieldwork to investigate if wave frequency affected the beach profile and size of beach material.

Describe a method to measure wave frequency.

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(ii) Destructive and constructive waves have different wave frequencies.
Describe how destructive and constructive waves are different.

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..... [4]

[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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Grade thresholds – June 2019

Cambridge IGCSE™ Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the June 2019 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 11	75	49	43	37	31	24	17	11
Component 12	75	52	44	37	31	25	20	15
Component 13	75	48	41	33	28	23	19	15
Component 21	60	42	36	28	24	20	17	14
Component 22	60	46	40	33	30	26	22	19
Component 23	60	43	38	33	29	24	20	16
Component 3	60	50	42	35	28	22	17	12
Component 41	60	38	32	26	22	18	14	11
Component 42	60	39	34	30	25	21	16	11
Component 43	60	39	33	28	23	18	13	8

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AX	03, 11, 21	180	157	134	112	93	74	57	40
AY	03, 12, 22	189	165	141	117	99	81	66	51
AZ	03, 13, 23	180	157	134	112	94	77	62	47
BX	11, 21, 41	166	145	124	103	86	70	54	38
BY	12, 22, 42	175	154	133	112	96	80	65	50
BZ	13, 23, 43	167	146	125	105	89	73	58	43
CY	12, 22, 83	189	165	141	117	99	81	66	51

Survey Map

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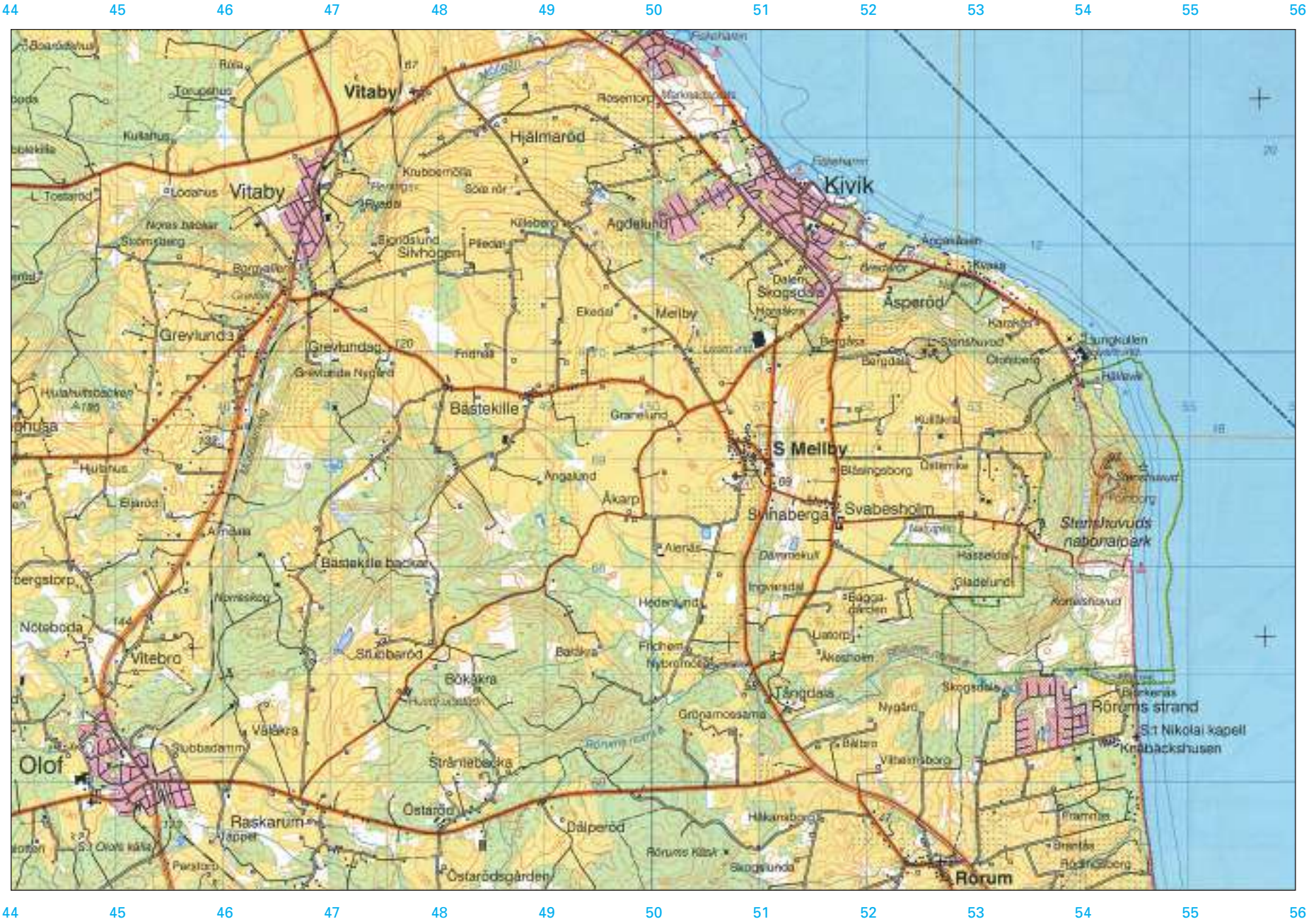
Kivik



Legend

- National boundary with cairns
- County boundary
- Municipality boundary
- Boundary of National Park; nature reserve
- Boundary of other area
- Prohibited area for cross-country vehicles
- Boundary of firing range
- Boundary of military restricted area
- Motorway
- Public road, at least 7 m wide
- 184 Public road, 5–7 m wide; road number
- Public road, less than 5 m wide
- Public road under construction
- Through street; main street
- Street; street in precinct
- Private road, good standard; milestone
- Private road with barrier; avenue
- Private road, poor standard; turning place
- Approach road, park road, cycle path
- Tractor track; foot path
- Illuminated track; hiking trail
- Railway, double track electrified
- Railway, not electrified
- Railway, narrow gauge
- Railway station; tunnel
- Crossing, overpass or underpass
- Runway, surfaced; unsurfaced
- Aerial cableway, ski lift; gas pipeline
- Electricity transmission line, national
- Electricity transmission line, reg.; transformer
- Precincts
- High-rise buildings
- Low-rise buildings
- Leisure homes, second homes
- Industrial area
- Rock outcrop; boulders
- Coniferous and mixed forest
- Forest of mountain type
- Deciduous forest; other open land
- Arable land; orchard
- Marsh; marsh liable to flooding
- Peat cutting; limestone bog
- Mast; tower
- Windmill; wind generator
- Chimney; cistern
- Sawmill; timber depot
- Settlement remains; ruin
- Natural monument, botanical; geological
- Monument; ancient monument of special interest
- Building of cultural and historical value
- Bathing; camp site; marina
- Lay-by; wind shelter
- Belt of forest; small forest stand
- Castle; manor; farm
- Dwelling house, industrial building; hut
- Other major building
- Parish church; other church
- Cemetery; bell tower
- Sports Ground; football ground
- Trotting track
- Shooting range, large; small
- Mine shaft, large; small
- Watercourse, less than 6 m wide
- Watercourse, at least 6 m wide; footbridge
- Underground watercourse; flume line or chute
- Opening bridge; ferry route
- Lock; direction of flow
- Waterfall; rapids
- Dam structure; landing-stage
- Jetty; lighthouse; pier
- Shoreline
- Diffuse shoreline
- Depth contour lines; shoal (rock, awash)
- Depth in metres; navigable fairway, channel
- Contour lines, vertical interval 5 m
- Cutting; depression
- Triangulation point
- Measured height or surface

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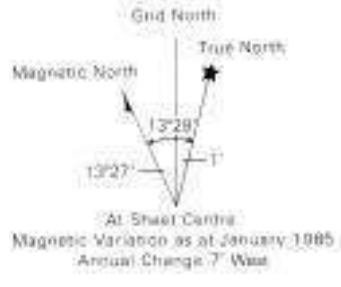
Scale 1 : 50 000

0 1 2 3 4 5 km



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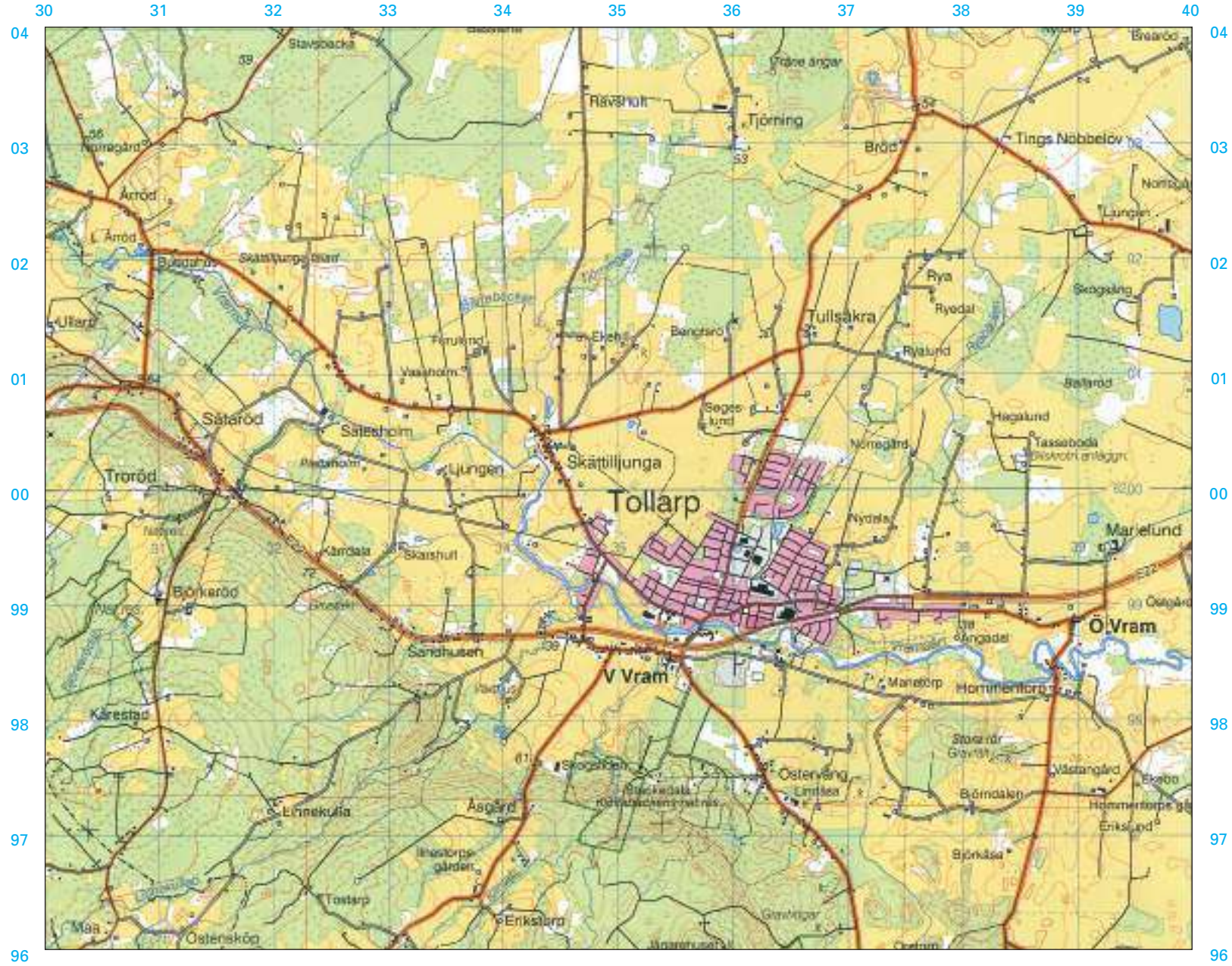
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Stavsbacka
Rävshult
Tjörning
Tings Nöbbelöv
Brödd
Årröd
Ullarp
Sätaröd
Troröd
Sätesholm
Ljungen
Skättiljunga
Tollarp
Tullsåkra
Rya
Ryedal
Ryalund
Ballarödd
Tassaboda
Marielund
Nyvalla
Ö Vram
V Vram
Sandhusen
Björkeröd
Kärrdala
Skarshult
Kärestad
Linnekulla
Åsgård
Tostarp
Maa
Österslöv
Enkstorp
Manetorp
Hörnumlinorp
Österveng
Björkåsa
Eriksund
Västergård
Ekebo
Bjärnadalen
Stora Hår
Grav 191
Ingelstorps gården
Ingelstorpsvallen
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Skogsgården
Limhea
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Kristianstad


Kristianstad
Karpalunds gård
Karpalund
Lilla kungsgård
Öllsjödal
Skepparslövs gård
Skepparslöv
Uddarp
Hedentorp
Helgedal
Ollsjön
Vä
Talldalen
Mansdala
Tings Nöbbelöv
Furuhusen
Mosslunda
Adamsberg
Munkeberg
Strömdalen
Sigridslund
Björka
Bergåsa
Heimershus
Kullaberg
Ekeberg
Vången
Kullaröd
Nygård
Kungsborg
Nybohem
Isgrannatorp
Isbygård
Högalund
Norregård
Hässlebacken
Solbacka
Nybodal
Ormatofta gård
Lycketal
Mariebacke
Björkedal
Hallaröd
Granheim
Vå tycktor
Asparagus
Sofiedal
Majbacken
Asumtorp
Asums ängars och Asumsåsens naturreservat
Asums ängar
N Åsum
Killegärdarna
Snårarp
Ingegärden
Helgegårds hus
Södergård
Pilegården
Skönaback
Trädgårdslund
Gamlegården
Hovby ängars naturreservat
Hammarslund
Hammar
Hammarsjön
Hammarsjön naturreservat
Hässlövs ängar Naturreservat
Åraslöv
Rörsgården
Kullatorp
Österäng
Ednahem
Hässlövs borg
Hässlövs kyrkby
Hässlövs Tosterup
Hässlövs Tosterup naturreservat
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GEOGRAPHY **0460/11**

Paper 1 **May/June 2019**

INSERT

1 hour 45 minutes

8713528359-I

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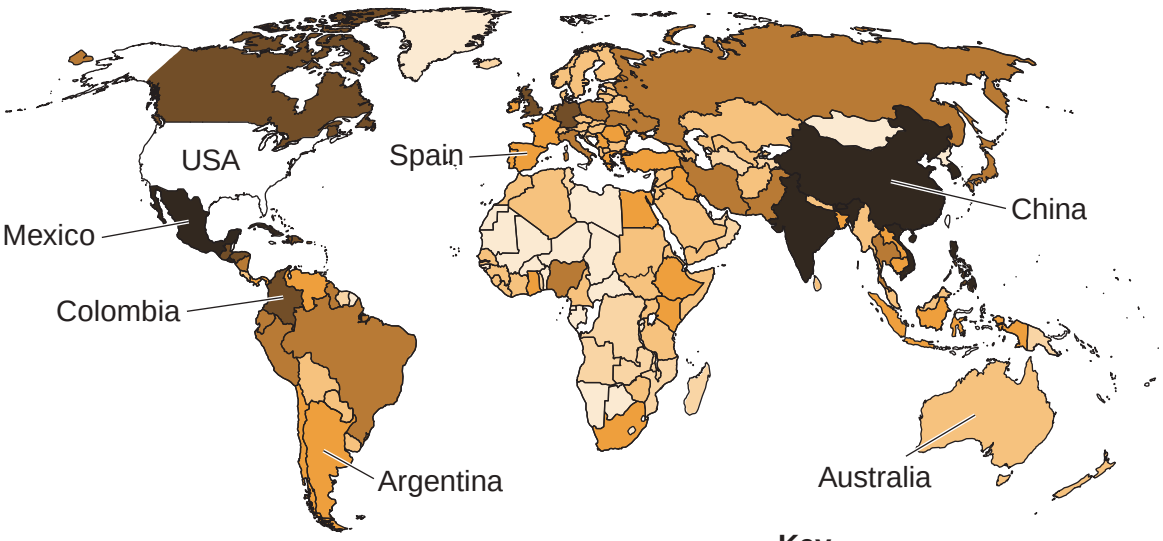
Fig. 1.1 for Question 1

Map showing where people living in the USA in 2013 were born (total number)



In 2013, 45 790 000 people living in the USA were born in other countries

Key

- over 1 million
- 500 000 – 1 million
- 250 000 – 499 999
- 100 000 – 249 999
- 10 000 – 99 999
- 1000 – 9999
- less than 1000

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Fig. 3.1 for Question 3



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Fig. 3.3 for Question 3



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Fig. 6.1 for Question 6



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Fig. 6.2 for Question 6



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GEOGRAPHY **0460/12**

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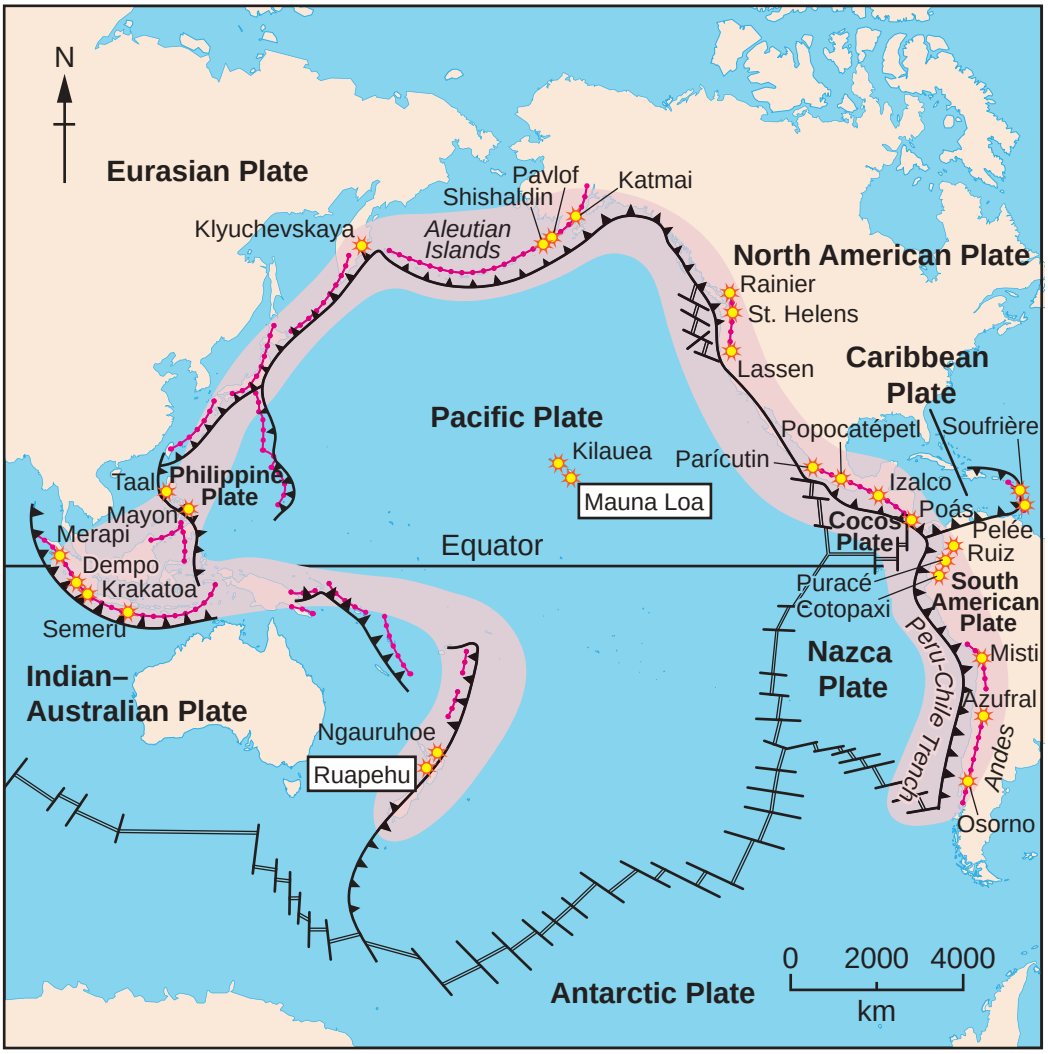
Fig. 4.1 for Question 4



Key

- spreading plate boundaries
- converging plate boundaries
- Pacific Ring of Fire
- volcanic arcs
- major active volcanoes

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Fig. 5.3 for Question 5

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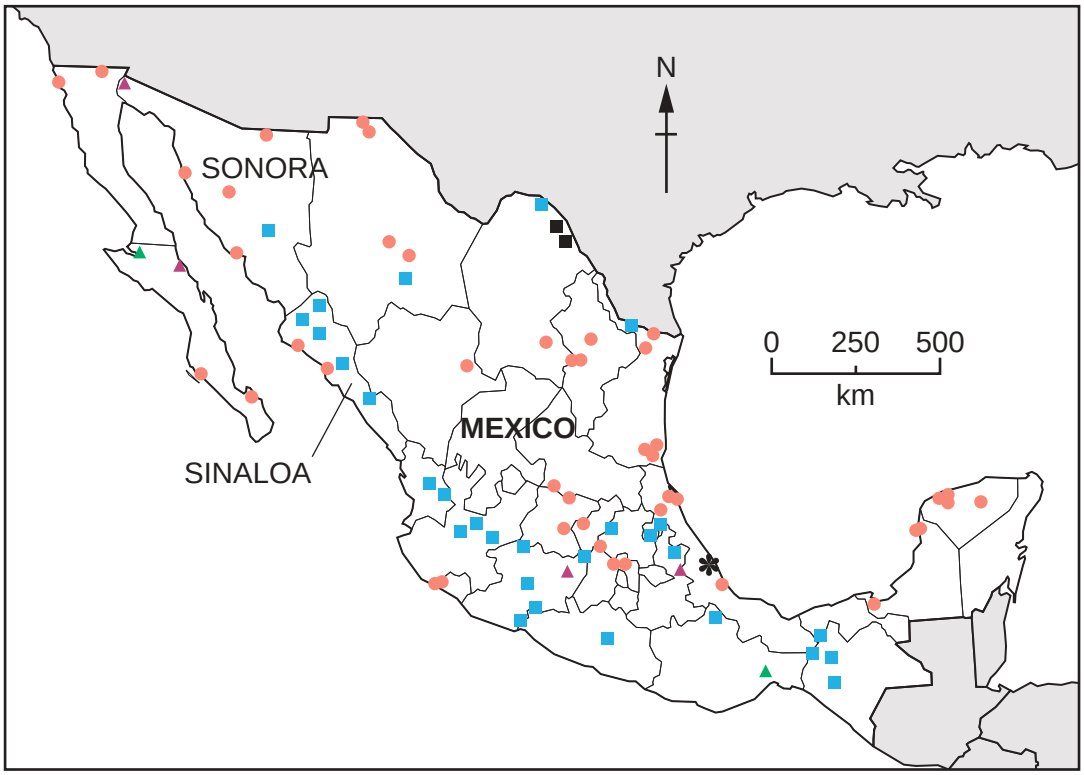
Fig. 6.1 for Question 6



Key

source of electricity

- hydro-electric
- nuclear
- geothermal
- thermal (oil)
- coal-fired
- wind
- state boundary

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Fig. 1.2 for Question 1



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Fig. 5.2 for Question 5



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Fig. 5.3 for Question 5



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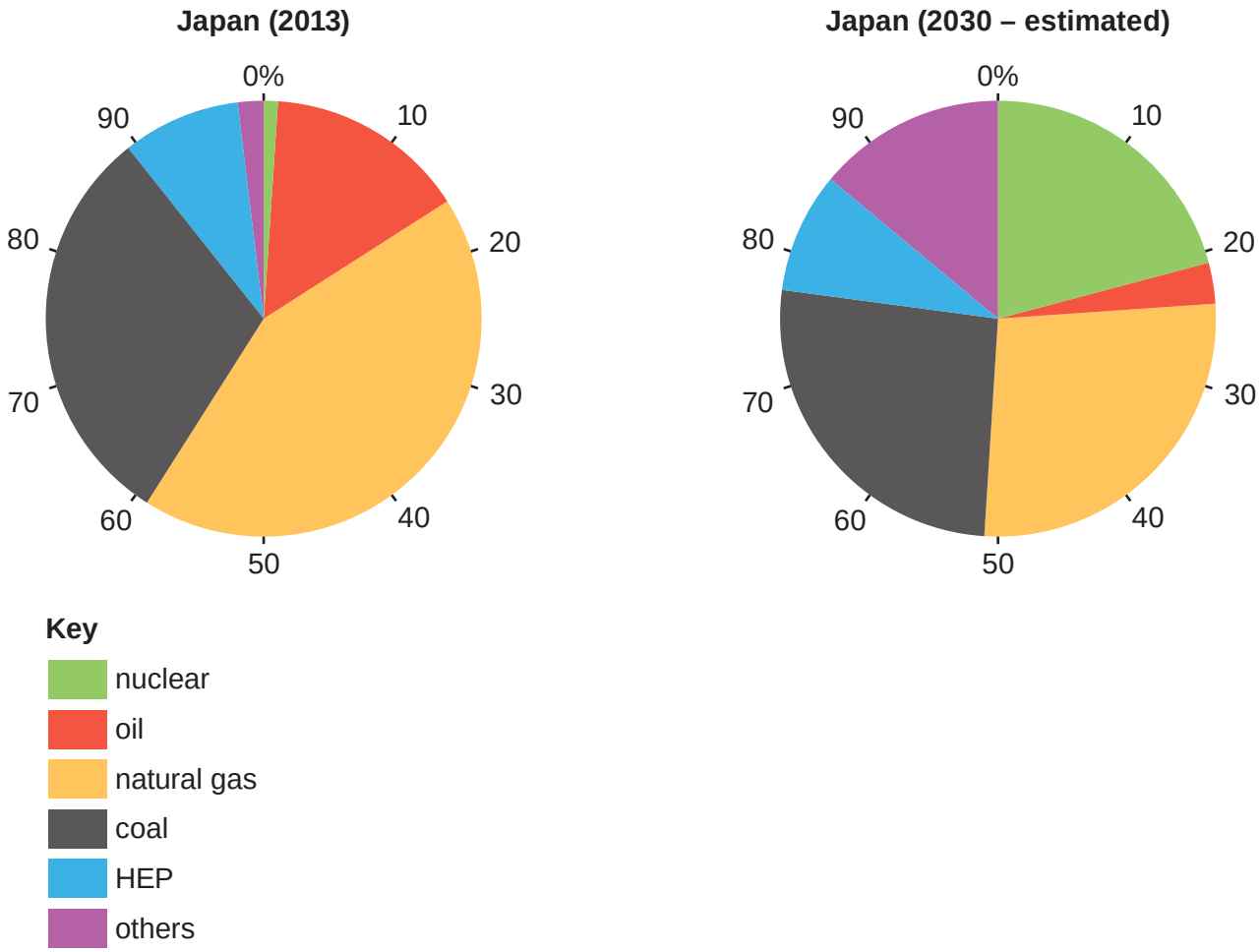

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Fig. 6.2 for Question 6



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GEOGRAPHY **0460/21**

Paper 2 **May/June 2019**

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Figs. 3.1 and 3.2 for Question 3



Fig. 3.1



Fig. 3.2

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Figs. 6.1 and 6.2 for Question 6



Fig. 6.1



Fig. 6.2

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GEOGRAPHY **0460/22**

Paper 2 **May/June 2019**

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Fig. 3.1 for Question 3



Fig. 3.2 for Question 3



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Fig. 4.1 for Question 4

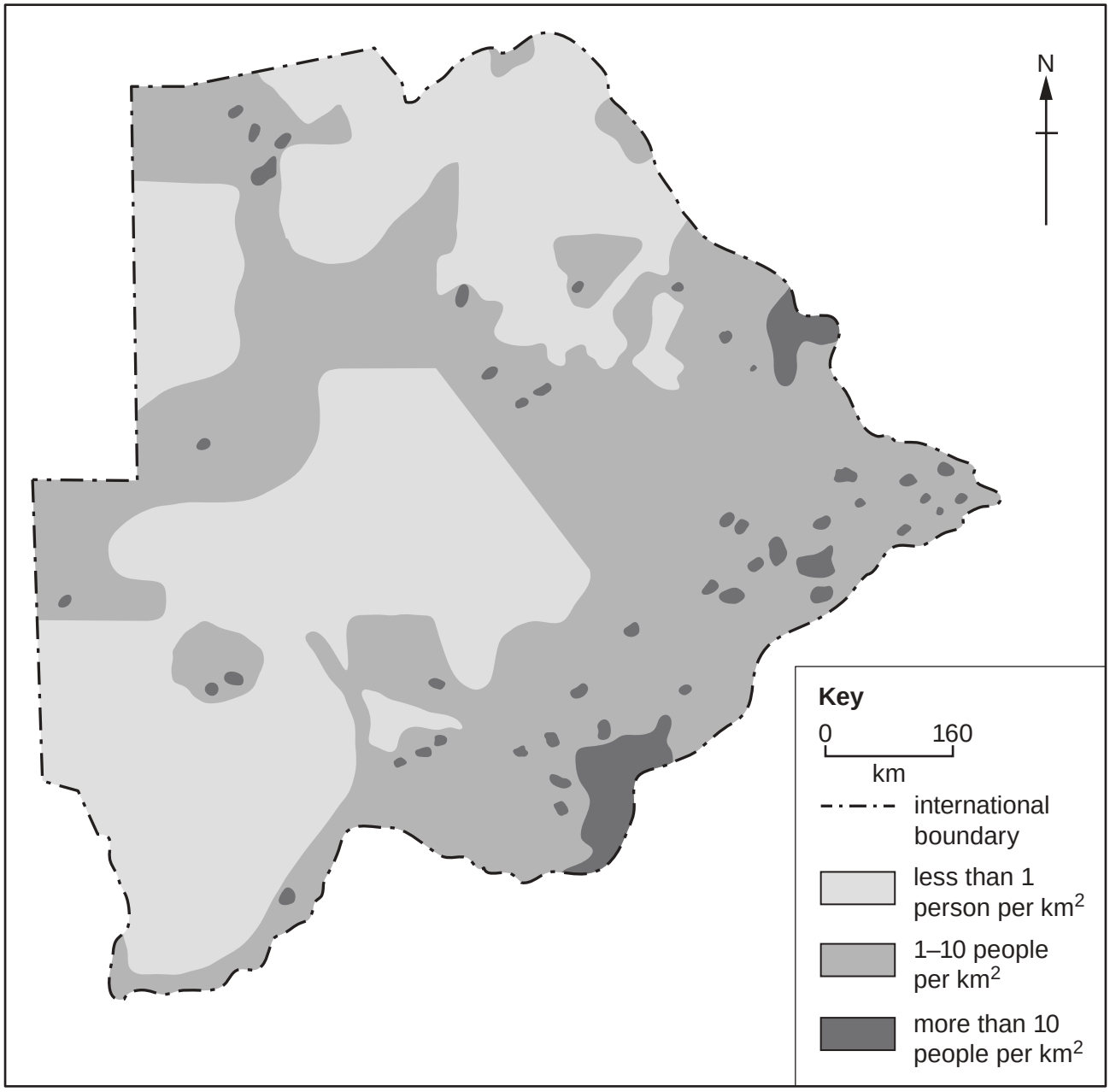

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Fig. 5.1 for Question 5



Fig. 5.2 for Question 5



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Fig. 4.1 for Question 4



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Fig. 4.2 for Question 4



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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2019**

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Fig. 1.1 for Question 1

Land use on the farm

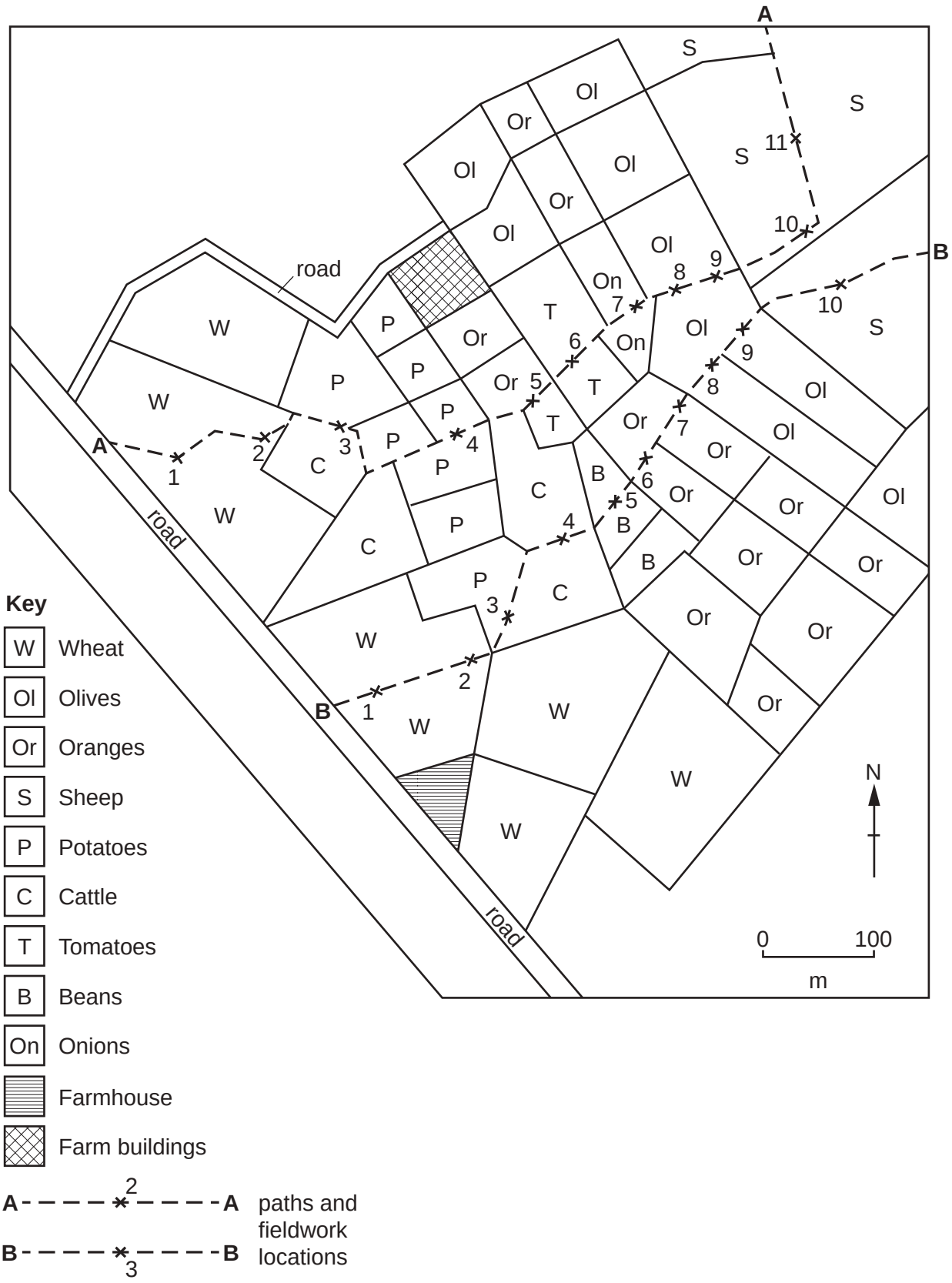

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Fig. 1.4 for Question 1

Cell (mobile) phone screen



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Table 1.2 for Question 1

Results of fieldwork

Path A

Fieldwork location	Land use in the field	Height of land (m)	Angle of slope (degrees)
1	Wheat	57	2
2	Wheat	59	2
3	Cattle	66	3
4	Potatoes	71	2
5	Oranges	75	4
6	Tomatoes	78	5
7	Onions	89	7
8	Olives	104	9
9	Olives	126	16
10	Sheep	153	25
11	Sheep	176	23

Path B

Fieldwork location	Land use in the field	Height of land (m)	Angle of slope (degrees)
1	Wheat	56	3
2	Wheat	63	4
3	Potatoes	66	6
4	Cattle	70	4
5	Beans	74	7
6	Oranges	75	8
7	Oranges	77	8
8	Olives	96	12
9	Olives	119	13
10	Sheep	142	19

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Table 1.3 for Question 1

Field size and labour requirements

Land use in the field	Average field size (hectares)	Labour needed (hours per hectare per year)
Sheep	8.3	4
Wheat	**7.0**	**7**
Cattle	6.2	6
Olives	**3.9**	**9**
Beans	3.3	13
Onions	3.1	17
Tomatoes	2.9	19
Oranges	2.5	13
Potatoes	2.2	16

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Table 2.1 for Question 2

Results at site 5

Distance across channel (m)	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Depth of river (m)	0.15	**0.25**	**0.27**	**0.21**	0.16	0.18	0.16	0.13	0.11	0.07	0.05	0.02

Table 2.2 for Question 2

Wetted perimeter

Site	Distance downstream from source (km)	Group A wetted perimeter calculation (m)	Group B wetted perimeter measurement (m)
1	0.5	1.75	1.8
2	2.1	3.25	3.6
3	7.4	4.0	3.5
4	11.3	6.3	6.9
5	15	6.9	6.6

Table 2.3 for Question 2

Average velocity

Site	Average velocity (m / sec)
1	0.29
2	0.58
3	0.46
4	0.39
5	**0.67**

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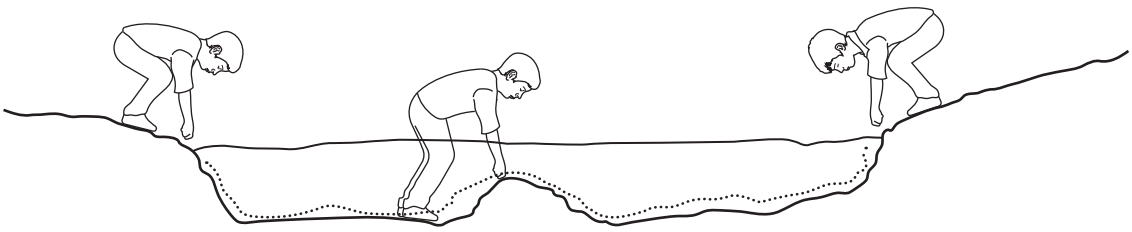
Fig. 2.2 for Question 2

Measuring the wetted perimeter

Wetted perimeter can be measured using a rope or tape measure, which should be stretched across the river bed from one bank to the other.



Measuring the wetted perimeter



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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2019**

INSERT

1 hour 30 minutes

2604646273-I

READ THESE INSTRUCTIONS FIRST

This Insert contains Figs. 1.1, 1.2 and 1.5 for Question 1, and Tables 2.1, 2.2 and 2.3 for Question 2.

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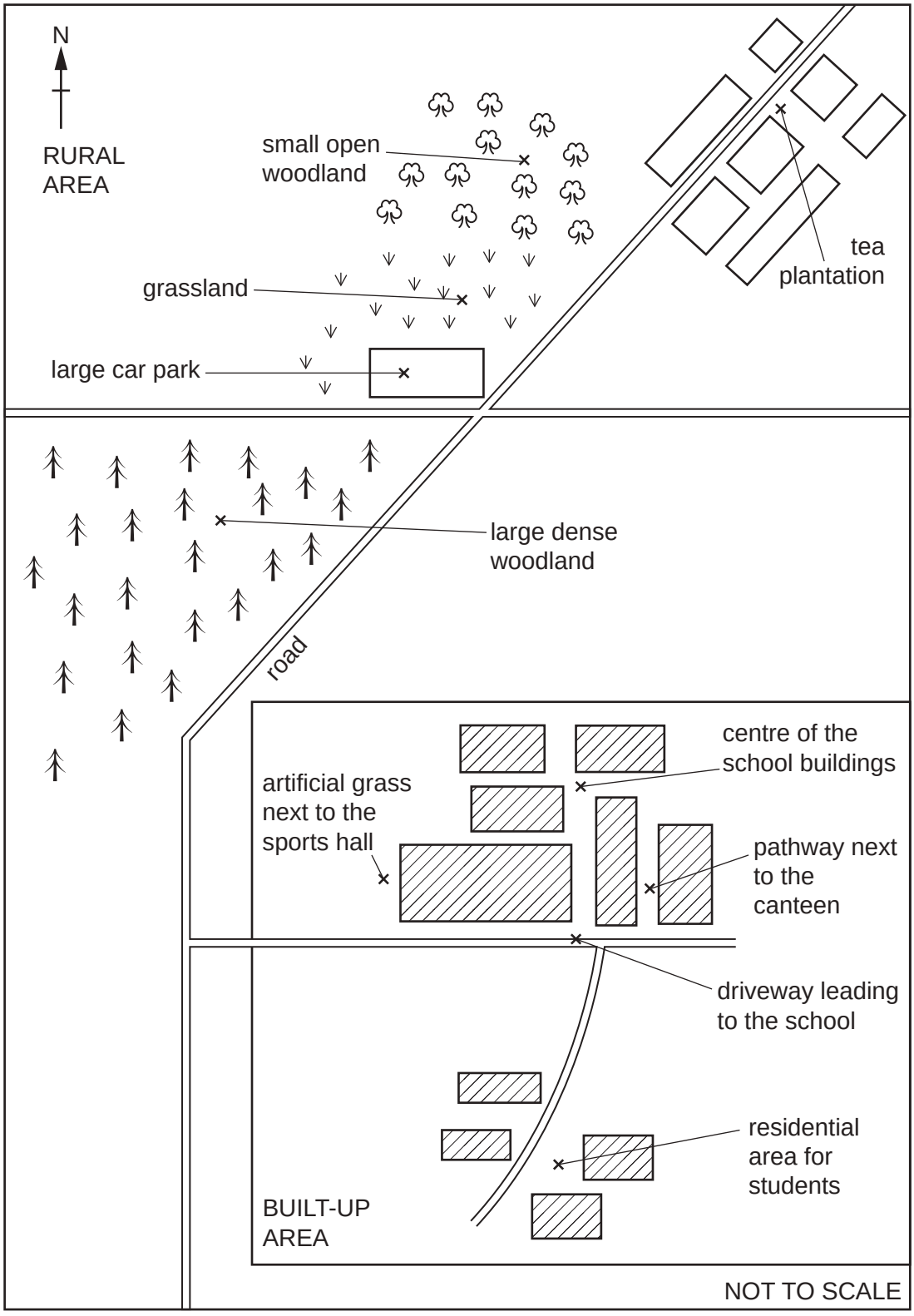
Fig. 1.1 for Question 1

Sketch map to show measuring sites



Key

× temperature measuring site

building

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Fig. 1.2 for Question 1

Digital thermometer



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Fig. 1.5 for Question 1

Instrument to measure wind speed



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Tables 2.1 and 2.2 for Question 2

Table 2.1

Results of traffic survey

Time: 08:30–09:00

Vehicle category	Survey site				Total	Percentage (%) of total
	1	2	3	4		
Car	45	37	41	56	179	56
Local bus / minibus	19	12	10	4	45	14
Lorry / van	13	10	12	7	42	**13**
Tourist coach	10	6	7	6	29	**9**
Motorbike	5	1	3	1	10	**3**
Taxi	2	2	2	3	9	**3**
Bicycle	2	0	2	2	6	**2**

Table 2.2

Results of traffic survey

Time: 10:30–11:00

Vehicle category	Survey site				Total	Percentage (%) of total
	1	2	3	4		
Car	18	13	16	8	55	20
Local bus / minibus	6	7	6	9	28	10
Lorry / van	9	6	10	8	33	12
Tourist coach	32	35	23	39	129	47
Motorbike	3	4	4	5	16	6
Taxi	3	1	2	3	9	3
Bicycle	0	2	3	0	5	2

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Table 2.3 for Question 2

Table 2.3

Results at site 1

Time: 12:30–13:00

Vehicle category	Number counted
Car	24
Local bus / minibus	4
Lorry / van	27
Tourist coach	9
Motorbike	**10**
Taxi	**4**
Bicycle	**3**

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2019**

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1 hour 30 minutes

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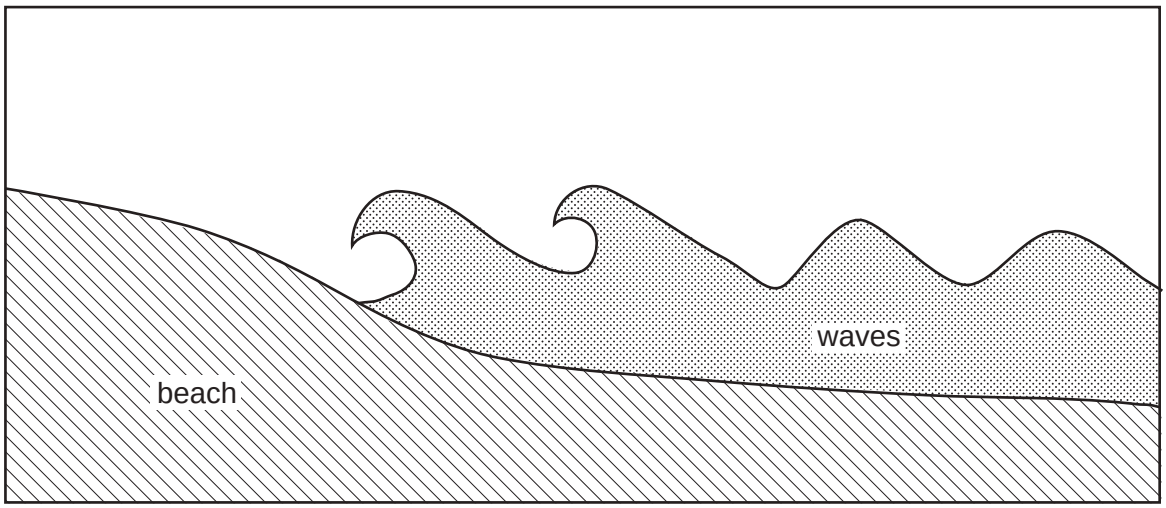
Fig. 1.1 for Question 1

Destructive waves



Constructive waves

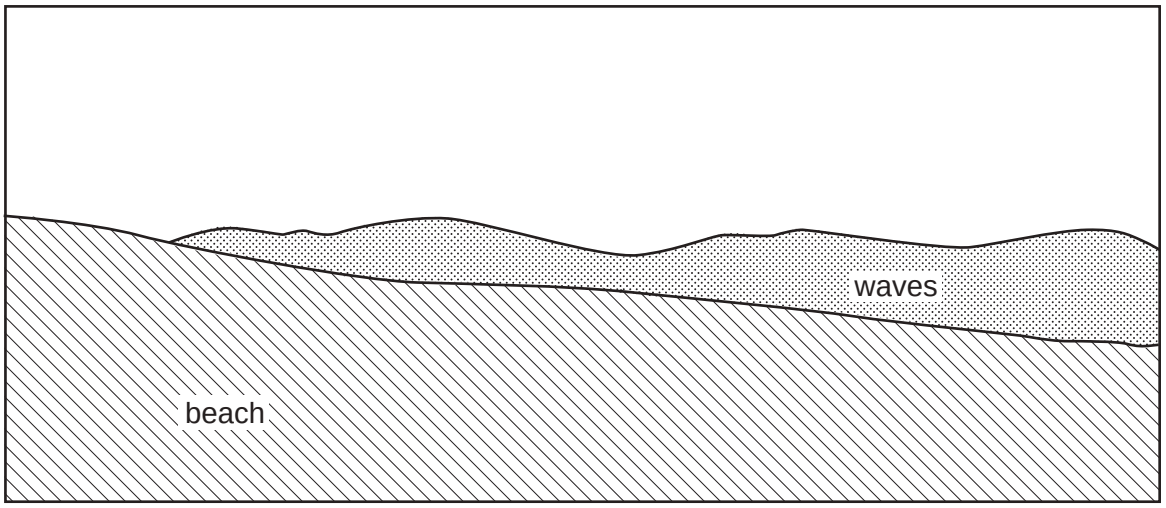


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Table 1.1 for Question 1

Wave frequency measurements

Archangelos beach

Measurement	1	2	3	4	5	6	7	8	9	10	Average
Wave frequency (waves per minute)	12	13	14	12	15	13	14	13	15	11	13.2

Afandou beach

Measurement	1	2	3	4	5	6	7	8	9	10	Average
Wave frequency (waves per minute)	6	7	6	9	7	8	6	8	7	9	7.3

Fig. 1.2 for Question 1

Beach profiles

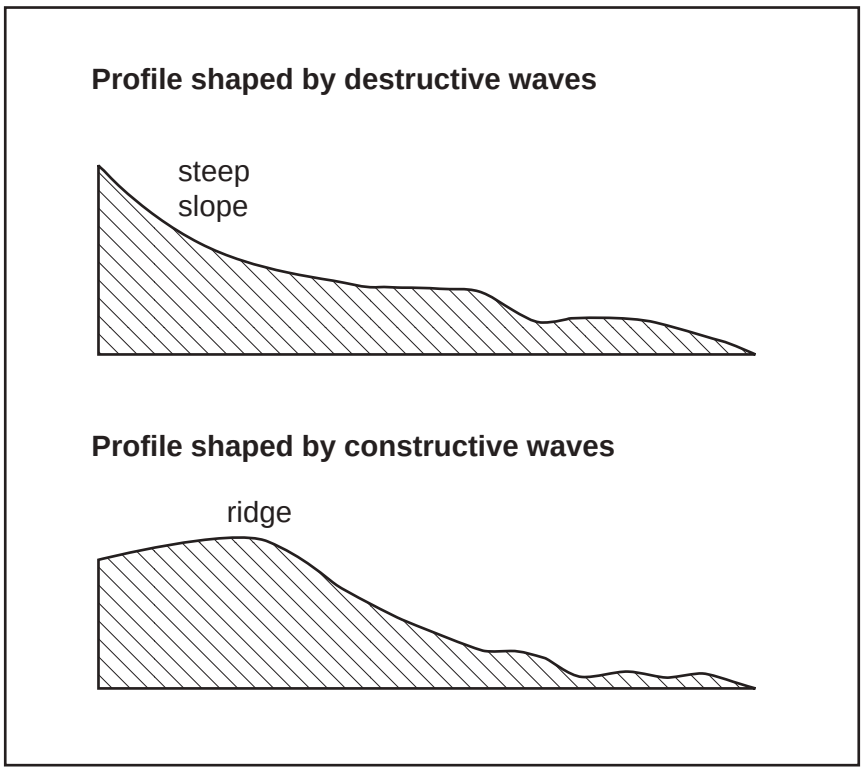

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Fig. 1.3 for Question 1

Measuring a beach profile



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Fig. 2.1 for Question 2

Mossbank



Ratcliffe



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Fig. 2.2 for Question 2

Recording form

Features of the local environment

Location: Ratcliffe Mossbank (circle the area)									
Feature	**Negative description**	**–3**	**–2**	**–1**	**0**	**+1**	**+2**	**+3**	**Positive description**
Housing design	Identical, cramped and low quality								Varied, spread out and high quality
Condition of buildings	Poorly maintained and decaying								Well maintained and attractive
Open space	Unattractive, derelict wasteland								Attractive and well cared for
Noise	Very noisy from different sources								Quiet, and causes no inconvenience
Traffic	Constant heavy traffic flow								No passing traffic
Vandalism and graffiti	Widespread damage, graffiti and mess								No sign of any damage, graffiti or mess
Litter	Much litter around								No evidence of litter

Table 2.1 for Question 2

Students' results of the fieldwork survey

Feature	Mossbank	Ratcliffe
Housing design	–3	0
Condition of buildings	–2	+1
Open space	–2	+1
Noise	0	+1
Traffic	–1	**+2**
Vandalism and graffiti	–2	**+3**
Litter	0	**+1**
Total score	–10	+9

Table 2.2 for Question 2

Residents' results of the fieldwork questionnaire

Feature	Mossbank	Ratcliffe
Housing design	–1	+1
Condition of buildings	+1	+2
Open space	–2	0
Noise	–1	0
Traffic	+1	0
Vandalism and graffiti	0	+1
Litter	+1	+1
Total score	–1	+5

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Fig. 2.4 for Question 2

Resident questionnaire

Area: Mossbank Ratcliffe (circle the area)

This questionnaire is part of our Geography fieldwork.

Complete the table below by putting an 'X' in the appropriate box to assess each of the following features of the local area.

Feature	Negative description	–3	–2	–1	0	+1	+2	+3	Positive description
Housing design	Identical, cramped and low quality								Varied, spread out and high quality
Condition of buildings	Poorly maintained and decaying								Well maintained and attractive
Open space	Unattractive, derelict wasteland								Attractive and well cared for
Noise	Very noisy from different sources								Quiet, and causes no inconvenience
Traffic	Constant heavy traffic flow								No passing traffic
Vandalism and graffiti	Widespread damage, graffiti and mess								No sign of any damage, graffiti or mess
Litter	Much litter around								No evidence of litter

Complete the table below to show your opinion of aspects of the local area. Put a tick (✓) to show your decision.

Aspect	Excellent	Good	Satisfactory	Poor	Very poor
Local schools					
Health services					
Parks and playgrounds					
Personal safety					
Community spirit					

Thank you for your help.

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Table 2.3 for Question 2

Residents' opinions of their local area

Mossbank	Number of residents' opinions				
Aspect of the local area	Excellent	Good	Satisfactory	Poor	Very poor
Local schools	5	7	6	4	3
Health services	4	9	6	3	3
Parks and playgrounds	6	6	7	3	3
Personal safety	4	5	6	4	6
Community spirit	7	5	9	3	1
Total	26	32	34	17	16

Ratcliffe	Number of residents' opinions				
Aspect of the local area	Excellent	Good	Satisfactory	Poor	Very poor
Local schools	2	4	10	5	4
Health services	3	6	8	6	2
Parks and playgrounds	1	2	9	7	6
Personal safety	3	6	5	6	5
Community spirit	**2**	**4**	**7**	**3**	**9**
Total	11	22	39	27	26

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GEOGRAPHY **0460/11**

Paper 1 **May/June 2019**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	Over 1 million	**1**
1(a)(ii)	China…Colombia….Argentina….Australia All correct = 2 marks 2/3 correct = 1 mark 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: Mexico is closer/Spain is further away; From Spain it is necessary to travel by air/sea/Mexico has a land border/direct border; It is cheaper to travel there from Mexico; Spain has more options/neighbouring countries; Etc. Easier access^ Bigger population^ 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: Language difficulties; Difficulties finding a job; Low paid work/exploitation; Discrimination/racism; Finding somewhere to live is difficult; Missing families/friends; High cost of living/or, e.g. such as food/healthcare; Culture shock; Difficult to practice religion; Illegal entry/sent back/no green card; Etc. = 0 Not allowed in. Communication problems^ Unfamiliar^ Get lost^ 4 @ 1 mark	**4**
1(b)(i)	Overall increase during whole period/1901–2010; Decrease from 1901 to 1940 (or part of that time period, but not single year); Increase from 1941 onwards (or part of that time period, but not single year); Supporting statistic with two time periods and figures and units (1 MARK RESERVE) = 0 Biggest/bigger in 2010. 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as : Lack of/providing more housing/overcrowded housing/squatter settlements/slums; Lack of/providing more health care; Lack of/providing more educational facilities; Lack of/providing more food; Lack of/providing more water; Water/air pollution; Sanitation/waste disposal; Integrating international migrants; Racial/political/religious tensions; Increasing cost of benefit payments, etc. Jobs/unemployment; Traffic congestion; Strain on public transport; Loss of income due to remittances; Illegal so don't pay taxes; Checking all paperwork, etc.; Security/border controls/drug problems; Signage/leaflets in different languages; = 0 Overpopulation Disease Need more resources People/Government have to pay more taxes Poverty Crime^ but okay as development 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe a population policy used to influence growth rate. e.g. One child Policy; Level 2 (4–6 marks) More developed statements which describe how a population policy is used to influence growth rate NOT the impacts. Note: Credit different approaches within a policy, so for example, when marking a China One Child Policy answer, ideas will often cover the following: Incentives; Penalties; Exceptions; Enforcement; Note: Credit only 1 L2 mark for each of these four ideas above, although credit should also be given for other ideas such as developing the idea such as applying to have a child/increasing the age of marriage which do not fit the four ideas above. e.g. one child policy and free education L2; one child policy and use of fines if more than one child L2; one child policy and parents not penalized if they have twins or a child is disabled L2 one child policy and Granny police check if couples are conforming to law L2 Note: If another country is given generally apply the same principle, but other ideas in the Content Guide will be relevant, e.g. gender equality acts or educating women etc. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference which can be named parts of the chosen country, Population data, reference to a specific named policy/specific details about it etc.	**7**

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Question	Answer	Marks
2(a)(i)	25 (%)	**1**
2(a)(ii)	Ideas such as: Burning fossil fuels/oil/coal/petrol; Smelting/processing raw materials in factories; Congested roads/heavy lorries add to air pollution; CO_2/SO_2/Nitrous oxide; Exhaust fumes; Smoke/chimneys; Lots of cars^ Work all the time^ 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: Greater percentage from traffic in Western Europe/or statistics; Greater percentage from industry in Western Europe/or statistics; Greater percentage from domestic/homes in Africa/or statistics; Greater percentage from electricity generation in Western Europe or statistics; Greater percentage from other sources in Africa or statistics; Electricity generation is highest in W.Europe but domestic usage is highest in Africa; Domestic usage is lowest in W.Europe but industry is lowest in Africa; Note: Statistics must use units for credit. = 0 More even proportions in Africa. 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: There are more vehicles used in Western Europe; There are more factories/industries in Western Europe; Western Europe is richer/more developed/MEDCs; Many homes in African cities will burn wood/cleaner sources of fuels will be used in homes in Western Europe; More people use electricity in W.Europe; More gadgets/appliances/air von units in W.Europe; etc. 4 @ 1 mark	**4**

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Question	Answer	Marks
2(b)(i)	Positive relationship/higher population density the more traffic congestion there is; Statistical evidence to support the above, e.g. those with a population density below 5000 have congestion level below 30% but with density over 25 000 the congestion level is above 50% OR statistics for highest and lowest values; However relationship is not perfect/there are anomalies Note: Statistics must use units for credit. 1 mark reserve. 3 @ 1 mark	**3**
2(b)(ii)	Ideas such as: Urban populations are growing rapidly/very large/densely populated; Enough road spaces/road systems are inadequate/built years ago; There is limited space/ lack of investment in new roads; Lack of investment in/unreliability of public transport; Car ownership is increasing/most work in urban areas; Many people commute to work; Congestion causes delays/can't get to appointments on time; People are late to work/school; Emergency services can't get through; Air pollution; Noise pollution; Stress/road rage; Rush hour/work finishes at same time; Wasted fuel Etc. = 0 Accidents. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the strategies used to improve traffic congestion. Level 2 (4–6 marks) Uses named example. More developed statements which describe the strategies used to improve traffic congestion. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe the strategies used to improve traffic congestion, with some place specific reference. Content Guide: Answers are likely to refer to ideas such as: • New road building, • Investment in public transport, • Cycle lanes, • Park and Ride, • Congestion charging, etc. Place specific reference is likely to consist of: Locational details, Specific details of the schemes, Named parts of urban areas, etc. Statistics	**7**

Question	Answer	Marks
3(a)(i)	(Sand) dune	**1**
3(a)(ii)	Gentle slopes/steep near beach/windward side; Low level; Marram (grass) growing on it; Some bare sand/patches, etc. 2 @ 1 mark	**2**

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Question	Answer	Marks
3(a)(iii)	Ideas such as: Sand blown by wind; Obstruction/pebble/litter/plant blocks wind; Causes velocity of wind to reduce/eddies; Deposition; Colonization by more plants; Gets larger over time; etc. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as: (Prevailing) wind approaches from an angle ; Swash comes in at an angle/obliquely; Backwash is vertical/straight out to sea; Material is moved in zigzag manner; (Known as) longshore drift; Spit develops where there is a change in direction of coastline; Recurved/hook by waves from other directions, etc. 4 @ 1 mark	**4**
3(b)(i)	P = Stack Q = Cliff R = Wave cut platform 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: Hydraulic action; Air compressed in crack in rocks by power of waves; Corrosion/solution; Rocks like limestone dissolved by acids in sea water; Corrasion/abrasion; Waves pick up loose materials and use them to grind the cliffs; Attrition; Materials reduced in size as they hit each other when being carried or moved around by waves, etc. Note: Max 2 for each process = 0 Cave, arch etc. Hard and soft rock. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the strategies used to manage coastal erosion. Level 2 (4–6 marks) Uses named example. More developed statements which describe the strategies used to manage coastal erosion. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Groynes, Revetments, Beach nourishment, Gabions, Managed retreat, Artificial sea walls Hard and soft engineering etc. Place specific reference is likely to consist of: Locational details, named places within the area managed, specific details of measures, etc. Statistics	**7**

Question	Answer	Marks
4(a)(i)	The annual precipitation is lower than 250 mm	**1**
4(a)(ii)	**Similarity:** Both are at similar latitude/close to Tropic of Capricorn; Both in Southern Africa; Both in Namibia; **Difference:** Namib is on the coast but Kalahari is inland; Namib extends slightly further south/north than Kalahari 2 @ 1 mark	**2**

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Question	Answer	Marks
4(a)(iii)	Ideas such as: High daytime but cold night temperatures; Lack of clouds allow high insolation during day; Lack of clouds allows heat to escape at night; Inland so no moderating influence of sea; Etc. Inland ^ 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: Close to Tropic of Capricorn; High air pressure; Descending air; Air cools; Wind direction over areas of land; Cold current causes condensation/fog; Etc. = 0 Lack of water sources nearby 4 @ 1 mark	**4**
4(b)(i)	X is a cactus but Y is a tree/X lacks leves/branches; X is higher/X is 4 metres high but Y is 3 metres; Roots of Y are deeper/Y roots are 7 metres deep but X is only 1.5 metres; Roots of X extend further sideways than Y; Roots of X are sideways but Y are downwards; = 0 Thin/thick Large/small Etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(b)(ii)	Ideas such as: Seeds/plants remain dormant/lose leaves during long dry spells; Only flower for a short period of time/after rain; Waxy/narrow/spiky leaves to reduce transpiration; Spiky leaves/thorns to protect from predators; Tap roots/long roots/wide spreading roots to search for water; Light colours to reflect sunlight; Animals shelter in underground burrows to avoid heat; Animals only come out to hunt at night to avoid heat; Thick/fleshy stems/humps to store water; Stomata are small/closes at night to avoid transpiration; Note: No reserve on plants/wildlife. = 0 Can survive without water Do not credit examples alone. etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the characteristics of a tropical rainforest ecosystem. Level 2 (4–6 marks) Uses named example. More developed statements which describe the characteristics of a tropical rainforest ecosystem. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements which describe the characteristics of a tropical rainforest ecosystem. Note: Must consider more than one ecosystem element, e.g. plants and soil. Content Guide: Answers are likely to refer to: Types of vegetation, Types of fauna, Layers, Buttress roots, Drip tip leaves, Specified links within ecosystem eg food chains, Nutrient cycles Food chains Soil Climate, etc. Place specific reference is likely to consist of: Locational details, named flora/fauna, etc. Statistics.	**7**

Question	Answer	Marks
5(a)(i)	Completion of bar (no need to shade)	**1**
5(a)(ii)	Wind power; Solar power, Tidal power; Wave power; Biomass = 0 Nuclear HEP 2 @ 1 mark	**2**

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Question	Answer	Marks
5(a)(iii)	Ideas such as: More use of non-renewables than renewables; 535 petajoules non-renewable but 350 petajoules renewable; Main fuels used are non-renewable; Natural gas and geothermal used in equal amounts; Compare an example of renewable and non-renewable MAX 1; Statistics = max 1 mark **reserve,** must use units and be comparative Etc. 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Worries over radiation/meltdown; Problem of disposing of waste; Expensive building/setup costs; Political issues/government ideology; Public pressure/environmental awareness/protests; Nuclear power stations could be damaged by earthquake; Etc. = 0 Dangerous/explode Lack of technology Nuclear accident/fallout/weapons^ Environmentally friendly^ 4 @ 1 mark	**4**
5(b)(i)	Higher GDP the greater the use of electricity/positive correlation; Statistical evidence to support the above, e.g. Norway has GDP of 69 300 and uses 24 621 kwh energy per person but Mexico has GDP of 18 900 and uses 2496 kwh energy per person However relationship is not perfect/there are anomalies, e.g. Australia has a higher GDP than Canada but uses less energy per person, etc. Statistics = 1 mark **reserve,** must use units 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: Electricity availability tends to increase with development; In many countries with low GDP many rural areas are not connected to grid; Countries with higher GDP likely to use energy/electricity in factories/workplaces; Countries with higher GDP likely to use more home appliances; Higher GDP will enable investment in power stations/supply infrastructure; Etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which list methods of water supply. e.g. rivers (L1), reservoirs (L1),aquifer (L1) Level 2 (4–6 marks) Uses named example. More developed statements which explain how water supply is being managed to ensure future supplies. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers are likely to refer to ideas such as: Reservoirs, Use of water from aquifer, Desalination, Water transfer pipelines, Restrictions on use, Cloud seeding Water treatment Grey water Etc. = 0 Irrigation Place specific reference is likely to consist of: Locational details/named areas within country/area chosen Specific schemes, etc. Statistics	**7**

Question	Answer	Marks
6(a)(i)	(Production of crops animal products/farming) for use by family/tribe/not to sell	**1**

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Question	Answer	Marks
6(a)(ii)	Evidence such as: Wood/branches on ground; Tree stumps seen; Plants are lower level than surrounding ones; Vegetation is not so dense as surrounds; Banana plants can be seen growing; Areas of bare soil/ground can be seen; Etc. = 0 Clearing 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Rain is heavy in the tropical rainforest/there are regular storms; Bare soil is exposed/no trees for shelter; Particles of soil are washed/carried away by the water; No interception; No roots to hold soil; = 0 Wind blows away Nutrients Etc. 3 @ 1 mark	**3**
6(a)(iv)	Strategies such as: Contour ploughing; Protect the ground with vegetation cover, Avoid overgrazing/overcultivation; Add mulch; Build retaining walls; Strip cropping, Plant trees; Terracing; Irrigation; Etc. = 0 Crop rotation 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: Air pollution from burning fuels; Water pollution from disposing of waste/washing clothes/sewage; Noise pollution from construction/shipbuilding/children; = 0 Boiling Machinery 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Ideas such as: Poisoning of water sources/air; Build up of toxins; Acid rain; Loss of habitat; Kills wildlife/plants; Extinction; Noise scares wildlife; Destruction of vegetation; Impacts on ecosystems/food chains; Eutrophication/algal blooms = 0 Air pollution Water pollution Global warming etc. 5 @ 1 mark or development	**5**
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the impacts of global warming on the natural environment. e.g. flooding (L1) <u>Level 2</u> (4–6 marks) More developed statements which describe the impacts of global warming on the natural environment. Note: MAX 5 if no place references, MAX 6 if one place reference <u>Level 3</u> (7 marks) Comprehensive and accurate statements, including some place references. <u>Content Guide:</u> Answers are likely to refer to: Changing rainfall patterns, Carbon dioxide/oxygen balance, Melting of ice caps/glaciers, Impacts on: Species Biodiversity Food chains, etc.	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/12**

Paper 1 **May/June 2019**

MARK SCHEME

Maximum Mark: 75

Published

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Question	Answer	Marks
1(a)(i)	500 000	**1**
1(a)(ii)	Natural population growth: Difference between the number of birth and deaths / BR-DR / BR higher than DR / more births than deaths; Net migration: Difference between immigration and emigration / more moving in than out / immigration-emigration; 2 @ 1 mark	**2**
1(a)(iii)	Net migration bigger than natural population growth= 1999–2011 inclusive / 2014; More emigrants than immigrants= 1992; Largest increase in population= 2011; 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: Low BR / fertility rates; Use of / availability of contraception / family planning is widespread / can afford contraception; Availability of abortions; Educated about family planning / problems of large population growth; Women are educated / many women have careers / emancipation; Expense of large families / people want to buy luxury goods; Benefits are available for elderly / no need for many children to look after the elderly / old people have pensions / care homes; Education is compulsory; Low IMR rates; Get married later / have children later; Children not needed as workers / on farms; Secular society / religious beliefs do not prevent use of contraception; Etc. 4 @ 1 mark	**4**
1(b)(i)	Ideas which **compare growth** such as: More growth in Africa overall; Population was higher in Europe in 1800 but higher in Africa in 2100; Growth was more rapid in Europe up to 1950 / or any period before that as long as not a single year; Growth has been much more rapid in Africa since 1950 / or any period after that as long as not a single year; Europe`s population is predicted / estimated to decrease (from 2015) but Africa`s predicted to increase; Statistics **with units** to MAX. 1 **RESERVE** – needs to be comparative and include 2 dates for each of Europe and Africa. Do not need to be supporting statements made. 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as : Lack of housing / overcrowded houses / shanty towns; Pressure on health care; Pressure on educational facilities; Lack of employment; Lack of food / farmland / starvation / need to import more food; Pressure on water supplies / lack of water; Pressure on sanitation / lots of waste / waste disposal problems; Traffic congestion / jams; Overuse of agricultural land / desertification / have to farm marginal land; Deforestation; Air / water pollution; Poverty; Pressure on electricity / power / fuel shortages; Etc. Note: Can develop each line of MS once 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe and/or comment on the success of a population policy. e.g. One Child Policy Level 2 (4–6 marks) More developed statements which describe and/or comment on the success of a population policy. Can use 3 □ L2 for description or evaluation. (Note: Max. 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe and comment (both at L2) on the success of a population policy including some place specific reference. Note: **Anti natal** policies e.g. China One Child Policy Ideas will cover the following – so credit only 1 □ L2 for each of the ideas below, although other ideas such as applying to have a child / increasing the age of marriage can also be credited. Any country with an anti natal policy follows the marking structure for China. Whereas **pro natal** policies e.g. Singapore / France can develop any ideas to L2, without using the China marking structure. Incentives – e.g. One Child Policy & Free education (L2) Penalties – One Child Policy & use of fines (L2) Exceptions – One Child Policy & not penalized for twins or if first child disabled (L2) Enforcement – One Child Policy & Granny Police (L2) Not: allow second child is the first born is a girl in rural areas – too generalized Content Guide: Policy could be to reduce or increase population growth and could refer to natural growth or migration. Answers are likely to refer to: □ Limits on numbers of children □ Methods of enforcement □ Provision of contraception □ Legislation about abortion □ Impact on birth rates □ Female infanticide	7

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Question	Answer	Marks
1(c)	• Imbalance of sex ratios • Reduced birth rate • Less pressure on schools • Less pressure on food • Less pressure on medical care • Etc. <u>Place specific reference is likely to consist of:</u> Named parts of the chosen country, Population data, Specific aspects of policy etc. Statistics (can also be credited as PS)	

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Question	Answer	Marks
2(a)(i)	A method of arranging settlements based on the size of their population.	**1**
2(a)(ii)	The larger / smaller the population the less / more settlements there will be / inversely proportional; E.g. more villages than cities (must compare two settlement types) 2 @ 1 mark	**2**
2(a)(iii)	Examples such as: Department store; (Specialist shops such as) Jeweller; Wedding dress shop; Umbrella shop: National stadium; Theatre; (International) airport; University; Parliament; Embassy HQ; Etc. Note: Can give 3 different high order shops 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: There is a large population / lots of customers / large market / large demand; The sphere of influence is a large area / many people travel from a long distance / large catchment area; Enough people to meet threshold; Capital cities are a focus of route networks / good transport links; Many tourists will visit / use the services; Wealthy people live there; Etc. 4 @ 1 mark	**4**
2(b)(i)	Post office(s); Doctors / surgeries; Shops; Schools; Bank; Cashpoint / ATM 3 @ 1 mark	**3**

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2(b)(ii)	Ideas such as: People move away from rural areas / move to city / urbanisation; Decline of population in some rural areas; Services are unprofitable / uneconomical / not sustainable Less demand / customers; Increased mobility / car ownership; Many people use services in the urban areas where they work; Poor communications make supplying resources to these services difficult / expensive; Internet / online shopping; Ageing population / young people leave; Etc. 5 @ 1 mark or development	**5**

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2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe / state the function and/or explain why the chosen settlement has that function. Level 2 (4–6 marks) Uses named example. More developed statements which explain why the chosen settlement has that function (**Note:** Max. 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements with some place specific reference. Content Guide: Answers will depend on the function of the chosen settlement which may include: Port, Capital city, Industrial town, Route centre, Market town, Administrative centre, Tourist resort Service centre / offers services Note: Do not accept examples of services Place specific reference is likely to consist of: Locational details, Specific details of land uses related to the function, Named parts of settlement etc. Statistics (can also be credited as PS)	**7**

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3(a)(i)	Confluence	**1**
3(a)(ii)	Ideas such as: White / fast flowing water / rapids; Rocks / boulders / stones (in channel); Shallow / varying depths; Uneven long profile / gradient etc. =0: Steep gradient Valley Large load Wide / narrow / large / small Waterfall Trees Comparing the two rivers 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: Fast flowing; Has energy; Materials carried by river; Corrasion / hydraulic action / abrasion / attrition or description of process e.g. rocks collide with each other 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as further downstream it is likely to be: Wider river; Broader valley Deeper; Faster / velocity increase; Greater volume / discharge; (Total) load gets larger Size of load / sediment smaller; More deposition / deposition instead of erosion More lateral erosion; Higher hydraulic radius / wetted perimeter / smoother riverbed; More meandering / oxbow lake present; A flood plain may develop; Valley (sides) will be less steep / flatter; Gradient of river gets less; Etc. 4 @ 1 mark	**4**

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3(b)(i)	Features such as: White water / spray / turbulent / foam; Vertical / steep (drop / sides) / cliff; Plunge pool / deep pool; Overhang / cave / undercut; Double waterfall / steps / ledge / separates at top; Widens as gets lower; 3 @ 1 mark	**3**
3(b)(ii)	Ideas such as: Hard rock overlies softer rock / (passes over) hard then soft / alternating hard and soft; Hard rock resists erosion / softer rock is eroded rapidly; Undercutting / overhang develops; Overhang collapses; Retreat of waterfall / process repeats; Specific named methods of erosion or description of (1 MAX) No reserve on diagram, but must be labelled to credit relevant ideas. Do not double credit ideas on diagram. 5 @ 1 mark or development	**5**

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3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain the causes of a flood. Level 2 (4–6 marks) Uses named example. More developed statements which explain the causes of a flood. (Note: Max. 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Heavy rainfall, Rainfall over a long period of time, Impermeable rocks, Rocks reach saturation level, Snow / ice melt, Deforestation, Urban development Storm surges High spring tides Cyclones – so coastal flooding idea fine at estuary Lack of river management Place specific reference is likely to consist of: Locational details, Named places along the river / in the drainage basin, Statistics (can also be credited as PS) e.g. rainfall amounts	**7**

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4(a)(i)	Volcanoes are in a roughly circular pattern / around / surrounding the Pacific;	**1**
4(a)(ii)	Ideas such as: Both are in the Pacific Ocean / on Pacific plate; Ruapehu is in the Ring of Fire but Mauna Loa is not / Ruapehu is on the edge and Mauna Loa is in the centre / hot spot; Ruapehu is further south / Ruapehu is in S.Hemisphere and Mauna Loa in N. Hemisphere; Ruapehu is further west / Mauna Loa is further East; Mauna Loa is nearer equator; Ruapehu is East of Australia but Mauna Loa is West Of USA; 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Subduction / one plate sinks under the other; Oceanic plate is heavier / denser; Destruction of / melting of crust; Build up of pressure; Magma released through weakness / crack etc Note: Divergent plates idea =0 marks for question. 3 @ 1 mark	**3**
4(b)(i)	Ideas such as: (General) Increase in number of earthquakes over the time period / most earthquakes in 2015; Especially since 2013 / 2014; Little change between 2010–2012 / 13; More variation / fluctuations in 2015; 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: Evacuation procedures; Buildings which are earthquake / volcano proof – accept details to MAX 2; National earthquake day; Education about what to do during earthquake / volcano / safety drills; Train emergency services; Survival kit / emergency food supply Landuse zoning / exclusion zone; Lava diversion channels; Spray lava with water; Shelters from volcanoes; Wearing masks to protect from dust; Flexible gas pipes / cut offs; Etc. 4 @ 1 mark	**4**

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4(b)(iii)	Ideas such as MEDCs / LEDCs: Invest more / less money in methods of protection / monitoring; Instigate evacuation procedures more / less effectively; Educate people so that they can protect themselves from the impacts; Provide better healthcare / hospitals / doctors / ambulances; Provide quicker / more efficient rescue services / helicopters Build stronger / weaker buildings; Have better / poor road network; Etc. Do not need LEDC / MEDC stated or comparative answer 5 @ 1 mark or development	**5**

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4(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain why people live close to an active volcano. Job = L1 e.g. of job = L2 <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain why people live close to an active volcano. (Note: Max. 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements which explain why people live close to an active volcano, including some specific details. <u>Content Guide:</u> Answers are likely to refer to: Fertile soils, Mining / quarrying Tourism, Prepared to take the risks / risks are outweighed by benefits, Geothermal power Friends / family Scientists Can't afford to move Note: Develop each idea for 1 × L2 max. These ideas simply stated = L1, can develop each idea once for L2. Jobs or earn money – use as development once ie 1 × L2. <u>Place specific reference is likely to consist of:</u> Locational details, Named areas / features etc. Statistics	**7**

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5(a)(i)	Producing output / produce / product / crops / food to use / feed family / self / tribe	**1**
5(a)(ii)	Gives water / provides water / won't dry out / have water constantly / they do not go for long spells without water; Plants grow (faster / bigger) / keeps them alive / don't die / more crops; Note: No reference to water =0. Must have first idea to gain credit for second mark, as idea of irrigation needs to be understood. 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: Using low / intermediate technology / lack technology / machinery ; Have the skills to be able to use these methods / don't have skills to use machinery; Relatively low cost / people are poor / affordable method; Do not require sources of fuel (electricity) / they use manpower; Animal power is used / are available; Easy to maintain / build; Made from local materials; Etc. 3 @ 1 mark	**3**
5(a)(iv)	Methods such as: Crop rotation / fallowing; Use of fertilizers / animal manure; Insecticides / pesticides / herbicides; Greenhouses / glasshouses / polytunnels; Mulching; Use HYVs / GM / disease resistant / or example; Mechanization / automation; 4 @ 1 mark	**4**

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5(b)(i)	Ideas such as: Feeding; Planting; Sowing Harvesting; Shearing; Spreading fertiliser; Slaughtering animals; Irrigating; Ploughing; Weeding; Lambing; Herding; Spraying; Milking; Etc. Note: Jobs that the farmer does. 3 @ 1 mark	**3**
5(b)(ii)	If crops fail the farmers will be able to depend on animals / crops; Animal manure can be used for crops; Crops / crop waste can be used for animal feed; Animals used to plough fields; Farmers can use all types of land / e.g. fertile soils for crops and infertile soils for grazing; Work will be spread throughout the year; Income will come into the farm at various different times; Can adapt to changes in demand; Enables crop rotation; Etc. If the candidate refers to crops <u>or</u> animals only, do no credit. 5 @ 1 mark or development	**5**

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5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why there have been food shortages. Level 2 (4–6 marks) Uses named example. More developed statements which explain why there have been food shortages. (**Note:** Max. 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Issues such as: Drought, War, Poverty, Overuse of the land, Population increase, Export of cash crops, Lack of cultivable land, Unequal distribution of land, Flooding, Poor storage of food, Poor distribution of food / aid Desertification Note: Do not credit the causes of drought or war as L2 statements – they need to explain how these factors cause food shortages Place specific reference is likely to consist of: Locational details / named areas within country chosen Specific details of issues / dates Statistics (can also be credited as PS)	**7**

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6(a)(i)	One	**1**
6(a)(ii)	**Renewable:** Hydro-electric / HEP; Geothermal; Wind. **Non-renewable:** Coal; Oil / thermal; 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Both have oil fired / thermal power stations; Both have HEP; Oil is more important / more thermal stations in Sonara / 4 in Sonora and 2 in Sinaloa; HEP is more important / more HEP stations in Sinaloa / 5 in Sinaloa and 1 in Sonora; Sonora has mainly oil but Sinaloa has mainly HEP; Sonara has a geothermal power station, Sinaloa does not; 3 types of power in Sonora and 2 in Sinaloa; Note: Must be comparative 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as areas which can generate large amounts of HEP: Have lots of rainfall; Mountainous / have steep slopes; Experience periods of melting snow / ice Have many places to build dams / reservoirs; Have large / fast flowing river(s) / waterfalls; Have large areas of land which can be flooded / open space / sparsely populated; Etc. 4 @ 1 mark	**4**

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6(b)(i)	Northwest / Chihuahua / Los Ramones (1) **reserved** No name =0 for answer. Correct pipeline but wrong description =1. Chihuahua pipeline: From El Paso to El Encino; North to south / to the South; 500 km long; Inland; Northwest: Tuscon to Mazatlan; NW to SE / to the SE; 1500 km long; Coastal Los Ramones: Agua Dulce to Aguascalientes / Queretaro; NE to SW / SSW / to the SW / SSW; 1000 km; Inland; 2 @ 1 for description 3 @ 1 mark	**3**
6(b)(ii)	Ideas such as: Expensive; Prices fluctuate; Impact on balance of trade; Reliance on a fuel which is non-renewable / will eventually run out / may have to find alternative fuel; Specified impact(s) on natural environment e.g. air pollution, global warming; Supply may be restricted (if there are political disputes); Problems of damage to pipeline / explosions / leaks; Etc. 5 @ 1 mark or development	**5**

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6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain how an economic activity is causing the natural environment to be at risk. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain how an economic activity is causing the natural environment to be at risk. (**Note:** Max. 5 if no named or inappropriate example) Manufacturing / agriculture / tourism acceptable as types of economic activity, along with other appropriate examples. Location must generally be smaller than a country, however there may be exceptions e.g. Sahel. <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Answers could refer to any economic activity at any scale and are likely to refer to issues such as: Air pollution, Water pollution, Destruction of vegetation, Impacts on ecosystems / food chains, Impacts on climate, Soil erosion Global issues Deforestation / industry / burning fossil fuels cannot be accepted as valid economic activity, therefore max. 5. <u>Place specific reference is likely to consist of:</u> Locational details / named areas within country / area chosen Statistics (can also be credited as PS)	**7**

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/13**

Paper 1 **May/June 2019**

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Question	Answer	Marks
1(a)(i)	The number of people living in a/per unit of area/given area/square kilometer/how closely people live together	**1**
1(a)(ii)	Asia Europe 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: There are relatively few people living there/uninhabitable/few settlements; Reasons (physical) for e.g. remote/extreme climate etc. 1 MAX; There are large amounts of resources; There is a surplus of resources/resources are unused; 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as : Lack of housing/overcrowded houses/shanty towns; Pressure on health care; Pressure on educational facilities; Lack of employment/low wages; Lack of food/farmland/starvation/need to import more food; Pressure on water supplies/lack of water; Pressure on sanitation/lots of waste/waste disposal problems; Traffic congestion/jams; Overuse of agricultural land/desertification/have to farm marginal land; Deforestation; Air/water pollution; Poverty; Pressure on electricity/power/fuel shortages; Government need to introduce anti-natal policy; Etc. 4 @ 1 mark	**4**
1(b)(i)	Ideas such as: Low/flat land/valley attracted settlement/is easy to build on/ OR high/steep/mountainous areas are sparsely populated/difficult to build on; Low/flat land/valley has easy access/main road OR high/steep/mountainous areas have poor access/few roads ; Low/flat land/valley is easy to farm/fertile soil OR high/steep/mountainous areas are difficult to farm/have thin soils; Low/flat land/valley is close to river/water supply OR high/steep/mountainous areas are away from river/water supply; Snow/low temperatures result in sparse population in higher areas etc. OR higher/moderate temperatures in lower areas attract population; 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as : Access is good/easy to travel/easy to get around; People are not isolated; They can travel to work; Access to shops; Access to hospitals/schools/named service; Industries need transport for raw materials; Trading route/example of traded product; Immigration route/migrate to; etc 5 @ 1 mark or development	**5**
1(c)	Levels marking **Note: Can be migration between continents, countries or a continent and country or regions.** <u>Level 1</u> (1–3 marks) Statements including limited detail which explain the causes of an international migration. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain the causes of an international migration. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to: • employment • health care • education • political issues • natural disasters • lack of food • war • water supply • electricity • etc. <u>Place specific reference is likely to consist of:</u> Named parts of the chosen country, Population data etc. Statistics	**7**

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Question	Answer	Marks
2(a)(i)	Linear/in a line.	**1**
2(a)(ii)	Ideas such as: Along a road <u>for</u> transport/ to get to work/for deliveries; Access to/near to/there is a river <u>for</u> fishing/transport/water supply/fertile land; etc. Note: Can give same transport explanation for road and river. 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: There is a river; Flooding may occur/the area could be a flood plain; The area could be marshy land It could be farmland; It could be forested; Etc. 3 @ 1 mark	**3**
2(a)(iv)	Settlement pattern is dispersed/scattered **(1 mark reserved)** The area could be farmland; Woodland/forest; People need large areas of land to make a living; Some parts of the area may not be habitable Etc. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: More people living in towns/cities/urban areas/cities are growing/rural-urban migration; Example of pull factor e.g. jobs; No place to build in cities; People all want their own homes/single family homes; People want large homes/garages; Settlements are joining together/swallowing villages; Etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: Loss of farmland; Increase in house prices; Some rural residents can no longer afford to live in the area; Traffic congestion/takes longer to get to work; Deforestation/loss of vegetation; Loss of habitat; Kills/scares wildlife; Disruption to food chains/ecosystems; Atmospheric pollution; Noise pollution; Visual pollution; Water pollution; Flooding; Loss of community spirit; Loss of open space/green fields; etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which compare the service provision in two settlements. No credit if no comparison Level 2 (4–6 marks) Uses named example. More developed statements which compare the service provision in two settlements. (**Note:** Max 5 if no named or inappropriate examples) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements with some place specific reference. Content Guide: Answers are likely to refer to: Types of services, Amounts of services, Order of services, Quality of services – so poor/good fine, only here. Spheres of influence, Convenience and specialist goods/services; Specific service types e.g. shops, schools, health care etc. Transport e.g. bus routes, railways station etc. Place specific reference is likely to consist of: Locational details, Specific details/names of services Named parts of settlement etc. Statistics	**7**

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Question	Answer	Marks
3(a)(i)	19 (°C)	**1**
3(a)(ii)	Difference between dry bulb and wet bulb temperature/14–9 = 5 (°C) Relative humidity = 51(%) 2 @ 1 mark	**2**
3(a)(iii)	**Weather instrument kept inside a Stevenson Screen:** Maximum and minimum thermometer/wet and dry bulb thermometer/barometer **Weather instrument which consists of a funnel and measuring cylinder:** Rain gauge **Weather instrument which should be positioned in an open area at least 10 metres above ground level:** Wind vane/anemometer 3 @ 1 mark	**3**
3(a)(iv)	**Wind vane:** Arrow with compass points around; Observe direction the arrow is pointing; Arrow points to direction wind is blowing <u>from</u>; Observe at regular intervals/set times; **Anemometer:** Cups which catch wind/rotate; Observe at regular intervals/set times (no double credit); Observe electronic display/look at figures/displayed digitally; In km per hour Note: **1 mark reserved** for each instrument If no instrument is named then only credit the set times idea. 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: High/above 0 °C temperatures from April to October (or any months within this period)/in summer/high<u>est</u> in July; Very low/below zero temperatures from November to March/winter/lowest in January; OR (alternative to the two ideas above) Increases from Jan–July; Decreases from July/August to December; Use of statistics to illustrate variation (**Max 1 reserved**) Note: must be two months with correct statistics, or just one figure for the range. No units or figures without negatives=0 Statistics: January: -12/–13 <u>°C</u> July: 18/19 <u>°C</u> Range: 30–32 <u>°C</u> 3 @ 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	April (**1 mark reserved**) No credit if no month or January or August chosen Ideas such as: High rainfall; Wet months preceding saturated soil/rock; Much runoff is overland; (Low temperatures) so not much evaporation; (Temperatures below zero) in previous month result in snow/ice accumulation; Temperatures rise above zero/from –5 to 3 °C; Melting snow (adds to discharge); Not much vegetation/crops/leaves to intercept water/take up water; Etc. **Note:** Accept reasons for rejecting January or August as long as they are listed above, but no double credit 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the impacts of flooding. e.g. Damage to roads (L1) so can't get to work (L2) Level 2 (4–6 marks) Uses named example. More developed statements which describe the impacts of flooding. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Deaths, Damage to housing, Damage to possessions, Transport disrupted, Electricity cut off, Water supplies contaminated, Economic impacts, Loss of crops etc. Fertile soil Impact on natural environment Place specific reference is likely to consist of: Locational details, named places along the river/in the drainage basin, specific details of impacts date/time etc. Statistics	**7**

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Question	Answer	Marks
4(a)(i)	North east of Rome in the Lazio region	**1**
4(a)(ii)	(Earthquake) It caused the earth's crust/land to shake/vibrate/caused shockwaves; Dislodging/loosening the snow/causing it to slip/fall; Earthquake waves spread within the crust/underground from epicentre etc. 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Very cold conditions; Fear of further avalanches; Blizzards/strong winds; Roads blocked/ski to get there; Darkness etc. 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: They have lived there all their lives/sentimental attachment; They have jobs/education in the area; Cannot afford to move; Population pressure/nowhere else to live; Close to family/friends; Confidence in earthquake resistant buildings; Willing to take the risk/not happen as often; Etc. 4 @ 1 mark	**4**
4(b)(i)	Ideas such as: Bare rock/rock(y); Steep slopes; Grey; Mud/water/hot spring; Ash: Yellow/sulphur deposits; Smoke/gas; Bowl shape; Etc. 3 @ 1 mark	**3**
4(b)(ii)	Ideas such as: Plates converge (check diagram for this as well); Subduction/one goes under; Heavier/denser (oceanic) plate (moves under lighter (continental) one); Heat/friction; Melting/destruction of plate material; Build up of magma; Pressure; Escapes through weakness/crack etc. No reserve on diagram. Labels must explain. Do not double credit ideas. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking **Note: Impacts not hazards** <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the impacts of a volcanic eruption. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe the impacts of a volcanic eruption. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements which describe the impacts of a volcanic eruption, including place specific details. <u>Content Guide:</u> Answers are likely to refer to: Deaths: people=1, animals=1. Damage to housing, Damage to possessions, Transport disrupted, Electricity cut off, Water supplies contaminated, Economic impacts, Loss of crops Flooding Dust clouds Forests damaged Loss of habitat Fertile soils Tourism Mining <u>Place specific reference is likely to consist of:</u> Locational details, named places on or close to the volcano, specific details of impacts date/time etc. Statistics	**7**

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Question	Answer	Marks
5(a)(i)	7.6/7.61 (million)	**1**
5(a)(ii)	increase; from 7.6/7.61 to 9.4/9.42 **or** by 1.8–1.82 million 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: Variations in price/package holiday availability ; Improvements in transport methods/e.g. airports; competition; Impacts of boost/decline in economy/value of currency/exchange rate; Changes in taste/preference/fashion; Political issues/terrorism/war/conflict; Variation in weather/sunny one year; Hotels/resorts/amusement parks built; Natural disasters/volcanic eruption or other e.g.; Advertising; Restricting/boosting tourist numbers by Government (e.g. investment or ecotourism); Note: International and internal tourism 3 @ 1 mark	**3**
5(b)(i)	Attractions such as: Beach; Coastal scenery/cliffs/headlands/bays; Mountains; Tropical vegetation; Restaurants/hotels/apartments; Souvenir shops; Traditional/old buildings; Calm/blue sea; Beach facilities such as umbrellas/sunbeds Etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	Ideas such as: Work/more money; Improved water/electricity system; Improved/new roads; Airport; Market/profit for local products/businesses; Cultural exchange/learn new language; (New) shops/restaurants or other relevant e.g.; etc. 1 mark for simple idea + development for detailed explanation e.g. improved roads (1) so people can travel more easily (2); people can get jobs (1) so that they can earn a regular income/look after their family (2) Note: No double credit for identical ideas or development. e.g. shops (1) people can use (1) have a job in (1) but no double credit for stem idea of shop. 2 @ 2 mark	**4**
5(b)(iii)	Ideas such as: Loss of vegetation/deforestation; Threats to habitats; Impacts on food chains/ecosystems; Disrupts breeding patterns; Water pollution/oil spills; Kills fish/animals; Noise scares animals; Feeding of animals makes them dependent on humans/inappropriate diet; Air pollution (from vehicles/aircraft); Damage to coral; Overfishing; Water table lowers; etc. 5 @ 1 mark or development	5

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain how tourism is managed so that it is sustainable. Add litter bins (L1) and empty them daily (L2) Tourist numbers restricted (L1) to correct figure e.g.100 per day (L2) Ecotourism (L1) Use of bikes (L1) Level 2 (4–6 marks) Uses named example. More developed statements which explain how tourism is managed so that it is sustainable. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers could refer to ideas such as: National Parks, Biosphere reserves, Fencing/limited access, signs, education, ecotourism, use of local resources/labour, limiting numbers of people/vehicles etc. Place specific reference is likely to consist of: Locational details/named areas within destination/region chosen Specific details of methods etc. Statistics Example should be smaller than a country, unless relevant e.g. Malta.	7

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Question	Answer	Marks
6(a)(i)	(Natural) gas	**1**
6(a)(ii)	Ideas such as: Coal: Reduced/30% to 26/27% **or** declined by 3–4%; Oil: Reduced/14/15% to 2/3% **or** declined by 11–13% ; Gas: Reduced/43% to 27% **or** declined by 16%; Total decline in use from 87/88% to 55–57% 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Import bill reduced; Benefits balance of trade; Cheaper running costs; Prices fluctuate; Less reliance on a fuel which is non-renewable/will eventually run out; Reduces specified impact(s) on natural environment e.g. air pollution, global warming/CO_2; Avoids threat to supply restriction if there are political disputes/become less dependent on oil; Avoids problems of oil spillages/pipeline leakages/explosions; Etc. 3 @ 1 mark	**3**
6(a)(iv)	**Benefits** such as: Low running costs; Does not produce air pollution/CO_2; Does not contribute to global warming; Uses small quantities of uranium/raw material; Uranium has no other uses Problems such as; Threat of radiation/meltdown; Difficult to dispose of nuclear waste; Expensive building costs; Nuclear power stations could be damaged by earthquake etc. 2+2 marks 4 @ 1 mark	**4**
6(b)(i)	Ideas such as: Clear skies/lots of sunshine; Large areas of land/open space; Lots of/high/strong winds/usually windy; No shelter from winds/sunshine (by buildings etc.) etc. No reserve on solar/wind 3 @ 1 mark	**3**

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Question	Answer	Marks
6(b)(ii)	Ideas such as: **Opponents will argue**: Visual impact/can be seen for many miles; Hotel owners may be worried about loss of tourism; Ecosystems disrupted by construction; Loss of habitat; Deforestation; Only small amount of energy can be generated relating to initial cost; Energy will only be generated when sun is shining/doesn't work at night; Loss of farming land/land can be used for other purposes; **Supporters will argue:** Low running costs; No air pollution/gases/CO_2; Less likely to cause global warming; Energy supply will never run out; Creation of employment <u>for</u> construction/maintenance; etc. **Note: Reserve 1 mark for opponents/supporters** 5 @ 1 mark or development	5

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Question	Answer	Marks
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which list methods of water supply. e.g. rivers (L1), reservoirs (L1),aquifer (L1) <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain how water supply is being managed to ensure future supplies. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. <u>Content Guide:</u> Answers are likely to refer to issues such as: Reservoirs, Use of water from aquifer, Desalination, Water transfer pipelines, Restrictions on use, Cloud seeding Conservation Water treatment Grey water Etc. <u>Place specific reference is likely to consist of:</u> Locational details/named areas within country/area chosen Specific schemes etc. Statistics	7

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/21**

Paper 2 **May/June 2019**

MARK SCHEME

Maximum Mark: 60

Published

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GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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- marks are not deducted for errors
- marks are not deducted for omissions
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GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

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Question	Answer	Marks
1(a)(i)	railway (any type)	**1**
1(a)(ii)	public road (any type)	**1**
1(a)(iii)	shooting range (any type)	**1**
1(a)(iv)	144 (metres)	**1**
1(a)(v)	forest (any type)	**1**
1(a)(vi)	arable (land)	**1**
1(b)	camp site, marina, bathing, ancient monument	**2**
1(c)(i)	road	**1**
1(c)(ii)	S Mellby	**1**
1(c)(iii)	profile completed with ground rising (not over 100m) then falling to sea level at the coastline	**1**
1(d)(i)	6600–6900 (metres)	**1**
1(d)(ii)	NE / ENE	**1**
1(d)(iii)	62–65 (degrees)	**1**
1(d)(iv)	507688 = 2 507689 = 1	**2**
1(e)	valley, steep (sides), uniform slope, V-shaped, narrow, lowest 10–25 m, highest 110–120 m, north facing slope / slopes down to north	**4**

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Question	Answer	Marks
2(a)(i)	Correct plot of females 15–19 600 000, Correct plot of males 25–29 400 000	**2**
2(a)(ii)	South Sudan more young / 0–14, South Sudan fewer middle aged / economically active / 15–64, South Sudan fewer old / 65+, South Sudan fewer older women, (or emphasis on Germany) Allow age ranges within those above but not single bars. Allow single points on South Sudan. Wide base / BR / DR etc. = 0.	**3**
2(a)(iii)	South Sudan large numbers of young to feed / educate / support, small number of productive / economically active people, Germany large numbers of old people to support / care for, many more elderly in the future, fewer younger workers, lack of army in the future Allow ‘dependence’ once in either section without full explanation.	**2**
2(b)	male migrant labour,	**1**

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Question	Answer	Marks
3(a)	Fig. 3.1 gentle slopes / flat / avoids steep, lower land / avoids high / foot of mountains (near mountains = 0), in valley, near lake Fig. 3.2 gentle slope, raised/higher/on hill, avoids floods/marsh Maximum three on each photograph.	**4**
3(b)	Fig. 3.1 fields / plots, in rows, unused land, reservoir / dam for irrigation Fig. 3.2 fields / plots, flooded / padi / rice, raised banks, young / new crop Allow ‘arable/crops/plantations’ once in either part. Maximum three on each photograph.	**4**

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Question	Answer	Marks
4(a)(i)	point on Earth's surface above focus / origin	**1**
4(a)(ii)	on plate boundaries, some / 1 / 2 / 3 away from boundaries, mostly destructive / convergent boundaries	**2**
4(b)	shallow	**1**
4(c)(i)	minor	**1**
4(c)(ii)	inverse relationship / negative correlation, as one increases the other decreases (allow other expressions)	**1**
4(d)	falling buildings, collapse of other named structure (e.g. bridge, power line, road, trees, furniture), fire, breaking glass, named post-earthquake hazard (e.g. famine, disease), tsunami, slope failure / mass movement	**2**

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Question	Answer	Marks
5(a)	maximum – minimum thermometers / Six's thermometer, wind / weather vane, rain gauge, sunshine recorder	**3**
5(b)	SW wind rain E / N wind no rain (allow sunny / no cloud)	**1**
5(c)	correct plot of 2 days east	**1**
5(d)	7 °C	**1**
5(e)	more cloud higher maximum, more cloud higher minimum, more cloud smaller range Or converse of each point.	(If neither given allow more cloud higher temperatures = 1) **2**

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Question	Answer	Marks
6(a)	tall / narrow, 4 / 5 storeys, brick (allow blocks), shops / commercial on ground floor (allow 1st floor), joined to each other / close to each other, balconies, different designs / colours, large windows, chimneys, sloping roofs	**5**
6(b)	shopping, café / restaurant, history / culture / old, architecture / named building (e.g. palace, church, castle, university)	**3**

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GEOGRAPHY **0460/22**

Paper 2 **May/June 2020**

MARK SCHEME

Maximum Mark: 60

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Question	Answer	Marks
1(a)(i)	mast	**1**
1(a)(ii)	(other) major building (allow industrial building)	**1**
1(a)(iii)	industrial area / industry (allow rock outcrop)	**1**
1(a)(iv)	(parish / other) church	**1**
1(a)(v)	39 (m), In **(a)(i)**–**(v)** if there is more than one answer and one is wrong = 0	**1**
1(b)	flows to south east / east / from north west / west, variable width / wider to east / southeast / narrower to west / northwest, meanders / bends etc., tributary / ies / confluence(s), bridge(s) / crossing / underpass	**4**
1(c)	A steeper / B more gentle / A steep and B gentle / flat, A higher / B lower / A high and B low / A more hilly (mountains, uplands = 0 but don't spoil higher / lower), A 65–165 m, (Allow heights between) B 39–65 m, (Allow heights between)	**3**
1(d)(i)	(public) road / motorway / E22, (not approach, through, private, street or park road)	**1**
1(d)(ii)	(Vramsan) river / watercourse	**1**
1(d)(iii)	land rising to over 150 m but below 180 m,	**1**
1(e)(i)	4000–4300 (metres),	**1**
1(e)(ii)	east / east northeast,	**1**
1(e)(iii)	77–80°	**1**
1(e)(iv)	360 987 = 2 360 983 = 1	**2**

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Question	Answer	Marks
2(a)(i)	a company which operates in two or more countries	**1**
2(a)(ii)	the increased links between different parts of the world	**1**
2(b)(i)	number of people per doctor – decreases, daily food supply – increases, cell (mobile) phone use – increases,	**3**
2(b)(ii)	Percentage of workers employed in agriculture = 1 industrialisation / development of secondary / tertiary industry, rural-urban migration / urbanisation, mechanisation of agriculture, can afford to import food Energy consumption = 1 countries invest in power generation, individuals can afford to use it, increased use of vehicles, increased use in industry, increased household use Adult literacy = 1 more (children) attend school / compulsory school attendance, parents can afford school fees, new jobs require education, more money invested in education, decrease in child labour, children teach parents, more schools / more accessibility / more available	**3**

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Question	Answer	Marks
3(a)	Fig. 3.1 beach / sand, curved / crescent, bushes / scrub / shrubs, gently sloping / flat qualified (land or beach), dunes, cliff Fig. 3.2 cliff / steep(er), stepped, wave-cut platform / rock platform, notch, rocks / boulders, layers / strata, different colours, scree, pinnacle / pillar, grass Maximum four on each photograph.	**6**
3(b)	differences in resistance / hard and soft (don't allow if rocks overlying each other or answer relating to cliff recession), differential erosion / soft rock eroded, discordant coastline	**2**

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Question	Answer	Marks
4(a)	more / dense in E / SE / SSE, Extract if other areas given >10 / km^2 in E / SE / SSE, less / sparse in centre / W / SW / NE, Extract if other areas given < 1 / km^2 in west / centre / W / SW / NE, overall sparse / low, small area(s) of dense(r) population / >10 / km^2, (smaller = 0) large area(s) very low / < 1 / km^2 / medium / 1–10 km^2, (larger = 0) dense(r) areas along borders, (edges = 1, coast = 0)	**4**
4(b)	there is a larger population in the wetter areas, most areas with less than 300 mm of rainfall have less than 1 person per km^2,	**2**
4(c)	the area above 1200 m in the south east is more densely populated, there is no strong relationship between population density and relief,	**2**

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Question	Answer	Marks
5(a)	dense, forest / trees, climbers / vines / lianas / creepers, palm, (allow coconut etc.) emergent (or description of), green / luxuriant / lush / rich, varied species	**4**
5(b)	tall, sparse / few / <10 / widely spaced / scattered (allow 'not many' or 'not close'), branches / leaves at top / bare trunks, wide trunks (allow big), straight trunks, small / few leaves / little foliage / much wood to leaf (allow 'not many leaves'), same species	**4**

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Question	Answer	Marks
6(a)	growth of industry, rural-urban migration	**2**
6(b)(i)	correct plot of Australasia with GDP per capita of 35 thousand US$ and 70% in towns and cities (name not needed)	**1**
6(b)(ii)	positive correlation,	**1**
6(b)(iii)	highly urbanised with low GDP, more urbanised than expected, less GDP than expected	**1**
6(c)	all increased (must state this to get the mark), great(est) change / rapid urbanisation in Africa / more than doubled, great(est) change / rapid urbanisation in South America, Africa still less urbanised in 2015 small(est) change in North America, small(est) change in Europe, North America / Europe urbanised early / already urbanised in 1960	**3**

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GEOGRAPHY **0460/23**

Paper 2 **May/June 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	(tractor) track,	**1**
1(a)(ii)	public road,	**1**
1(a)(iii)	less than 6m,	**1**
1(a)(iv)	mast,	**1**
1(a)(v)	farm,	**1**
1(b)	F – deciduous forest, G – marsh, H – marsh liable to flooding,	**3**
1(c)(i)	491/2 024,	**1**
1(c)(ii)	linear / nucleated,	**1**
1(d)	railway, motorway, roads / routes in all / many directions / route centre / bridge point, water supply from sea/river, labour from town, market in town, flat land, space for expansion, cheap marshland, port/sea/river for transport, agricultural raw materials,	**4**
1(e)	sport and leisure are important functions of the settlement, the CBD is on the east side of the river Helge å, there are areas of forest within the town, Deduct one mark for every tick more than 3.	**3**
1(f)	K higher / L lower / K high and L low / K 15 – 75m and L 5–20m (any figure between), K steeper / L flatter / K steep and L gentle / flat,	**2**
1(g)	Strömdalen,	**1**

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Question	Answer	Marks
2(a)(i)	16.4,	**1**
2(a)(ii)	1999,	**1**
2(a)(iii)	2012 (accept also 1991),	**1**
2(a)(iv)	birth rate and death rate were the same,	**1**
2(a)(v)	the population total decreased,	**1**
2(a)(vi)	death rate was higher than birth rate, the growth rate was negative,	**1**
2(a)(vii)	the population total increased,	**1**
2(b)	(net) migration / immigration / emigration,	**1**

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Question	Answer	Marks
3(a)(i)	steep slopes / valley + rapid runoff, (both needed)	**1**
3(a)(ii)	deposition,	**1**
3(a)(iii)	water from tributary (is added to the river), bigger catchment,	**1**
3(b)(i)	it removes water from the river channel / water held back, less water will flow downstream, more evaporation/percolation, reduced speed,	**1**
3(b)(ii)	flat (valley floor easily flooded), wide / large valley floor / flood plain, water sinks into the permeable rock, no settlement/away from village,	**2**
3(c)	expensive dam, an eyesore / visual pollution, possible danger from dam collapse, sedimentation reduces water storage, destroys habitats/disturbs wildlife / agriculture / environmental damage, (upstream) noise / dust pollution during construction, effect of low flow on environment downstream,	**2**

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Question	Answer	Marks
4(a)(i)	low / short, (allow 'small' if sense correct) sparse / scattered/bare areas, bush / shrub/scrub, 1/2 / few tree-like plants / quiver trees, no / few leaves	**3**
4(a)(ii)	large rocks/rocks restrict the area available for plant growth/rocks on surface, rocky / shallow soil, dry / water will run into the soil quickly, loose soil / soil blows away, lacks humus,	**2**
4(b)	sand / no rocks, low(er) / short(er) / small(er) / no tall plants, no tree-like plants / bushes, denser / more ground cover / plants spreading sideways, animals, can live / burrow in sand, Emphasis on 4.2.	**3**

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Question	Answer	Marks
5(a)(i)	small labour force, large farm, large fields make machine use easy, cereals / wheat / oats / barley cultivated / harvested by machine / combine harvester, Allow comparatives with Farm S.	**2**
5(a)(ii)	arable,	**1**
5(a)(iii)	fertilisers to increase yield / shorten growing time, irrigation because climate is dry / drought, hand tools because the fields too small for machinery, hand tools because can't afford machines, hand tools because crops not suitable for machines / avoid damage to crop, One mark for each of the three inputs.	**3**
5(b)	Any complete statement = 2 marks: large labour force for size of farm = 2, small farm for number of workers = 2, small farm for spending on inputs = 2, high spending on inputs / fertiliser / irrigation / labour / tools for size of farm = 2, high yield per hectare = 2, Incomplete statement = max 1: large labour force = 1, small farm = 1, high spending on inputs = 1, high yield = 1, Allow comparatives as in **(a)(i)**	**2**

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Question	Answer	Marks
6(a)	livestock more growth/figures: 26 to 46 c/w 29 to 64 million /20 c/w 35 million, livestock slower (rate of) growth at first, livestock more rapid growth after 2005, livestock more irregular rate of growth Allow emphasis on human population change.	**2**
6(b)(i)	small area of grassland, large area of sparse grass/scrub, little grass in dry season, desertification reduces grazing/grass,	**1**
6(b)(ii)	trampling kills vegetation, trampling compacts the soil leading to surface run-off / erosion, trampling breaks the soil to dust / fine particles, trampling causes movement trails,	**1**
6(c)	overgrazing / overstocking, overcultivation / extension of cultivation, deforestation, Allow descriptions for terms e.g. 'all plants eaten' for overgrazing.	**2**
6(d)(i)	lack of food/needed for food/would need to find another food source,	**1**
6(d)(ii)	cost / more expensive, need to change / adapt stoves, difficulty of accessing oil/gas (in rural areas),	**1**

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GEOGRAPHY **0460/41**

Paper 4 Alternative for Coursework **May/June 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	Wheat Cattle **2 @ 1**	**2**
1(a)(ii)	Photograph / take sample of crop / sketch / picture Look up in book / internet Ask farmer / teacher / expert	**2**
1(a)(iii)	57 (ha)	**1**
1(a)(iv)	Bar graph: shows **area / number / figures / units** / **amount / quantity / how much** land is used for Easy to compare land use **areas** Pie graph: shows **proportion / percentage** Easy to compare proportion / percentage **2 @ 1**	**2**
1(b)(i)	Altitude	**1**
1(b)(ii)	Use tape measure to measure certain distance / 10 m (more than 5 m) / measure from one change of slope to next Students hold / put (marker) poles at either end of measured distance / slope section Ensure poles are vertical Use a clinometer / protractor to measure angle / read angle / read degrees Hold clinometer next to top / at certain height on (marker) pole / at eye level Sight other (marker) pole at top / agreed height / string at same height Repeat along the path / at each fieldwork location	**4**

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Question	Answer	Marks
1(b)(iii)	Height: **Compare** range of height e.g. Wheat below 75 m / low / lower / lowest land and sheep above 120 m / high / higher / highest land = 1 mark Wheat below 75 m, oranges between 75 and 90 m and sheep over 120 m = 2 marks OR compare change in specific height along **one** path e.g. Wheat at 57 m and olives at 104 m = 1 mark Wheat at 57 m, olives at 104 m and sheep at 153 m = 2 marks Steepness: **Compare** range of steepness e.g. Wheat below 5° / flat / flatter / flattest land and sheep above 18° / steep / steeper / steepest land = 1 mark Wheat below 5°, oranges between 4 and 8° and sheep over 18° = 2 marks OR compare change in gradient along **one** path e.g. Wheat at 2° and sheep at 25° = 1 mark Wheat at 2°, olives at 16° and sheep at 25° = 2 marks Reserve 1 mark for height and 1 mark for steepness	**3**
1(b)(iv)	Wetter / cooler / windier Steeper gradient is too steep for machinery / sheep are agile / able to cope with steeper gradient On steeper gradient there is increased rate of run-off which removes nutrients / soil is thinner Crops / wheat can only grow on flat land **because** e.g. soils are fertile Farmer's decision / choice where to put land use	**2**

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Question	Answer	Marks
1(c)(i)	Wheat = 7.0 ha and 7 hours Olives = 3.9 ha and 9 hours **2 @ 1**	**2**
1(c)(ii)	Best fit line drawn on Fig. 1.5	**1**
1(c)(iii)	Hypothesis is **false / incorrect** – 1 mark reserve It is a negative relationship or correlation / smaller fields equals more labour / more hours / larger fields need less labour / less hours 1 mark for example **Potatoes** grown in smallest field with high number of hours / high labour **Tomatoes** grown in small field with highest number of hours / most labour **Sheep** reared in largest fields with lowest number of hours / least labour Credit paired data (4 stats) of land use and field size and labour statistics for 1 mark **reserve** e.g. Potatoes field size = 2.2 ha and need 16 hours Labour and sheep field size = 8.3 ha and need 4 hours labour	**4**
1(d)(i)	Machinery or example / tools / netting Capital / money / grants / subsidies Fertilisers / pesticides / insecticides / adding predators Seeds Buildings or example / greenhouse polytunnel Drainage / irrigation Terracing Advertising / marketing / selling etc. **2 @ 1**	**2**
1(d)(ii)	Rainfall / temperature / sunshine Soil / nutrients Water / silt **from** river	**1**
1(e)	Interview / talk to farmer / worker Use a questionnaire (survey) / ask farmer … Credit example of questions for 1 mark e.g. What is the main work / job you do on the farm? Make more visits / visit in different seasons Stay on the farm for a few days / work experience Watch the farmer at work / observation	**3**

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Question	Answer	Marks
2(a)(i)	Not go to area where the river is fast flowing / rapids Not go to where river is too deep / too wide Accessibility of sites Distance between sites / evenly spaced / spread out Away from human impact / dam / weir / canalised section Not in private land / farmers' fields / is open to public Not go areas where river polluted Avoid dangerous animals / mosquitoes **3 @ 1**	**3**
2(a)(ii)	Do a pilot study Agree methodology / what measurements to take / where each student works / what each student does Practise fieldwork techniques / learn how to use equipment / learn how to measure everything Test equipment / make sure equipment works Get into groups / pairs	**2**
2(b)(i)	Width: Put poles on both banks / one person on each bank Put tape measure from one bank or side to the other / across the river from pole to pole / person to person Keep tape measure taut / horizontal / stretched Measure perpendicular / at right angles to banks / river Depth: Put ruler / measuring stick / pole **vertical** in river / rock and rope in river Must touch river bed Measure at intervals / points across channel Measure the wet part of ruler / stick / where water surface touches ruler / measure from bed to surface **2 + 2**	**4**
2(b)(ii)	Cross section completion at 1 (0.25 m), 1.5 (0.27 m), 2 (0.21 m) Shading river channel **1 + 1**	**2**
2(b)(iii)	Current moves tape / rope / tape floats up Deep / fast-flowing water Difficult to lay rope / tape on uneven bed River is too wide / wider than the length of tape Cannot see under the water / cannot see river bed **2 @ 1**	**2**

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Question	Answer	Marks
2(b)(iv)	Group A Hypothesis is **true / correct** – 1 mark reserve (✓HA) Paired data from any 2 sites to support hypothesis e.g. At site 1 / 0.5 km = 1.75 m and at site 5 / 15 km = 6.9 m Hypothesis is incorrect / partially correct = 0 (XHA) If no hypothesis conclusion ^HA and credit evidence Group B Hypothesis is **false / incorrect** – 1 mark reserve (✓HA) Paired data from 2 sites (2 and 3 OR 4 and 5) to show decrease downstream e.g. At site 2 / 2.1 km = 3.6 m and at site 3 / 7.4 km = 3.5 m **2 + 2**	**4**
2(c)(i)	Measure a **fixed** / **certain** distance / 5–10 metres along river Put poles / sticks at start and end of fixed distance / 10 m apart Put float / orange in river at start of measured distance Start stopwatch or timer when float / orange is put in river Stopwatch or timer measures time it takes to travel the measured distance / stop stopwatch or timer when float reaches end of measured distance Measure time taken at points across river channel / repeat task **and** calculate average OR Put velocity meter / propeller / flowmeter below surface of river / into the water Propeller must be facing upstream / nothing in front of propeller Read / look at digital reading or display / speed is shown on display Take several readings **and** calculate average	**4**
2(c)(ii)	Site 5 = 0.67 m/sec	**1**
2(c)(iii)	**Increase** from site 1 / upstream = 0.29 m/sec to site 5 / downstream = 0.67 m/sec OR by 0.38 m/sec (any two sites which show increase) **Decrease** from site 2 = 0.58 m/sec to site 3 = 0.46 m/sec OR by 0.12 m/sec (any two sites which show decrease)	**2**

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Question	Answer	Marks
2(d)(i)	Wetted perimeter = 3.25 m and velocity = 0.58 m/sec	**1**
2(d)(ii)	There is a positive correlation / longer wetted perimeter = higher velocity / shorter wetted perimeter = lower velocity OR Wetted perimeter increases from site 1 to site 2 (any two sites showing increase) e.g. At site 1 = 1.75 m and 0.29 m/sec and at site 5 = 6.9 m and 0.67 m/sec (not standalone) But there are anomalies / sites 2 to 4 show negative correlation / longer wetted perimeter = lower velocity (any two sites showing decrease) e.g. At site 2 = 3.25 m and 0.58 m/sec and at site 4 = 6.1 m and 0.39 m/sec (not standalone) 1 mark maximum for supporting data	**3**
2(d)(iii)	Gradient / steepness of slope Volume of water / discharge / tributary joins Straight or meandering river Rainfall / snowmelt Interference by people / dam / weir / straightening Bed roughness / rocks in river / plants in river **2 @ 1**	**2**

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	Examples of Advantages Give instant readings / faster / saves time / quick / sensitive (1) Easy to read / clear to read / large digital readout (1) Don't need to know how to read a thermometer (1) Exact figures / accurate / precise / to 1 DP / reliable (1) Less chance of making mistake in reading / mis-reading (1) Portable / can be used at more than one site (1) Can be reset / no need to reset (1) Can download to computer / store data (1) Safer if dropped because no mercury / less fragile than glass (1) Can read degrees C or F (1) Will give consistent reading (1) (1 + 1 + 1)	**3**
1(a)(ii)	Use another / different type of thermometer (1) Partner / other student checks / compares readings are accurate (1) Take more readings and compare / check (1) (1 + 1)	**2**
1(b)(i)	Average temperature = 28.1 (°C) Temperature difference = 21.2 (°C) (1 + 1)	**2**
1(b)(ii)	Answers to be comparative. Can credit correct data as a stand-alone answer. 1 max. / reserve for data. Examples Average temperature is higher in car park (1) e.g. 28.1 °C is higher than 22 °C / 6.1 °C higher (1D) Afternoon temperature is anomaly or error / higher than other rural sites (1) e.g. 38.7 °C compared to 25.6 °C / 13.1 °C higher (1D) Temperature difference is anomaly / greater than other rural sites (1) e.g. 21.2 °C compared to 8.7 °C / 12.5 °C higher (1D) Car park is not a natural / vegetation site / it is man-made / urban / not common OR typical of rural areas (1) (1 + 1 + 1DR)	**3**
1(b)(iii)	Plotting on bar graph; ignore shading; credit two plots. Residential area – 29 °C Large dense woodland – 16.7 °C (1 + 1)	**2**

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Question	Answer	Marks
1(b)(iv)	Hypothesis is **true** / **correct** – 1 mark reserve NOTE: Ignore all ref to car park results, morning column and temperature difference column. Credit data 1 MAX. / RESERVE <u>Evidence</u> <u>Average</u> temperature is higher in built-up area (1) e.g. Highest 31 °C in built-up; highest in rural is 22 °C (1D) e.g. Average built-up is 26.1 °C but 19.5 °C in rural (1D) e.g. All in built-up over 22 °C and all in rural 22 °C or less (1D) e.g. Lowest 22.9 °C in built-up area is higher than 22 °C highest in rural (1D) <u>Afternoon temperatures</u> all higher in built-up area (1) **Ignore car park.** e.g. highest temperature in built-up area 39.8 and in rural area 25.6 °C (1) e.g. lowest temperature in built-up area = 26.8 °C and but highest in rural area 25.6 °C (1) <u>Hypothesis is incorrect / partially correct / false = 0 (XHA)</u> <u>If no hypothesis conclusion ^HA and credit evidence</u> (1HA + 1 + 1DR)	**3**

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Question	Answer	Marks
1(c)(i)	Plotting results for artificial grass Morning X at 17.8 °C. Credit on the line below 18 °C Afternoon • at 27.9 °C. Credit between 27.8 / 28.1 NOT at 28.2 1 mark each for plotting both accurately with correct symbols No mark for joining vertical line. (1 + 1)	**2**
1(c)(ii)	Hypothesis is **partially true** –1 mark reserve Credit paired data to MAX. 1 which supports the hypothesis e.g. 17.7 °C on driveway / built-up area and 8.7 °C on grassland / rural **OR** 9 °C difference (1D) e.g. range 17.7–7.5 °C differences in built-up higher than range 0.5 to 8.7 in rural (1D) Credit paired data to MAX. 1 which shows that hypothesis is incorrect e.g. 7.6 °C on pathway / built-up area and 8.7 on grassland / rural **OR** 1.1 °C difference (1D) e.g. 7.5 °C on residential area / built-up area and 8.7 on grassland / rural **OR** 1.2 °C difference (1D) (1HA + 1D + 1D)	**3**
1(c)(iii)	Examples **In built-up area:** Ground / concrete / building materials absorb / radiate heat (1) Surfaces lose heat at night (1) Central heating / air conditioning control temperature (1) **In rural area:** Vegetation gives more shade / trees block sunlight (1) Less heat escapes at night (1) More humidity / transpiration in woodland (1) (4 × 1)	**4**
1(d)	1 mark max. for HOW and 1 mark max. for WHY. **How:** reduce temperatures / makes it colder (1) **Why:** clouds block sun's rays / short-wave radiation / less heat absorbed (1) (1 + 1)	**2**
1(e)(i)	Anemometer (1)	**1**

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Question	Answer	Marks
1(e)(ii)	Examples • Cups / cones / arms / wings / blades revolve / spin / rotate / turn / pushed around / circular motion (1) Must name part that spins etc.; • Meter counts / records number of revolutions / counts or records • wind speed (1) • Display screen shows wind speed / number (1) • Reading as kms per hour (1) (3 × 1)	**3**

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Question	Answer	Marks
2(a)	Examples • To get consistency / to be fair / use for equal or same length of time / compare same time period (1) • To get total no. of vehicles passing the site / one direction may be busier / make sure all vehicles included (1) • To know which category to record vehicles / all count same type of vehicle (1) • To make counting accurate / easy to do / quick / doesn't lose track of numbers (1) • To provide data to plot / graph / analyse / calculate average / compare / so it is recorded / data not forgotten / gives evidence of work (1) (1 + 1 + 1 + 1 + 1)	**5**
2(b)(i)	Taxi (1)	**1**
2(b)(ii)	The number of cars goes down (1)	**1**
2(b)(iii)	Completion of tally chart: Data: Motorbike 10, Taxi 4, Bicycle 3. 1 mark for three correct tally marks (must be in batches of 5 for Motorbike) 1 mark for three correct category totals in final column 1 mark for total of all vehicles, i.e. 81 (1 + 1 + 1)	**3**
2(c)(i)	Completion of divided bar graph; 1 mark for two correct dividing lines at 83 and 92 from bottom 1 mark for two correct dividing lines at 95 and 98 from bottom 1 mark for correct shading of 5 groups using key (1 + 1 + 1)	**3**
2(c)(ii)	19.30–20.00 **OR** 7.30–8pm (1)	**1**

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Question	Answer	Marks
2(c)(iii)	Hypothesis is **false / incorrect** – 1 mark reserve Evidence • There are two survey times when cars are over 50% **OR** majority / half of total **OR** three survey times when cars are the most / highest percentage (1) • But these times are at the start and end of the day / at 8.30 and 17.30 **OR** 19.30 / cars not main type throughout the day (1) • Coaches are main type / more than cars at 10.30 and 15.30 **OR** two times / cars are not main type at 10.30 and 15.30 (1) • Lorries / vans are main type / more than cars at one survey time / 12.30 (1) Credit data for 1 mark MAX. / RESERVE. Only credit percentages not numbers as referred to graph not table. e.g. cars 56% at 8.30 but only 15% at 15.30 (1) e.g. coaches 47% at 15.30 but cars only 15% (1) e.g. lorries / vans 33% at 12.30 but cars 29% (1) (1HA + 1 + 1 + 1DR)	**4**
2(c)(iv)	Examples **Cars: 1 mark MAX.** People travelling to work / going home from work / commuting (1) Tourists arriving and departing (1) **Lorries / vans: 1 mark MAX.** Deliveries to shops / businesses (1) Moving goods during the working day (1) (1 + 1)	**2**
2(d)	No mark for decision; candidates are told it is **TRUE**. Mark evidence. Evidence • Tourist coaches increase / peak / highest at 10.30 **OR** 15.30 (1) • Fewer / decrease in coaches at 8.30 / 12.30 / 17.30 / no coaches at 19.30 (1) Credit paired data showing variations to **1 max. / reserve** to compare two survey times e.g. 47% at 10.30 and 9% at 17.30 (1) e.g. 47% at 10.30 and 0% at 19.30 (1) STATS for ref: 8.30 9%, 10.30 47%, 12.30 12%, 15.30 47%, 17.30 9%, 19.30 0% (1 + 1 + 1DR)	**3**

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Question	Answer	Marks
2(e)(i)	Only accept **one** of these sampling methods. If name incorrect or missing give credit for correct description of one of the methods to max. 2. **Stratified: (1 reserve)** Gender / age balance (1) Appropriate to population of town / socio-economic status / different areas of town (1) **Systematic: (1 reserve)** Regular intervals / regular pattern (1) Every tenth/nth person (1) **Random: (1 reserve)** Ask anybody / next person / no pattern Use random number tables / pick numbers out of a hat to generate order to ask people (1) If number 6 selected ask the 6th person (1) (1M + 1 + 1)	**3**
2(e)(ii)	<u>Examples</u> **Advantages:** • Easier / quicker for pedestrians to walk around centre / more room to walk (1) • No traffic to avoid / less traffic jams (1) • Safer for pedestrians / less accidents / more pleasant (1) • Less noise (1) • Less air pollution / fumes / less breathing problems (1) **NOT less pollution** • Opportunities for pavement displays (1) **Disadvantages:** • Further to walk to shops from car parks / can't get to centre in cars (1) • Harder to access taxis / buses (1) • Goods / shopping to be carried further (1) • Traffic forced to go around town centre / further distance / longer journey (1) • Creates congestion on roads round town centre (1) 2 × (1 + 1)	**4**

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2019**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This document consists of **8** printed pages.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	Destructive wave: waves are close together wave plunges downwards as it breaks Constructive wave: waves are far apart wave spills forward as it breaks 4 correct = 2 marks 2 or 3 correct = 1 mark 1 correct = 0 marks	**2**
1(b)	Use stopwatch / timer / clock for 1 minute Count number of waves breaking / going up beach / hitting stick or person or rock in 1 minute **'1 minute' is only required once** – either with 'stopwatch' or 'count number of waves ….' Take an average (of their measurements) Do method on both beaches	**3**
1(c)(i)	Create a transect line / line from sea to back of beach / pole at back of beach and tape to sea / pole at back and pole at sea and tape between poles Put poles at each break of slope OR at equal intervals up beach Measure distance between poles Ensure poles are vertical Same length of pole above surface at each point / resting on surface / same depth in ground Use a clinometer to **measure** angle / **read** angle / **read** degrees Hold clinometer next to top / at agreed height on marker pole / eye level Sight other marker pole at top / agreed height / string connects same height Repeat along transect / different places up beach	**4**
1(c)(ii)	Hypothesis is **true** / **correct /** Afandou beach profile is produced by constructive waves (✓HA) Average wave frequency (per minute) is 7.3 In the frequency range for constructive waves / between 6 and 9 per minute Beach profile is similar to profile of **constructive beach** / beach formed by **constructive waves** Ripples / undulates near the sea / from 30 m to the sea Increases in height between 0 – 9 m / height decreases after ridge Has a ridge at 8 / 10 m / has a ridge not steep slope Reserve 1 mark for frequency and profile	**4**

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Question	Answer	Marks
1(d)(i)	Line along / up beach / transect line How sampling sites are chosen: Systematic sampling / Select pebbles at equal / regular distances / equal number of paces / pick up pebble every metre OR Random sampling / Could use random number tables to decide distance apart of pebbles / pick up pebbles at different distances along beach / from back of beach / throw quadrat over shoulder How pebbles are chosen at each site or beach: e.g. random numbers / randomly choose / select from quadrat Pick up same number of pebbles at each site / on each beach / do the same task on both beaches	**3**
1(d)(ii)	Measure pebble with tape / ruler / callipers / pebbleometer Adjust callipers / pebbleometer to hold pebble / put pebble between teeth of callipers / blocks of wood Measure long axis / longest side / maximum length (not length) Read in mm / cm	**2**
1(d)(iii)	Plot pebble 1 = 8.5 cm on Fig. 1.6	**1**
1(d)(iv)	Hypothesis is **false** / **incorrect** – 1 mark reserve (✓HA) Beach material / pebbles are larger at beach formed by destructive waves OR Beach material / pebbles are smaller at beach formed by constructive waves At **Afandou** beach pebbles / average size / median size is **smaller** where the wave frequency is **lower** / **constructive** waves OR At **Archangelos** beach pebbles / average size / median size is **larger** where the wave frequency is **higher** / **destructive** waves Afandou beach **average** size = 9.6 cm (0.6 cm smaller), at Archangelos beach = 10.2 cm (0.6 cm larger) Afandou beach **median** / **middle** size = 9 cm (0.5 cm smaller), at Archangelos beach = 9.5 cm (0.5 cm larger) Specific feature of pebble sizes e.g. 5 pebbles over 14 cm at Archangelos beach and 1 pebbles over 14 cm at Afandou beach Credit **2 marks** maximum for comparative figures, 1 mark reserve for data	**4**

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Question	Answer	Marks
1(e)(i)	Wind drive waves / wave move in direction of (prevailing) wind Pebbles / waves / swash come to the beach **at an angle** / oblique / waves come in at an angle / 45° Backwash / waves takes material **back down** the beach at **right angles** / perpendicular / waves go out at 90° Waves move in zig-zag along beach Credit in text or on diagram Do not credit swash / backwash labels on diagram – need description above No reserve mark for describe or explain	**3**
1(e)(ii)	<u>Answer must focus on how far pebbles move along beach</u> Paint pebbles / using different coloured pebbles Identify / put a pole at starting point Put them in the wave swash / backwash zone / where waves break / in sea near beach or shore Leave them for period of time / one day (more than 3 hours) Measure distance from starting point / measure distance pebbles have moved Measure long axis of pebble Measure distance moved and get average OR <u>Answer can focus on how far pebbles move along beach or how long they take to move along beach</u> Mark start and finish points / put poles at start and finish Lay out tape measure along beach / measure a distance along beach Put float / orange wave swash / backwash zone / where waves break / in sea near beach or shore Start stopwatch when floats put in sea Time how long it takes float to reach finish point / measure how far float moves (in set period of time / 5 minutes) Repeat a number of times and take average OR <u>Answer focuses on groynes</u> Measure from top of groyne to beach surface On both sides of groyne Measure at equal distances along groyne Calculate average distance from top to beach on both sides of groyne Repeat for other groynes to confirm movement along beach	**4**

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Question	Answer	Marks
2(a)(i)	Learn how to do survey / agree method / know what to do / know how to use survey sheet / know how to collect data Agree what the descriptions mean Find out what doesn't work / change it / correct mistakes / to check if survey works / check if survey is appropriate Experience of working as a team / team organisation / in a group 2 @1	**2**
2(a)(ii)	Get into groups Students or groups go to different locations / Ratcliffe and Mossbank OR go to Ratcliffe on one day and Mossbank on the next day Agree on time of survey / both surveys done at same time / start and finish at same time Circle Ratcliffe or Mossbank on survey sheet Individual student decides the score / group discuss / agree score NOT ask people Mark score on their form / record score / fill in the form / record data in table	**4**
2(b)(i)	Completion of graph for Ratcliffe Traffic +2, vandalism and graffiti +3, litter +1 3 correct = 2 marks, 1 or 2 correct = 1 mark	**2**
2(b)(ii)	Hypothesis is **true** – 1 mark reserve (✓HA) **Need comparison but no double credit** <u>Ratcliffe:</u> Higher total score More positive descriptions Score for each category is higher All positive descriptions but Mossbank has negative decsriptions <u>Mossbank:</u> Lower total score More negative descriptions Score for each category is lower All negative descriptions but Ratcliffe has positive descriptions 1 mark reserved for paired data comparing the two areas Can credit 2 marks for data e.g. total for Mossbank = –10 and for Ratcliffe = 9 5 negative scores for Mossbank and 0 for Ratcliffe 6 positive scores for Ratcliffe and 0 for Mossbank 4 negative for Mossbank and 6 positive for Ratcliffe No credit for scores of individual categories	**4**

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Question	Answer	Marks
2(c)(i)	Systematic sampling Ask every tenth person / regular pattern to identify people OR Random sampling Use random numbers / ask next person they meet / ask any people OR Stratified sampling Ask appropriate age / gender balance/ representative sample of population Name is wrong (e.g. linear sampling) but credit description if correct for any method Name and description don't match then just credit name (if correct)	**2**
2(c)(ii)	Saves time / only a limited amount of time to do the survey / quicker Impossible to ask all people in the area / produces too much data	**2**
2(d)(i)	Need **comparison** between students and residents results e.g. Residents' results for the two areas are nearer in total / less difference / smaller variation 19 difference for students and 6 difference for residents / more variation in students' results for Mossbank Residents' results are higher than students' results / more positive results for Mossbank / residents –1 and students –10 Residents' results are lower than students' results for Ratcliffe / residents 5 and students 9 Credit reference to **one** feature to show the difference e.g. Mossbank housing design = –3 from students and –1 from residents Traffic: students say better in Ratcliffe and residents say better in Mossbank	**2**
2(d)(ii)	Residents / students may be biased in their opinion Both student and resident opinions are subjective / different people have different opinions Students' results are a snapshot of one time (e.g. when it was busy) / whereas residents' results reflect long-term view / residents know more about the area Residents and students have different backgrounds 2 @ 1	**2**
2(e)(i)	Plotting divided bar graph for community spirit in Ratcliffe 1 mark for correct plotting of dividing lines (2,6,13,16) 1 mark for correct shading	**2**

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Question	Answer	Marks
2(e)(ii)	Residents' opinions are higher for Mossbank / residents say Mossbank has higher quality of life More excellent / good for Mossbank OR fewer excellent / good for Ratcliffe Fewer poor / very poor for Mossbank OR more poor / very poor for Ratcliffe Credit 1 mark maximum for paired **total** data to support this conclusion e.g. Excellent rating = 26 in Mossbank and 11 in Ratcliffe Very poor rating = 16 in Mossbank and 26 in Ratcliffe Credit 1 mark maximum for paired data of an **individual** aspect e.g. 6 opinions of excellent parks in Mossbank and 1 in Ratcliffe (5 more) OR 1 opinion of very poor community service in Mossbank and 9 in Ratcliffe (8 more)	**3**
2(f)	Credit any two **housing** features Look at features such as roof / windows /walls / paintwork / gutters / Look at other features such as garden /driveway / fencing Look at type of housing / height / building materials / age / density / prices **2 marks maximum** Methods such as: A survey index / bi-polar survey Field sketches Photographs Count (number of storeys) Use secondary data such as house prices, age of housing **2 marks maximum (simple or developed)** Record results: Put results in table Add up scores (if appropriate) Calculate average (if appropriate) Plot results on bar graph / land use map etc. **2 marks maximum (simple or developed)**	**5**

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Cambridge IGCSE

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

8713528359

GEOGRAPHY **0460/11**

Paper 1 **May/June 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator
Protractor

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 1.1 for Question 1, Figs. 3.1 and 3.3 for Question 3, and Figs. 6.1 and 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **30** printed pages, **2** blank pages and **1** Insert.

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[Turn over

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Section A

Answer **one** question from this section.

1 (a) Study Fig. 1.1 (Insert), which shows information about immigrants to the USA in 2013.

(i) How many people were living in the USA in 2013 who were born in other countries?

Tick **one** answer in the table below:

	Tick (✓)
Less than 1000	
1000 to 9999	
10 000 to 99 999	
100 000 to 249 999	
250 000 to 499 999	
500 000 to 1 million	
Over 1 million	

[1]

(ii) Put the following countries in rank order according to the number of people born there who were living in the USA in 2013.

Argentina Australia China Colombia

1st .....

2nd .....

3rd .....

4th ..... [2]

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(iii) Using Fig. 1.1 **only**, suggest **three** reasons why there are more immigrants to the USA from Mexico (an LEDC) than from Spain (an MEDC).

1 .....

.....

2 .....

.....

3 .....

.....[3]

(iv) Describe the difficulties which immigrants from Mexico may experience when settling in the USA.

.....

.....

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.....

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.....[4]

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(b) Study Fig. 1.2, which shows information about immigration to the USA between 1901 and 2010.

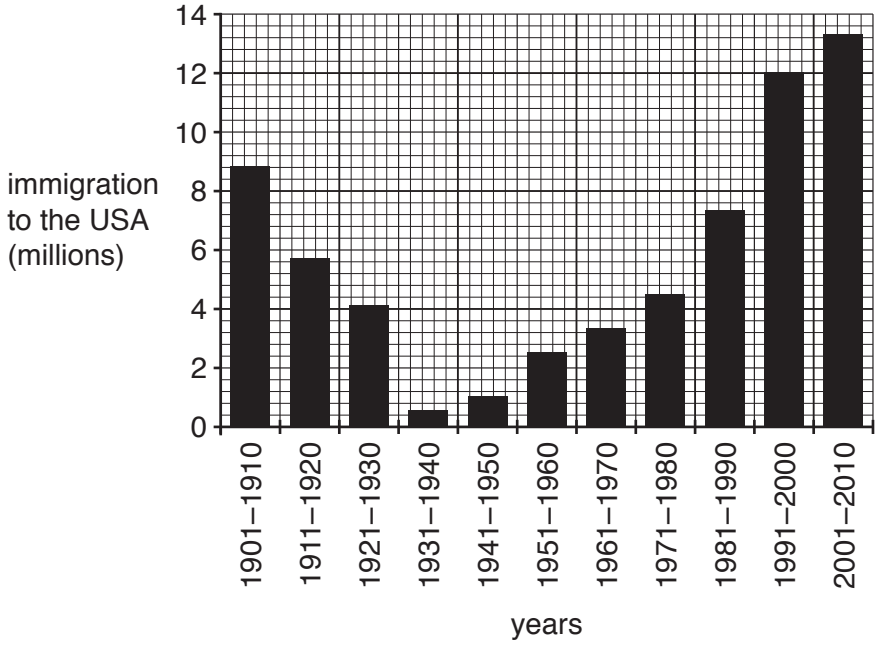

Fig. 1.2

(i) Describe the changes in the numbers of immigrants to the USA between 1901 and 2010. You should refer to years and use statistics in your answer.

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.....[3]

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(ii) Explain how a large amount of immigration is likely to create challenges for countries receiving migrants such as the USA.

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.....[5]

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(c) For a named country you have studied, describe a policy which has been used to influence its population growth.

Name of country .....

.....

.....

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2 **(a)** Study Fig. 2.1, which shows information about the sources of air pollution in urban areas in Africa and Western Europe.

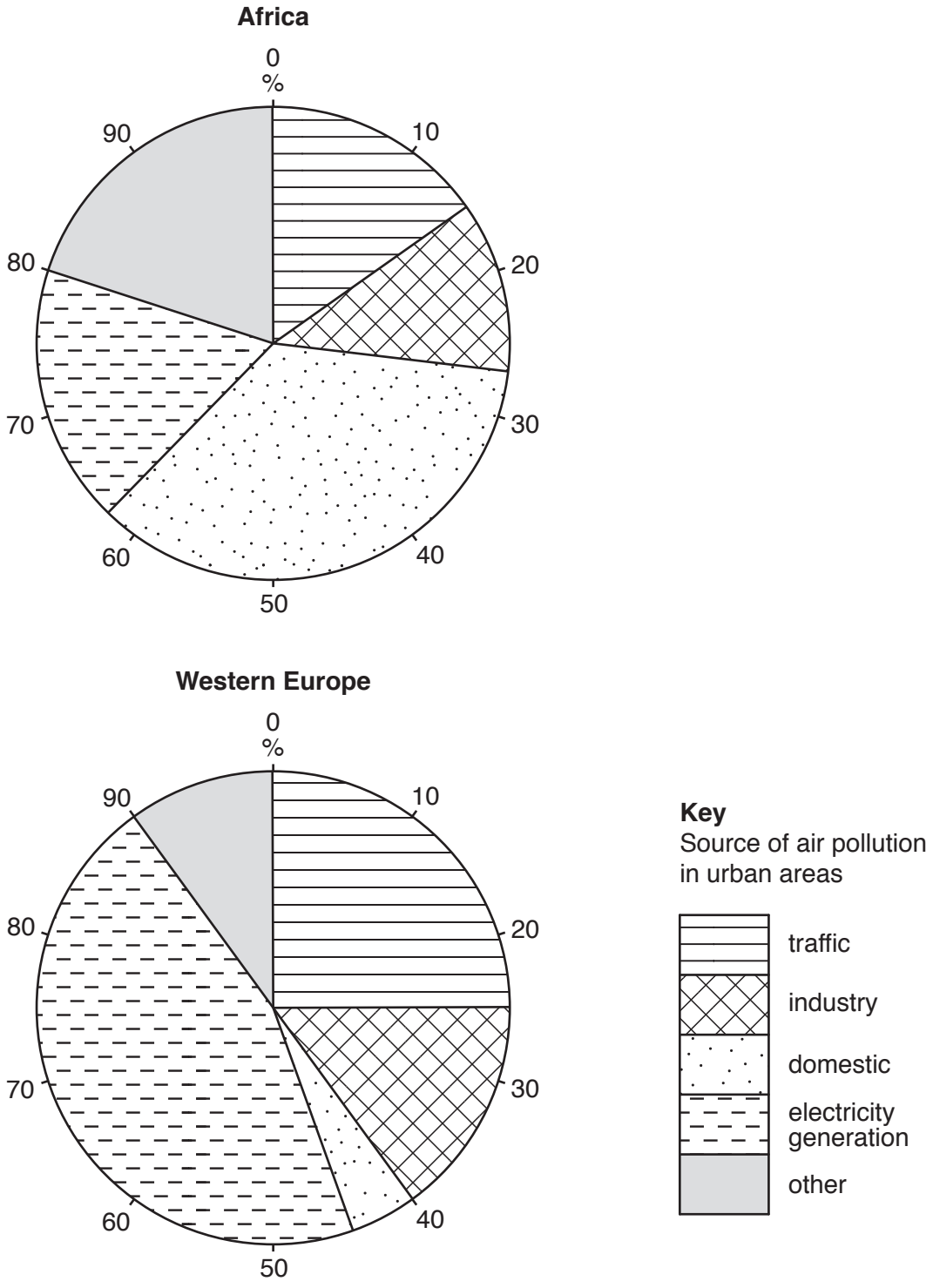

Fig. 2.1

(i) What percentage of air pollution in urban areas in Western Europe is caused by traffic?

.....% [1]

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(ii) Explain how traffic and industry may each cause air pollution.

Traffic .....

.....

Industry .....

.....[2]

(iii) Using evidence from Fig. 2.1 **only**, compare sources of air pollution in urban areas in Africa and Western Europe.

.....

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.....[3]

(iv) Suggest reasons for the differences in the sources of air pollution in urban areas in Africa and Western Europe.

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.....[4]

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(b) Study Fig. 2.2, which is a graph showing information about urban population density and traffic congestion in selected urban areas.
The greater the traffic congestion the more time people spend travelling.

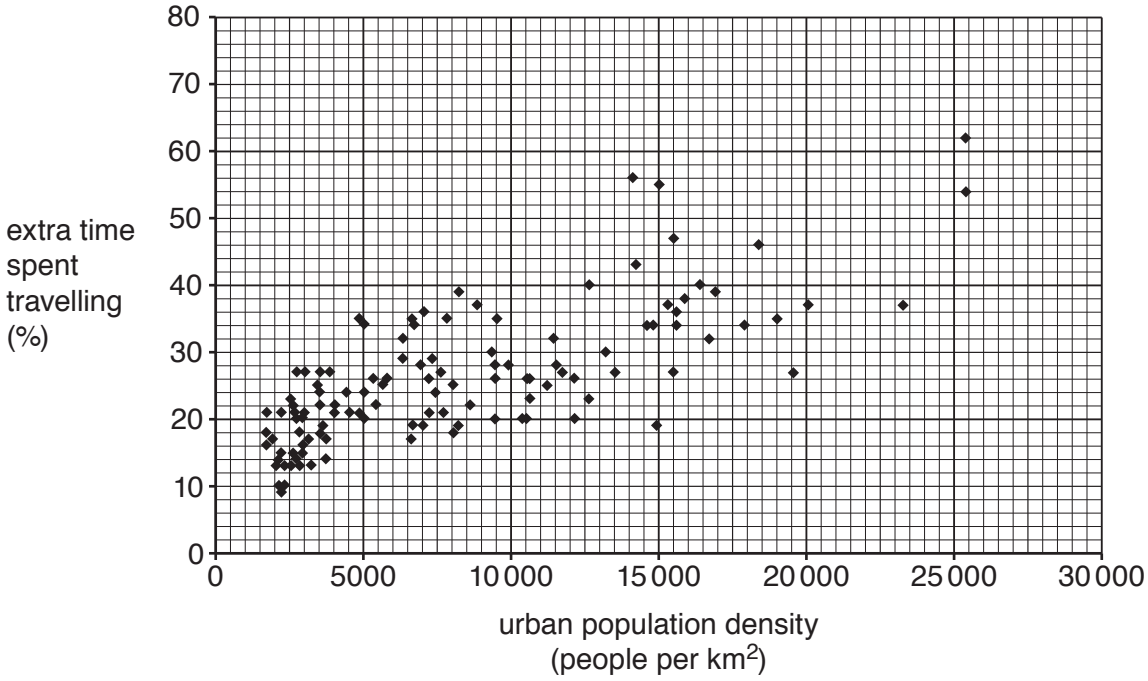

Fig. 2.2

(i) Describe the relationship between urban population density and the extra time spent travelling shown by Fig. 2.2. Use statistics in your answer.

.....

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.....

.....[3]

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(ii) Explain why traffic congestion is a problem in many urban areas.

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.....[5]

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(c) For a named urban area you have studied, describe the strategies used to reduce traffic congestion.

Name of urban area .....

.....

.....

.

Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1 (Insert), which is a photograph of part of a sand spit, and Fig. 3.2 an annotated sketch of a sand spit.

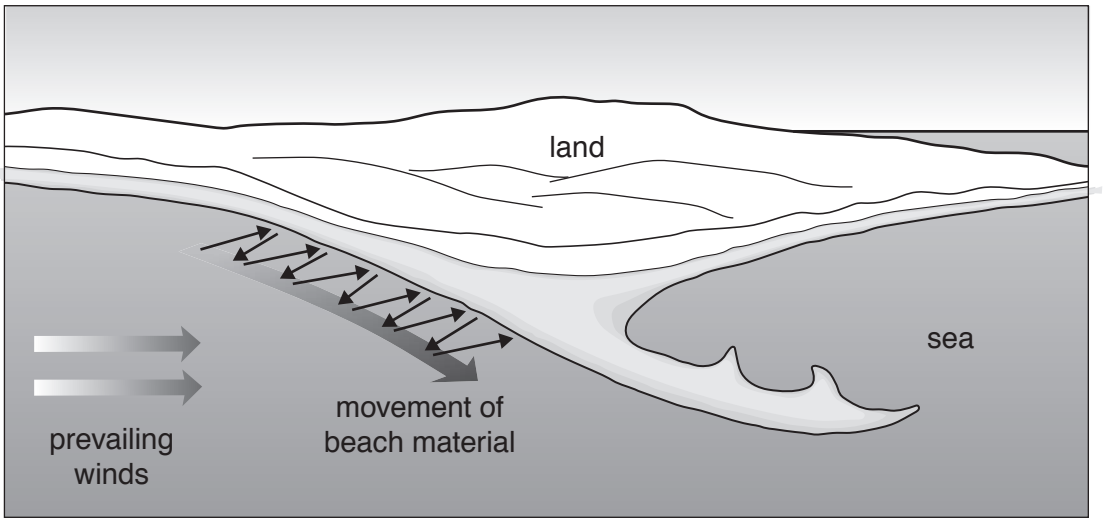

Fig. 3.2

(i) Identify the type of coastal landform shown at **X** on Fig. 3.1.

.....[1]

(ii) Describe **two** characteristics of the coastal landform shown at **X** on Fig. 3.1.

1 .....

.....

2 .....

.....[2]

(iii) Explain how coastal landform **X** has been formed on the sand spit.

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.....

.....[3]

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(iv) Explain how a sand spit is formed.

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.....[4]

(b) Study Fig. 3.3 (Insert), which is a photograph of an area of coastline which has been affected by coastal erosion.

(i) Identify the coastal landforms labelled **P**, **Q** and **R** on Fig. 3.3 in the spaces below.

P .....

Q .....

R ..... [3]

(ii) Describe the processes of coastal erosion.

.....

.....

.....

.....

.....

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.....[5]

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(c) For a named area of coast you have studied, describe the strategies used to manage coastal erosion.

Name of area of coast .....

.....

.....

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TURN PAGE FOR QUESTION 4

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4 **(a)** Study Fig. 4.1, which is a map which shows two hot deserts in Southern Africa.

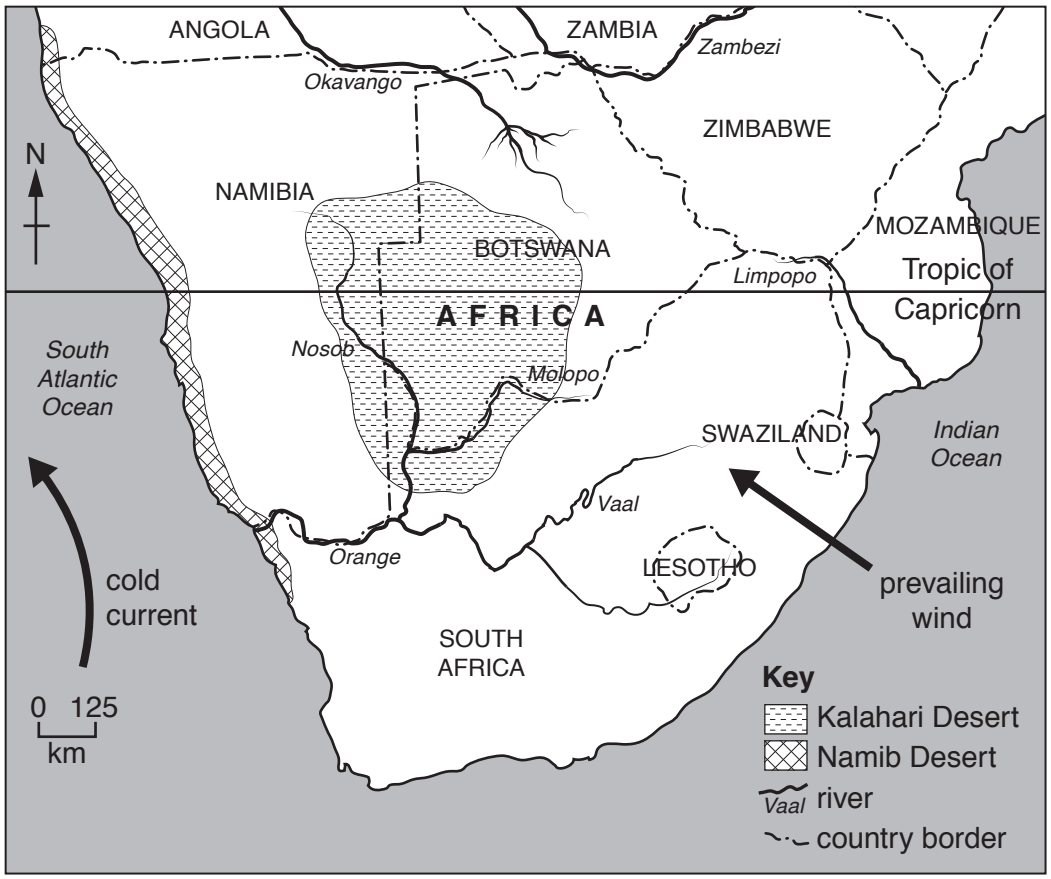

Fig. 4.1

(i) Tick the **one** statement which best describes the climate of a hot desert.

	Tick (✓)
deserts have no seasons	
every day the temperatures are above 35 °C	
the annual precipitation is lower than 250 mm	
there is never any precipitation	

[1]

(ii) State **one** similarity and **one** difference between the location of the Kalahari Desert and the location of the Namib Desert.

Similarity.....

.....

Difference.....

.....[2]

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(iii) Explain why deserts, such as the Kalahari, have a high diurnal (daily) range of temperature.

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.....[3]

(iv) Using evidence from Fig. 4.1 and your own knowledge, explain why the Namib Desert does not receive much rainfall.

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[Turn over

(b) Study Fig. 4.2, which shows diagrams of two plants which grow in the desert.

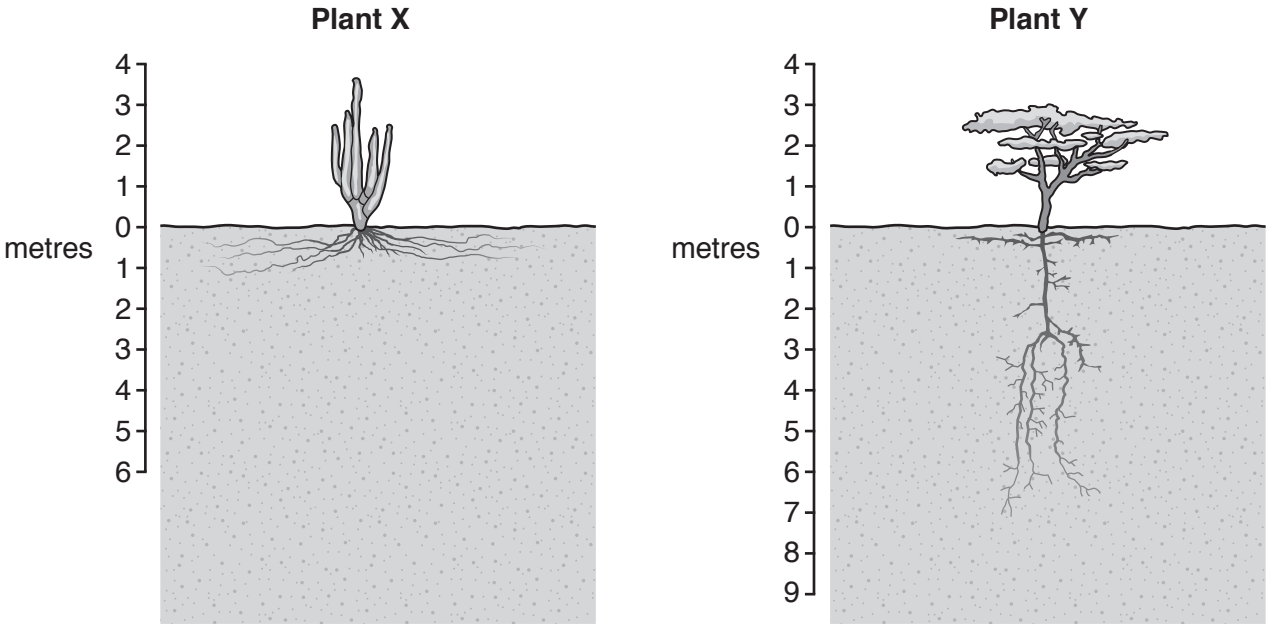

Fig. 4.2

(i) Identify **three** differences between plants **X** and **Y**.

1 .....

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3 .....

.....[3]

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(ii) Explain how plants and wildlife are able to survive in a hot desert.

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[Turn over

(c) For a named area of tropical rainforest, describe the characteristics of its ecosystem.

Name of area of rainforest.....

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about energy supply in New Zealand (an MEDC) in 2014.

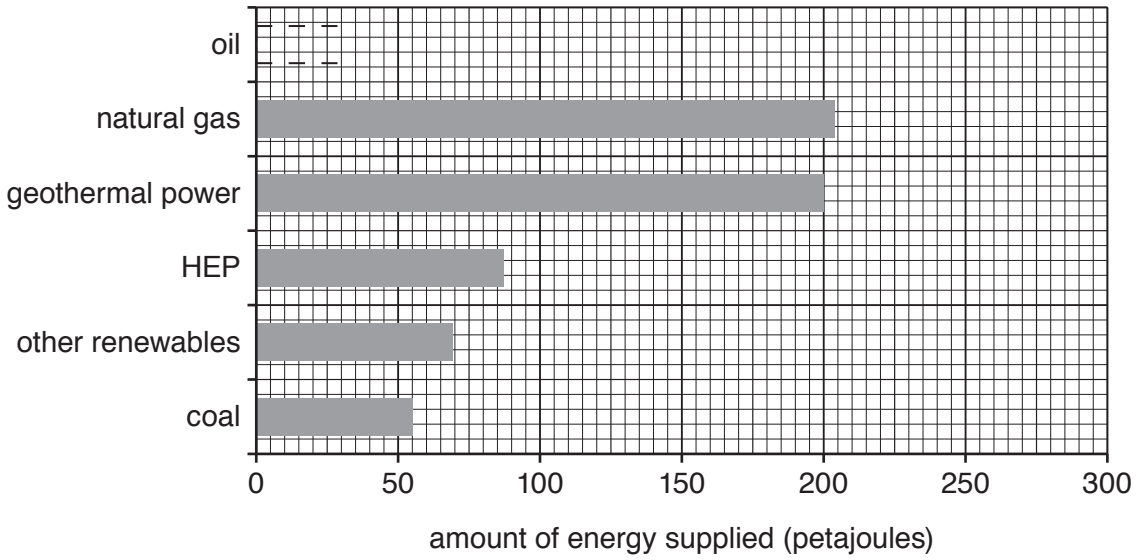

Fig. 5.1

(i) **Complete the bar** on Fig. 5.1 to show the following information:

Amount of energy produced from oil = 275 petajoules [1]

(ii) Name **two** types of renewable energy which could be included in the bar for 'other renewables'.

1 .....

2 .....[2]

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(iii) Using Fig. 5.1 **only**, compare the use of renewable and non-renewable energy in New Zealand. Use statistics in your answer.

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(iv) Suggest reasons to explain why New Zealand does not use nuclear power.

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(b) Study Fig. 5.2, which is a table showing information about Gross Domestic Product (GDP) per person (a measure of wealth) and the use of electricity per person.

	GDP per person (US$)	Electricity used (kWh per person)
Norway	69300	24621
USA	57300	13734
Australia	48800	11028
Germany	48200	7170
Canada	46200	17026
UK	42500	5578
France	42400	7483
Japan	38900	8065
New Zealand	37100	9802
Portugal	28500	4924
Turkey	21100	3259
Mexico	18900	2496

Fig. 5.2

(i) Describe the relationship between GDP per person and the use of electricity per person shown by Fig. 5.2. Use statistics in your answer.

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(ii) Explain why there is a relationship between GDP per person and the use of electricity per person.

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(c) For a named country, describe the methods used to supply water to the population.

Name of country .....

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6 **(a)** Study Fig. 6.1 (Insert), which is a photograph of an area with an Equatorial climate where the land is being used for subsistence farming.

(i) What is meant by *subsistence* farming?

.....

.....

.....[1]

(ii) Identify **two** pieces of evidence that the forest has been cleared in the area shown in Fig. 6.1.

1 .....

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2 .....

.....[2]

(iii) Explain why soil erosion is likely to occur in the area shown in Fig. 6.1.

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.....[3]

(iv) Describe the strategies which can be used by farmers to reduce soil erosion.

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(b) Study Fig. 6.2 (Insert), which is a photograph of an area where economic activity is taking place.

(i) Suggest why each of the following types of pollution are occurring in the area shown in Fig. 6.2.

air pollution .....

.....

water pollution .....

.....

noise pollution .....

.....[3]

(ii) Explain how pollution may threaten the **local** natural environment.

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(c) Describe the impacts of **global warming** on the natural environment. You should refer to named areas affected.

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[Total: 25]

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CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

6746363420

GEOGRAPHY **0460/12**

Paper 1 **May/June 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

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You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Figs. 3.1 and 3.2 for Question 3, Fig. 4.1 for Question 4, Figs. 5.2 and 5.3 for Question 5, and Fig. 6.1 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **27** printed pages, **1** blank page and **1** Insert.

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about population growth in the UK.

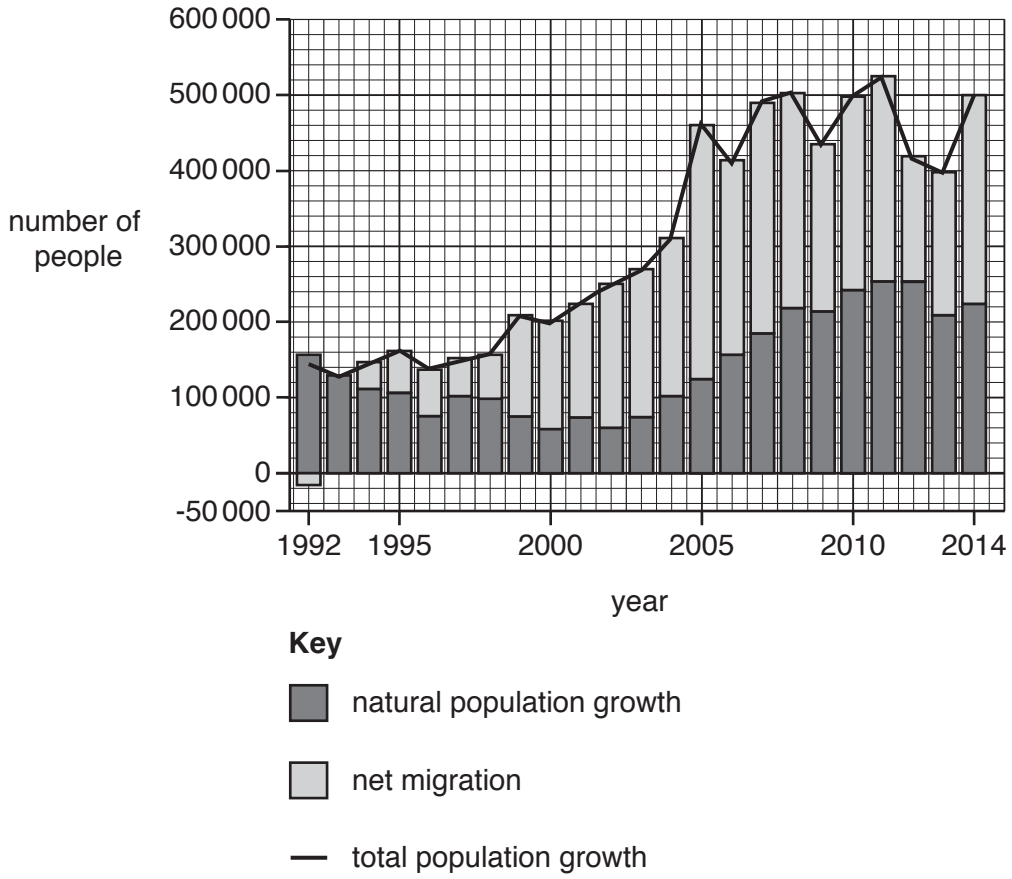

Fig. 1.1

(i) What was the total population growth in the UK in 2014?

..... [1]

(ii) What is meant by the following terms:

– natural population growth

.....

.....

– net migration?

.....

.....[2]

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(iii) Identify from Fig. 1.1 a year when:

– net migration was greater than natural population growth .....

– there were more emigrants than immigrants .....

– the largest total population growth occurred. ..... [3]

(iv) Explain why there are low rates of natural population growth in MEDCs such as the UK.

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[Turn over

(b) Study Fig. 1.2, which shows information about population growth in Africa and Europe from 1800 to 2100 (estimated).

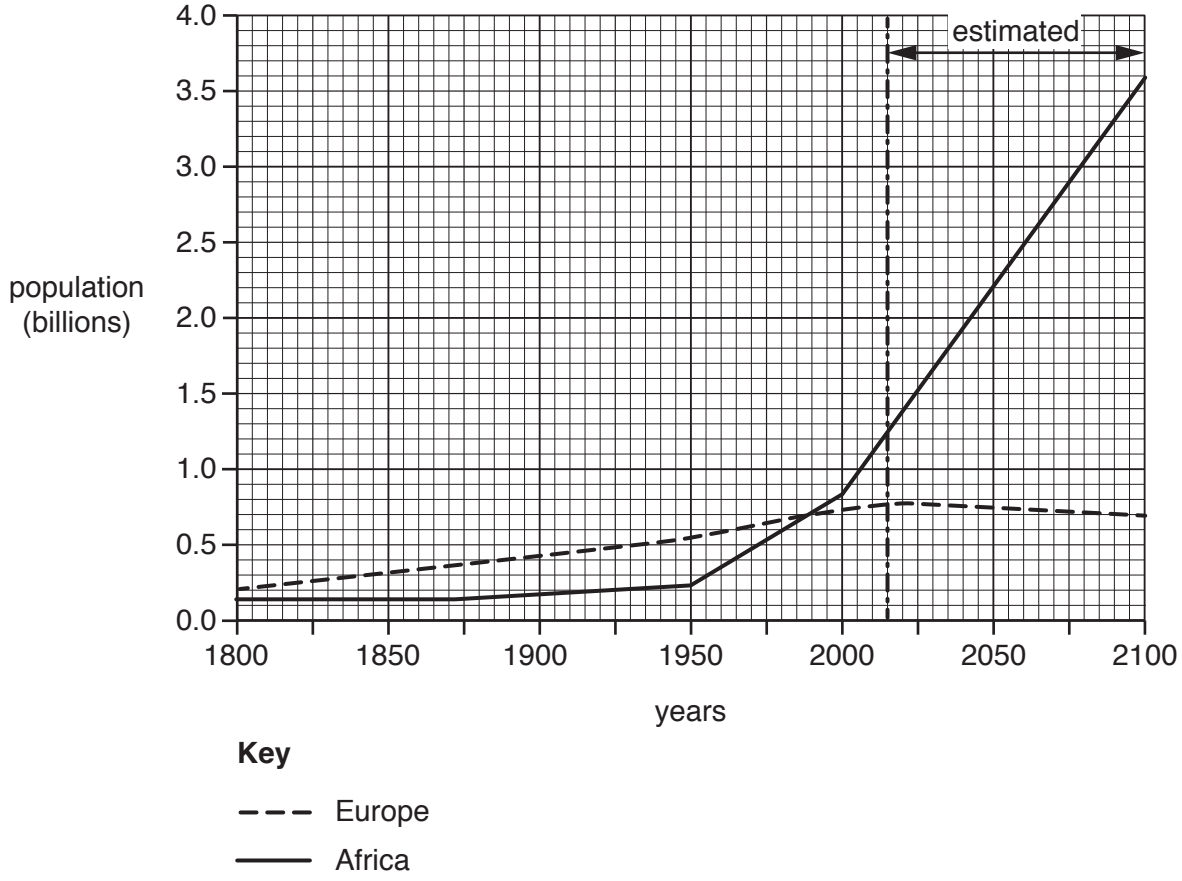

Fig. 1.2

(i) Compare population growth in Africa and Europe between 1800 and 2100 (estimated). You should refer to years and use statistics in your answer.

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(ii) Suggest problems which are likely to occur in Africa as a result of its population growth.

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[Turn over

(c) For a named country you have studied, describe a population policy which has been used to influence its population growth. Comment on how successful this policy was.

Name of country .....

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2 **(a)** Study Fig. 2.1, which shows information about a settlement hierarchy.

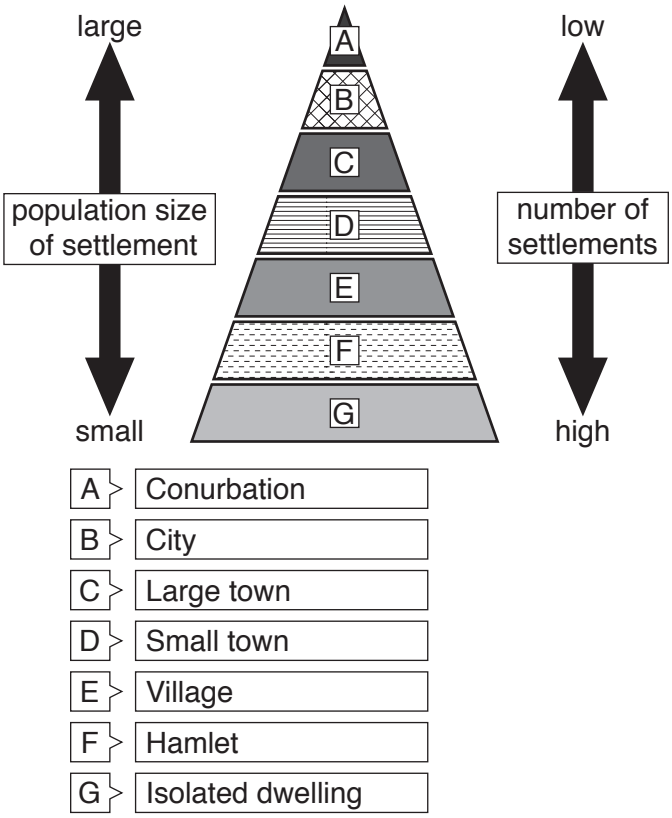

Fig. 2.1

(i) Tick the **one** statement which best describes a settlement hierarchy.

	Tick ✓
An area with large numbers of shops and services	
A method of arranging settlements based on the size of their population	
A diagram to show service provision in the settlements in an area	
The area served by a settlement and its services	

[1]

(ii) Using evidence from Fig. 2.1 **only**, describe the relationship between population size and number of settlements. Give examples of settlement types from Fig. 2.1 in your answer.

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.....[2]

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(iii) Give **three** examples of high order services which are likely to be located in large cities, such as capital cities.

1 .....

2 .....

3 .....[3]

(iv) Explain why large cities, such as capital cities, have many high order services.

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(b) Study Fig. 2.2, which gives information about rural decline.

Rural life in decline

Nearly half of rural settlements in the UK have seen the closure of local services in the past four years.

Villages across the country are losing basic services such as post offices, doctors' surgeries, shops and schools.

A study found that residents of the village of Wrotham, in Kent, suffered the greatest loss of services. The study also found that 233 000 people in the country are living in areas with no post office within 2 kilometres and no bank or cashpoint (ATM) within 4 kilometres.

Fig. 2.2

(i) Using Fig. 2.2 **only**, give **three** examples of services which are being closed in rural settlements.

1 .....

2 .....

3 .....[3]

(ii) Explain why service provision in some rural areas is declining.

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[Turn over

(c) Name a settlement you have studied. Describe and explain its functions.

Name of settlement .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1 (Insert), which is a photograph of a river feature.

(i) Identify the type of river feature shown on Fig. 3.1.

Choose from the words below:

confluence meander mouth source

..... [1]

(ii) Describe **two** characteristics of the rivers shown on Fig. 3.1.

1 .....

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2 .....

.....[2]

(iii) Explain why erosion is likely to be the main process in the rivers shown in Fig. 3.1.

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.....[3]

(iv) Suggest how the river **and** its valley will change further downstream from the area shown in Fig. 3.1.

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(b) Study Fig. 3.2 (Insert), which is a photograph of a waterfall.

(i) Describe **three** features of the waterfall shown in Fig. 3.2.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Explain how a waterfall is formed on a river. You may use a labelled diagram or diagrams.

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[5]

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(c) For a named river you have studied, explain the causes of flooding.

Named river .....

.....

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4 **(a)** Study Fig. 4.1 (Insert), which is a map which shows the Pacific Ring of Fire.

(i) Explain why the shaded area is known as the Pacific *Ring of Fire*.

.....

.....[1]

(ii) Compare the location of Mauna Loa and Ruapehu volcanoes.

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.....[2]

(iii) Explain why there are active volcanoes on converging plate boundaries.

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.....[3]

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(b) Study Fig. 4.2, which is a diagram showing the number of earthquakes occurring on Mauna Loa between 2010 and 2015.

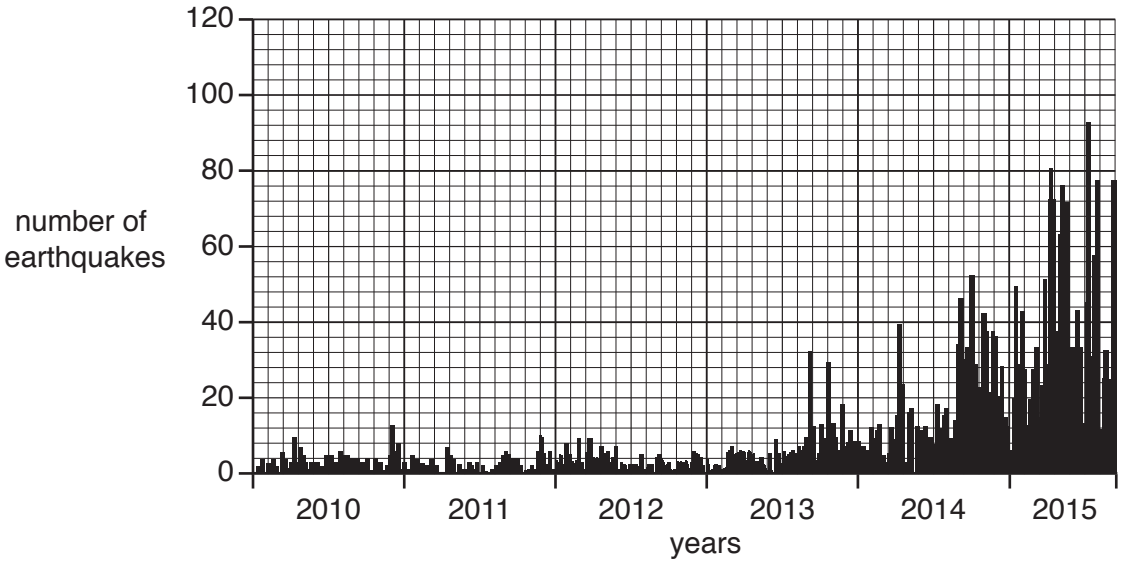

Fig. 4.2

(i) Using Fig. 4.2 **only**, describe the changes in the number of earthquakes on Mauna Loa between 2010 and 2015.

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.....[3]

(ii) Monitoring is one way to reduce the impacts of earthquakes and volcanoes.
Describe other ways to reduce the impacts of earthquakes and volcanoes on people.

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.....[4]

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(iii) Explain why earthquakes and volcanoes cause more deaths and injuries in LEDCs than MEDCs.

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.....[5]

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(c) For a named example you have studied, explain why people live close to an active volcano.

Name of example .....

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.....

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows two traditional methods of irrigation used by subsistence farmers.

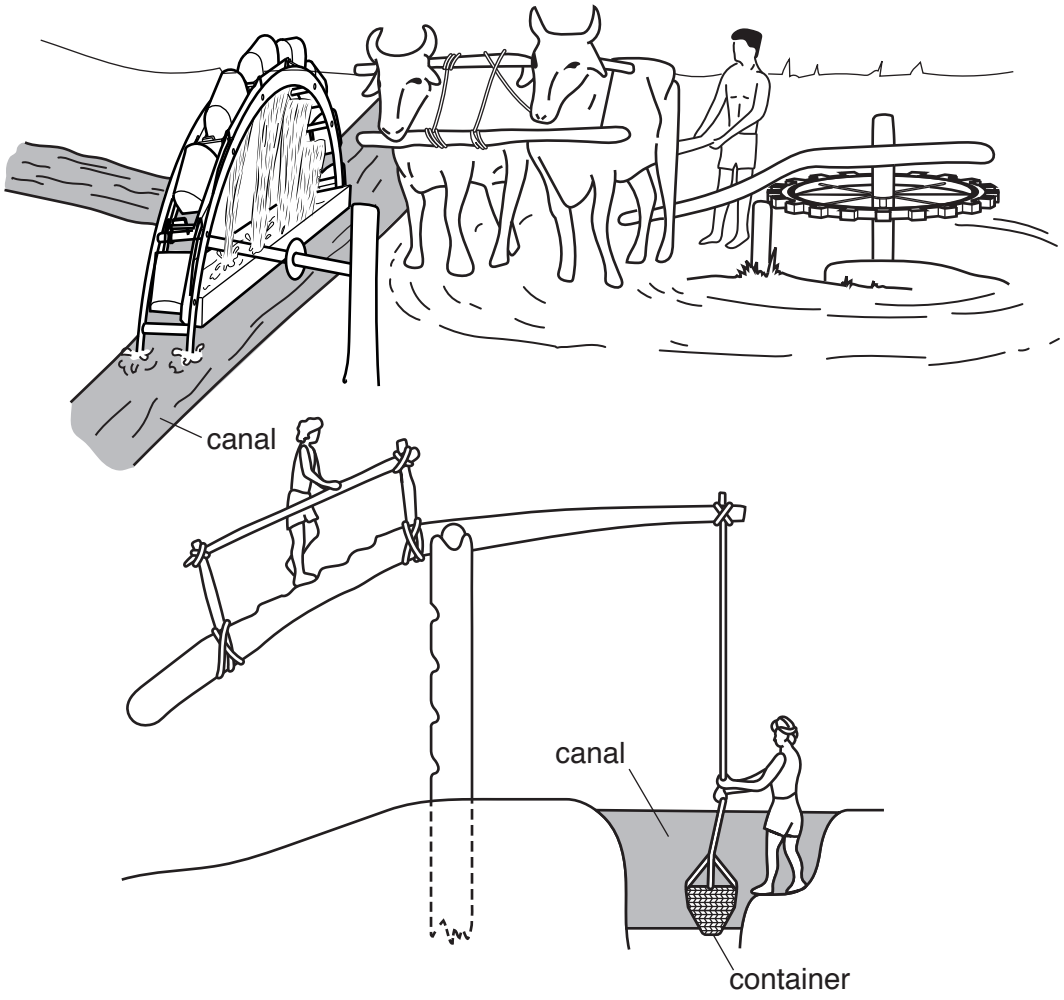

Fig. 5.1

(i) What is meant by a *subsistence farmer*?

.....

.....[1]

(ii) Explain why irrigation increases the yield of crops.

.....

.....

.....

.....[2]

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(iii) Explain why the methods of irrigation shown in Fig. 5.1 are suitable to use in LEDCs.

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.....[3]

(iv) Describe **four** other methods which farmers can use to increase the yield of crops.

1 .....

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2 .....

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3 .....

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4 .....

.....[4]

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[Turn over

(b) Study Figs. 5.2 and 5.3 (Insert), which are photographs taken on a mixed farm.

(i) State **three** processes which will take place on the mixed farm shown in Figs. 5.2 and 5.3.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Describe the advantages of mixed farming.

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(c) For a named country or region you have studied, explain why there have been food shortages.

Name of country or region .....

.....

.....

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6 **(a)** Study Fig. 6.1 (Insert), which shows information about sources of electricity in Mexico (an LEDC).

(i) State the number of nuclear power stations in Mexico.

..... [1]

(ii) Using Fig. 6.1 **only**, name **one** renewable and **one** non-renewable source of electricity in Mexico.

– renewable .....

– non-renewable .....[2]

(iii) Compare the importance of different sources of electricity in the states of Sonora and Sinaloa.

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.....[3]

(iv) Suggest reasons why some parts of Mexico are able to generate large amounts of electricity from hydro-electric power (HEP).

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(b) Study Fig. 6.2, which shows information about natural gas pipelines in Mexico.

Mexico's natural gas pipelines



Key

Northwest pipeline
Chihuahua pipeline
Los Ramones pipeline
Topolobampo–El Encino pipeline
Existing pipelines

Fig. 6.2

(i) Name and describe the route of any one natural gas pipeline between the USA and Mexico.

Name .....

Description of route .....

.....

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.....[3]

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(ii) Mexico imports large amounts of natural gas from the USA.
Explain why relying on imports of natural gas could cause problems for Mexico.

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(c) Name and state the location of a type of economic activity you have studied.
Explain how the economic activity may cause the natural environment to be at risk.

Type of economic activity .....

Location .....

How the economic activity may cause the natural environment to be at risk.

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CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

5109570454

GEOGRAPHY **0460/13**

Paper 1 **May/June 2019**

`1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator
Protractor

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Write your centre number, candidate number and name in the spaces provided.
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Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 1.2 for Question 1, Fig. 4.3 for Question 4, Figs. 5.2 and 5.3 for Question 5, and Figs. 6.1 and 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about population density in 1950, 2000 and 2050 (predicted).

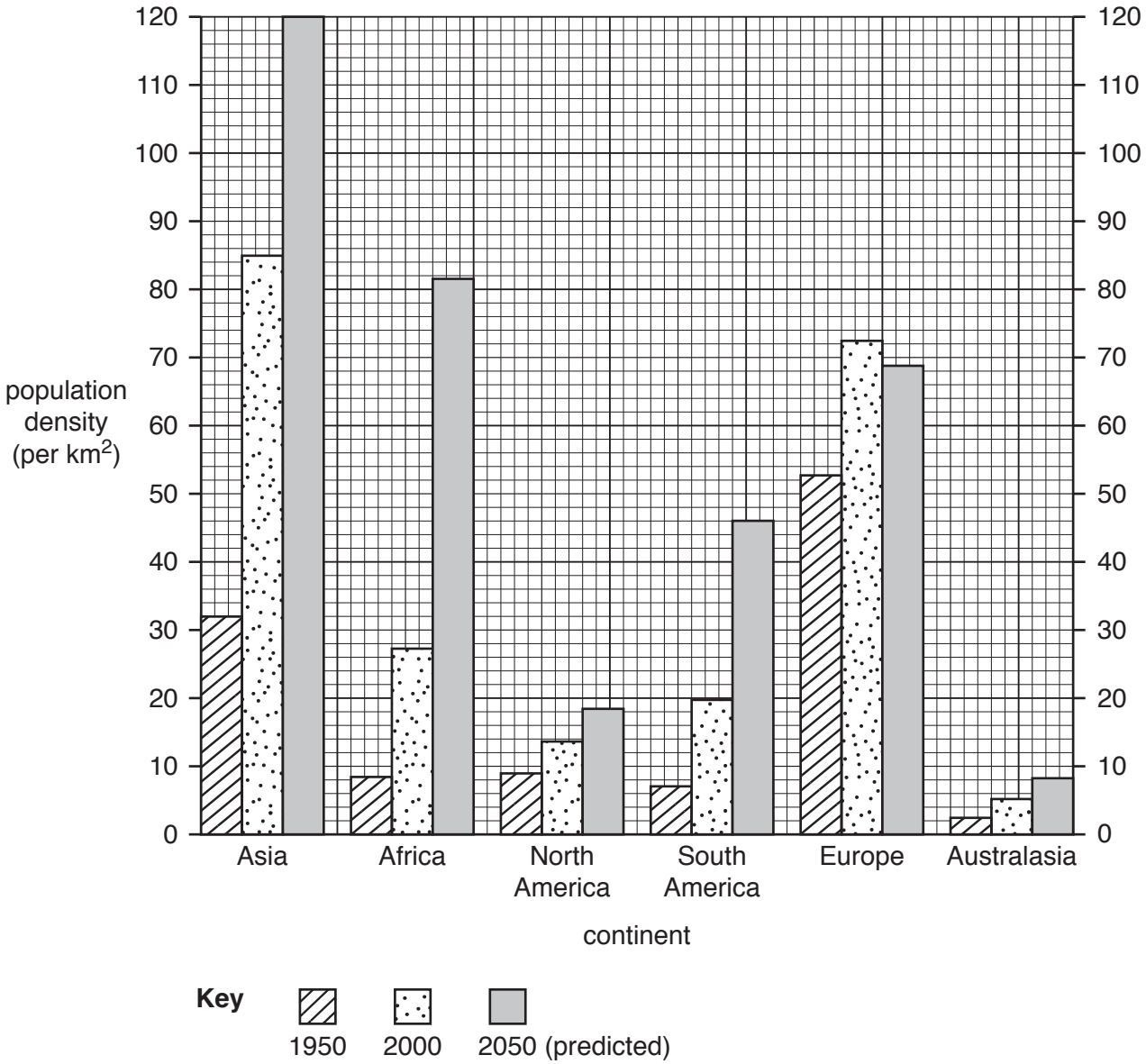

Fig. 1.1

(i) What does *population density* measure?

.....

.....[1]

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(ii) Name the continent with:

- an increase in population density of over 50 per km^2 between 1950 and 2000

  .....

- a predicted decrease in population density between 2000 and 2050.

  ..... [2]

(iii) Parts of Australasia and North America are **under-populated**.
Explain why some areas are underpopulated.

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.....[3]

(iv) Describe the impacts of **over-population** on a country.

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.....[4]

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(b) Study Fig. 1.2 (Insert), which is a photograph of an area which is sparsely populated.

(i) Explain how physical factors have influenced the population density and distribution in the area shown in Fig. 1.2.

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.....[3]

(ii) Explain why many areas with good transport networks are densely populated.

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(c) Explain the causes of an example of **international** migration you have studied.

Migration from ..... to .....

Explanation .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1, which shows an area near Quebec City in Canada (an MEDC).

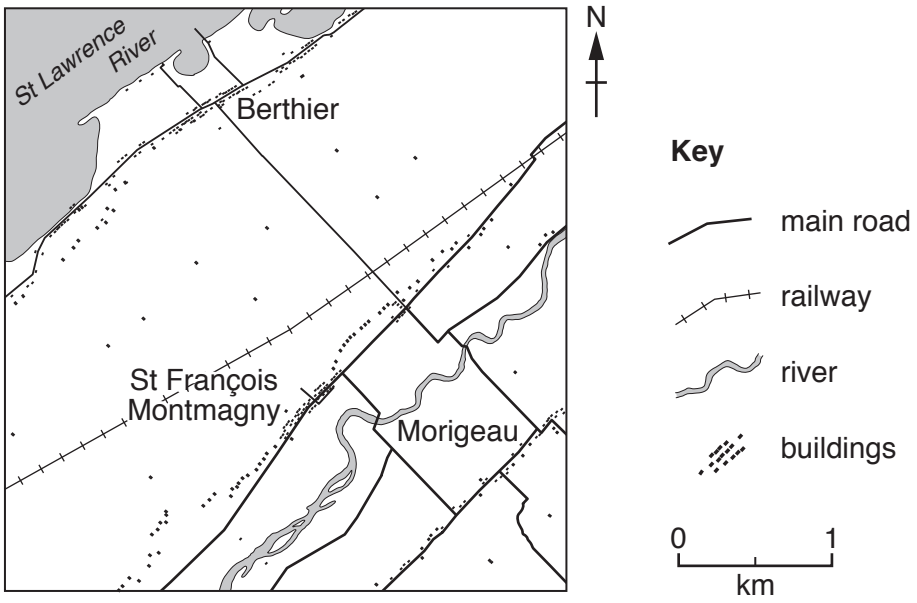

Fig. 2.1

(i) What is the settlement pattern of Morigeau, St François Montmagny and Berthier?

.....[1]

(ii) Using evidence from Fig. 2.1 **only**, give **two** reasons for the growth of a settlement at Berthier.

1 .....

.....

2 .....

.....[2]

(iii) Suggest reasons why there are no settlements between St François Montmagny and Morigeau.

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.....

.....[3]

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(iv) Identify the settlement pattern between St François Montmagny and Berthier and suggest possible reasons for this pattern.

Settlement pattern .....

Reasons .....

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.....[4]

(b) Study Fig. 2.2, which shows information about Quebec City.

With more than half of the world's population now living in cities, urban sprawl is a growing problem, particularly in North America, where large houses and two-car garages are common.

In Quebec City urban sprawl is increasing at a rapid rate. A recent study found that urban sprawl has been increasing since 1951. Between 1971 and 2001 the urban area increased by 250% but the population only increased by 50%. Along both the south and north of the St Lawrence river, urban sprawl stretches into the farming areas for many kilometres along the main highways. Residents of more distant settlements such as St François Montmagny are becoming increasingly concerned.

Fig. 2.2

(i) Explain why urban sprawl is occurring around urban areas such as Quebec City.

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.....[3]

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(ii) Suggest reasons why residents of settlements such as St François Montmagny are becoming increasingly concerned by Quebec City's urban sprawl.

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.....[5]

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(c) For **two** named settlements of different sizes you have studied, compare the service provision.

Name of settlement 1 .....

Name of settlement 2 .....

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.....[7]

[Total: 25]

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Section B

Answer **one** question from this section.

3 (a) Study Fig. 3.1, which shows information collected by instruments at a weather station in Zagreb, Croatia, on one day in February 2017.

Weather instrument	What it measures	Reading on 17th February 2017
Maximum and minimum thermometer	Highest and lowest temperatures	Highest = 14 °C Lowest = –5 °C
Wet-and-dry bulb thermometer	Relative humidity	Dry bulb = 14 °C Wet bulb = 9 °C
Rain gauge	Amount of precipitation	0 mm
Barometer	Atmospheric pressure	1021 mb
Wind vane	Wind direction	North
Anemometer	Wind speed	8 km per hour

Fig. 3.1

(i) What was the diurnal (daily) range of temperature at Zagreb on 17th February 2017?

..... °C [1]

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(ii) Use the data in Fig. 3.1, along with Fig. 3.2, a relative humidity table, to find the relative humidity at Zagreb on 17th February 2017.

You should show how you worked out your answer in the box below.

dry bulb temperature (°C)	difference between dry bulb and wet bulb temperature (°C)															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	81	64	46	29	13											
2	84	68	52	37	22	7										
4	85	71	57	43	29	16										
6	86	73	60	48	35	24	11									
8	87	75	63	51	40	29	19	8								
10	88	77	66	55	44	34	24	15	6							
12	89	78	68	58	48	39	29	21	12							
14	90	79	70	60	51	42	34	26	18	10						
16	90	81	71	63	54	46	38	30	23	15	8					
18	91	82	73	65	57	49	41	34	27	20	14	7				
20	91	83	74	66	59	51	44	37	31	24	18	12	6			
22	92	83	76	68	61	54	47	40	34	28	22	17	11	6		
24	92	84	77	69	62	56	49	43	37	31	26	20	15	10	5	
26	92	85	78	71	64	58	51	46	40	34	29	24	19	14	10	5

Fig. 3.2

[2]

(iii) Identify the following from Fig. 3.1:

- a weather instrument which is kept inside a Stevenson screen

  .....

- a weather instrument which consists of a funnel and a measuring cylinder

  .....

- a weather instrument which should be positioned in an open area at least 10 metres above ground level.

  .....[3]

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(iv) Explain how a wind vane is used to measure wind direction and an anemometer is used to measure wind speed.

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.....[4]

(b) Study Fig. 3.3, which is a climate graph for a location in the northern hemisphere.

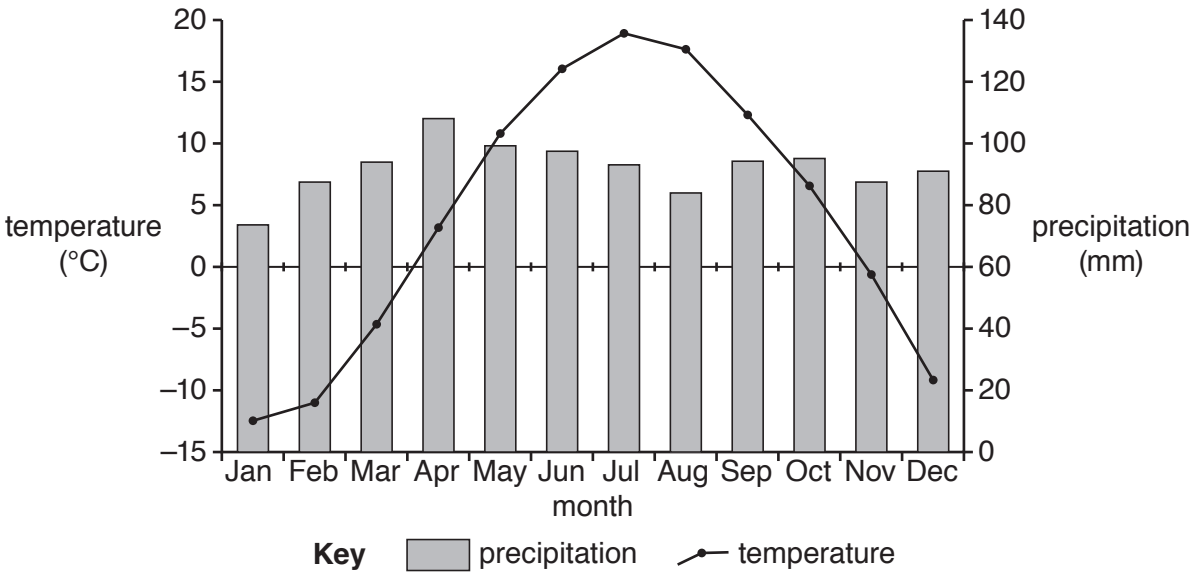

Fig. 3.3

(i) Describe the annual variation in temperatures shown in Fig. 3.3.
You should use statistics in your answer.

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.....[3]

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(ii) Underline the month from the list below when you think flooding is most likely to occur at the location shown in Fig. 3.3.

January April August

Give reasons for your answer.

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.....[5]

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(c) For a named river you have studied, describe the impacts of flooding.

Named river .....

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4 **(a)** Study Fig. 4.1, which shows information about the impacts of an earthquake in Italy, and Fig. 4.2, a map of its location.

> Emergency services are working in freezing conditions to find as many as 30 people feared trapped in a hotel in central Italy. It is now more than a day after the hotel was buried by an avalanche, as a large amount of snow slipped rapidly down the mountainside. The four-star Hotel Rigopiano, at the foot of the Gran Sasso mountain was covered by an avalanche of snow which is thought to have been triggered by an earthquake.
>
> Despite the fear of further avalanches, rescuers battled blizzards and strong winds to reach the site. They had to ski for several kilometres in the darkness to get there because roads were blocked. Road crews had cleared much of the snow and fallen trees by night time, finally allowing heavy rescue equipment to reach the hotel. Helicopters had earlier taken searchers, including dogs, up the mountain.

Fig. 4.1



Fig. 4.2

(i) Tick (✓) the **one** statement, in the box below, which best describes where the earthquake occurred.

40 km from Rome in northern Italy	
On Gran Sasso mountain, in the Abruzzo region	
On the coast in central Italy	
North east of Rome, in the Lazio region	

[1]

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(ii) Suggest how the earthquake caused an avalanche of snow on Gran Sasso mountain.

.....

.....

.....

.....[2]

(iii) Using information from Fig. 4.1 **only**, give **three** reasons why rescuing people from the Hotel Rigopiano was difficult.

1 .....

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2 .....

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3 .....

.....[3]

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(iv) Explain why many people continue to live in areas which experience earthquakes.

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.....[4]

(b) Study Fig. 4.3 (Insert), which is a photograph of a crater on Tangkuban Perahu volcano in Indonesia.

(i) Using Fig. 4.3 **only**, describe **three** features of the crater of Tangkuban Perahu volcano.

1 .....

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2 .....

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3 .....

.....[3]

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(ii) Tangkuban Perahu volcano is located on a destructive plate boundary.
Explain why volcanoes erupt on destructive plate boundaries. You may include a labelled diagram.

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[5]

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(c) For a named volcano you have studied, describe the impacts of a volcanic eruption.

Name of volcano .....

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about international tourist arrivals in Andalucia, a region in Spain (an MEDC) between 2001 and 2015.

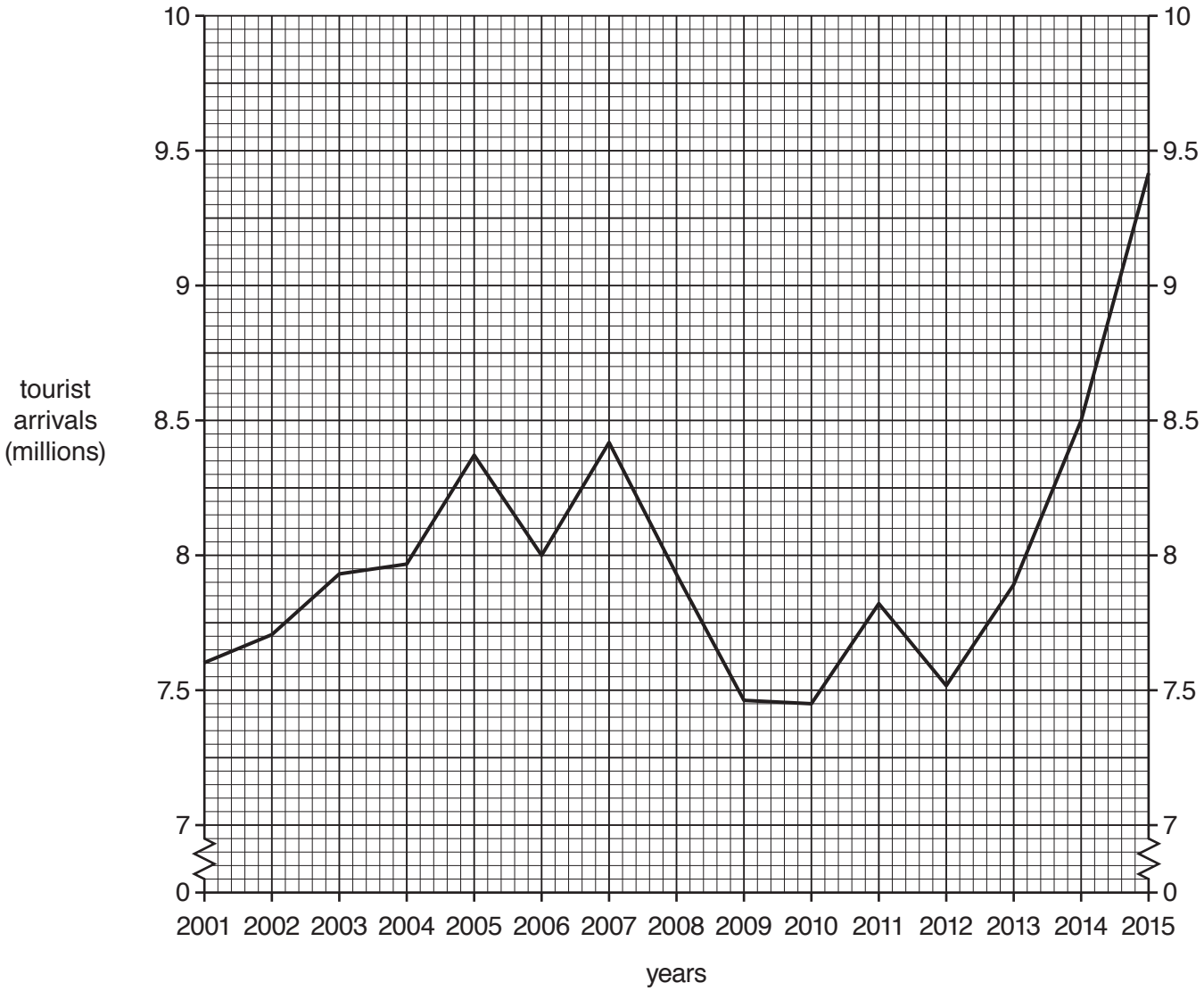

Fig. 5.1

(i) How many international tourists arrived in Andalucia in 2001?

..... million [1]

(ii) Describe the **overall** change in the numbers of international tourists arriving in Andalucia between 2001 and 2015. You should use statistics in your answer.

.....

.....

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.....[2]

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(iii) Suggest reasons why the number of tourists visiting Andalucia varies from year to year.

.....

.....

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.....

.....

.....[3]

(b) Study Figs. 5.2 and Fig. 5.3 (Insert), which are photographs taken in Andalucia.

(i) Describe **three** different attractions to tourists of the area shown in Figs. 5.2 and 5.3.

1 .....

.....

2 .....

.....

3 .....

.....[3]

(ii) Explain **two** likely benefits of tourism for local people in Andalucia.

1 .....

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2 .....

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.....[4]

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(iii) Suggest ways in which the tourist industry is likely to threaten the natural environment in Andalucia.

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.....[5]

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(c) For a named tourist destination or region you have studied, explain how tourism is managed so that it is sustainable.

Name of destination or region .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1 (Insert), which shows information on sources of energy which were used in Japan in 2013 and are planned to be used in 2030.

(i) What was the main source of energy used in Japan in 2013?

. ..... [1]

(ii) State **two** pieces of evidence from Fig. 6.1 that Japan plans to reduce the use of fossil fuels by 2030.

1 .....

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2 .....

.....[2]

(iii) Explain how it will benefit Japan to reduce the use of imported fossil fuels and use more renewable energy.

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.....[3]

(iv) Japan plans to increase its use of nuclear power.
Suggest **two** benefits and **two** possible problems for Japan of using more nuclear power.

Benefit 1 .....

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Benefit 2 .....

.....

Problem 1 .....

.....

Problem 2 .....

.....[4]

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(b) Study Fig. 6.2 (Insert), which is a photograph showing an area where electricity is generated using solar panels and wind turbines in Madeira, a Portuguese island in the Atlantic Ocean.

(i) Suggest why these methods of electricity generation are possible in this location.

.....

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.....[3]

(ii) There is a proposal to extend the area where solar power is being generated into area **X**. Explain why some people are likely to support this proposal but other people will be against it.

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.....[5]

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(c) For a named country you have studied, explain how **water supply** is being managed to ensure future supplies.

Name of country .....

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.....[7]

[Total: 25]

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GEOGRAPHY **0460/21**

Paper 2 **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Plain paper
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 3.1 and 3.2 for Question 3, and Figs. 6.1 and 6.2 for Question 6.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **17** printed pages, **3** blank pages and **1** Insert.

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1 Study the map extract for Kivik, Sweden. The scale is 1:50 000.

Fig. 1.1 shows some of the features in the south west of the map extract around the settlement of Olof.

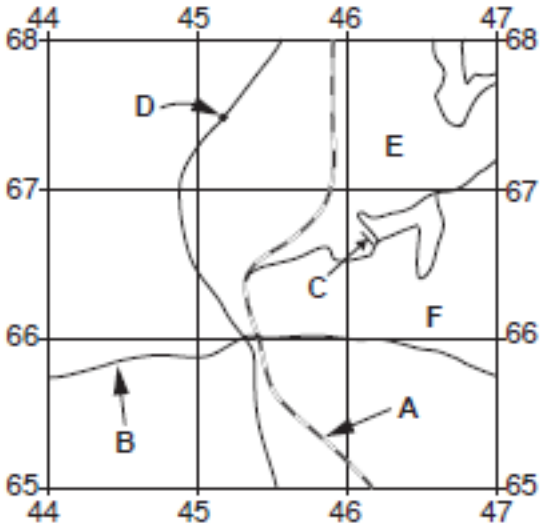

Fig. 1.1

(a) Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**

.....[1]

(ii) the type of road at **B**

.....[1]

(iii) feature **C**

.....[1]

(iv) the height above sea level at spot height **D**

..... metres [1]

(v) the land use in area **E**

.....[1]

(vi) the land use in area **F**.

.....[1]

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(b) Look at the coastal area from Kivik to the northern edge of the map extract. Give **two** pieces of map evidence which suggests that this area has a tourist industry.

1.....

2.....

[2]

(c) Fig. 1.2 is a cross section along northing 69 from 490690 to the sea at 560690.

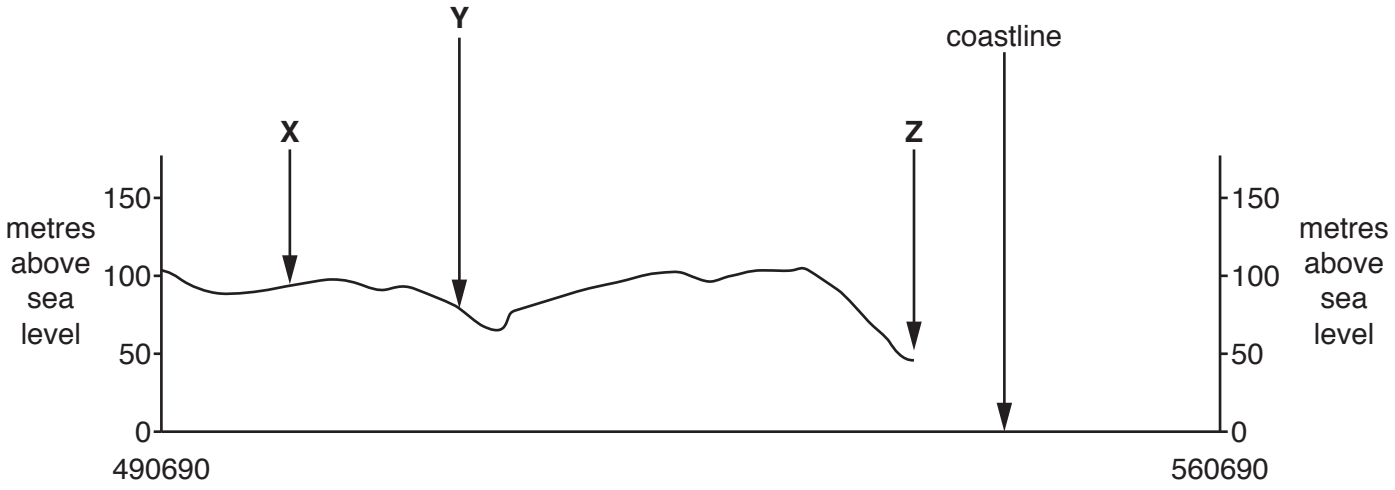

Fig. 1.2

(i) Identify feature **X**.

.....[1]

(ii) Name the settlement at **Y**.

.....[1]

(iii) Using the map, **complete the cross section** on Fig. 1.2 between **Z** and the coastline.

[1]

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(d) Look at the settlements of Olof and S Mellby. Find the churches in Olof and S Mellby, shown by this symbol:

+

(i) Measure the distance in a straight line between the church at Olof and the church at S Mellby. Give your answer in metres.

..... metres [1]

(ii) Give the compass direction **from** the church at Olof **to** the church at S Mellby.

..... [1]

(iii) Measure the bearing **from** the church at Olof **to** the church at S Mellby.

..... degrees [1]

(iv) What is the six-figure grid reference of the church at S Mellby? Tick **one** box below.

	Tick (✓)
688507	
507688	
507689	
513691	
507691	

[2]

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(e) Fig. 1.3 shows an area in the north of the map extract.



Fig. 1.3

Describe the relief of this area.

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.....[4]

[Total: 20]

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2 **(a)** Study Fig. 2.1, which shows the population structure of South Sudan in 2014 and Fig. 2.2, which shows the population structure of Germany in 2014.

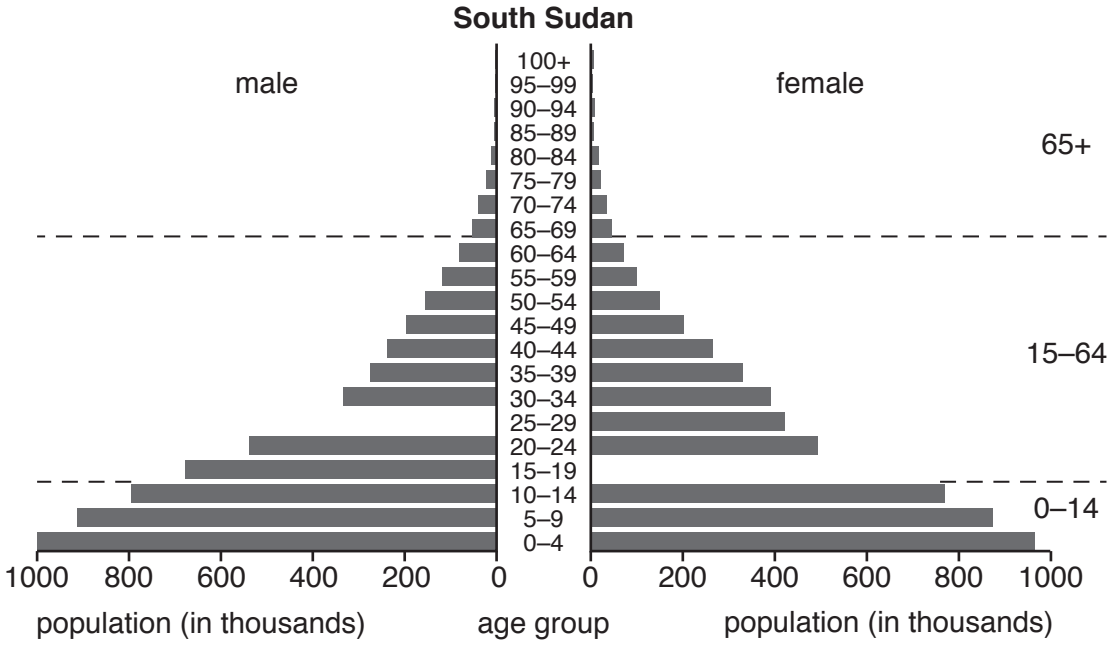

Fig. 2.1

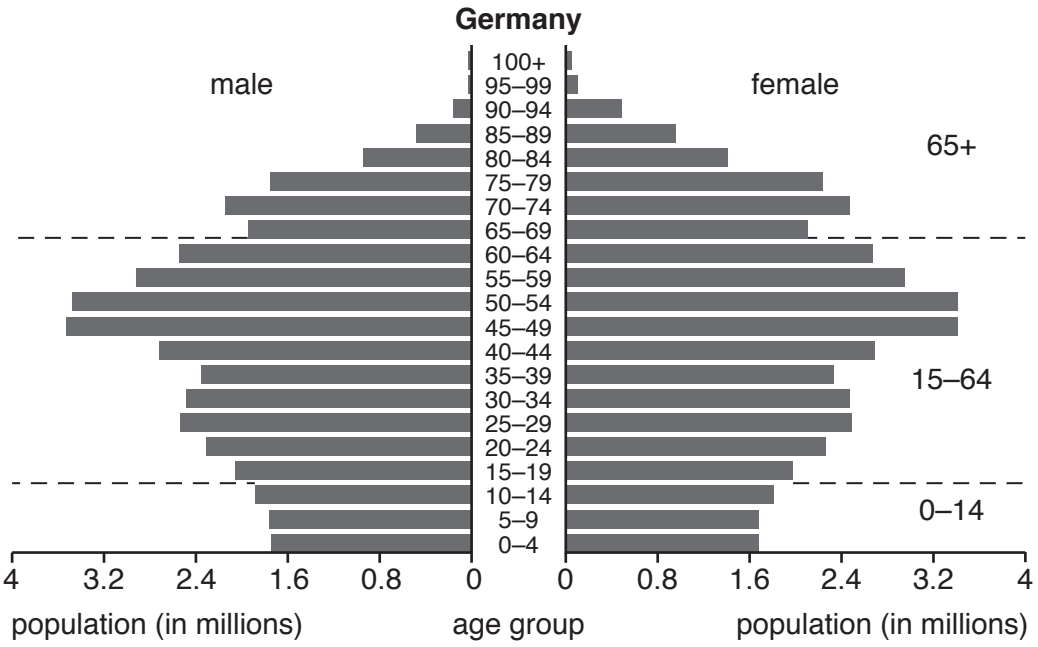

Fig. 2.2

(i) **Plot the following information** on Fig. 2.1:

600 000 females aged 15–19

400 000 males aged 25–29. [2]

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(ii) Give **three** differences between the population structure of South Sudan and the population structure of Germany.

1 .....

.....

2 .....

.....

3 .....

.....[3]

(iii) Suggest **one** problem caused by **each** population structure.

South Sudan

.....

.....

Germany

.....

.....[2]

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(b) Fig. 2.3 shows the population structure of Qatar in 2014.

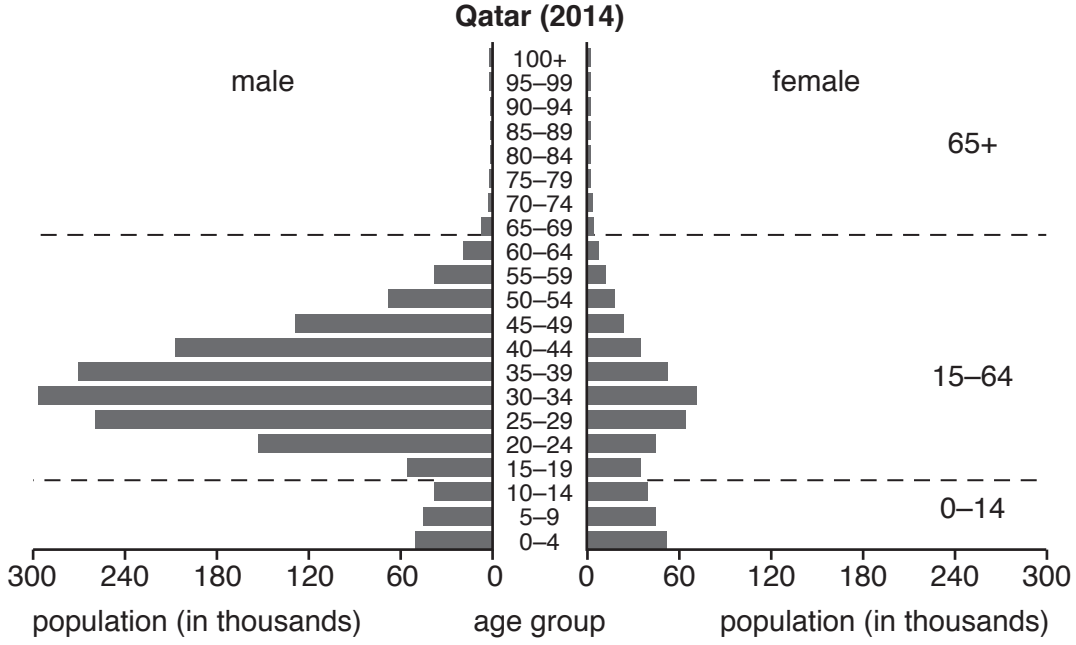

Fig. 2.3

Look at the numbers of males and females in Qatar. Suggest a reason for this population structure.

.....

.....

.....

.....[1]

[Total: 8]

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3 Figs. 3.1 and 3.2 (Insert) are photographs which show two settlements.

(a) Describe the **site** and **location** of each settlement.

Fig. 3.1

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.....

.....

.....

.....

Fig. 3.2

.....

.....

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.....[4]

(b) Describe the **agriculture** in each photograph.

Fig. 3.1

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Fig. 3.2

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.....[4]

[Total: 8]

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4 Fig. 4.1 shows the locations of the epicentres of the largest earthquakes that occurred on January 3 2017.

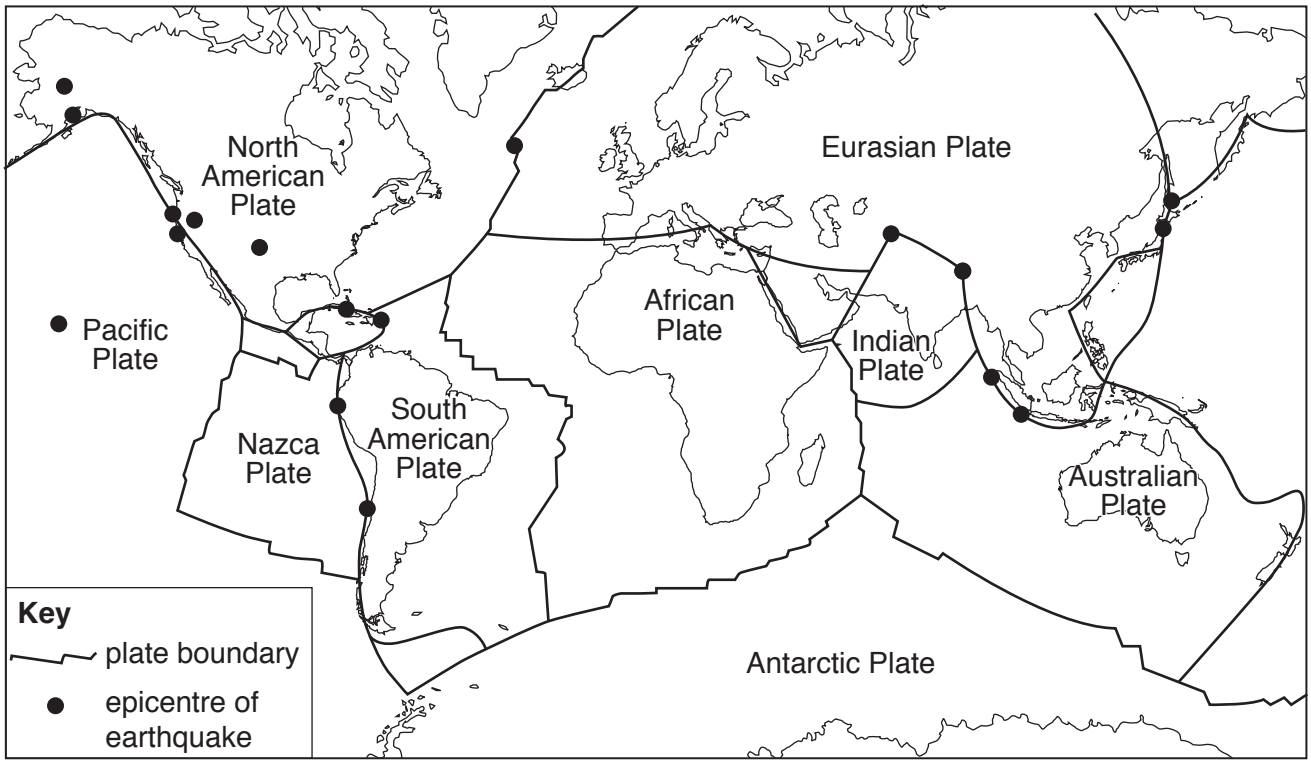

Fig. 4.1

(a) **(i)** What is meant by the term *epicentre*?

.....

.....[1]

(ii) Describe the relationship between earthquakes and plate boundaries shown on Fig. 4.1.

.....

.....

.....

.....

.....[2]

(b) Table 4.1 shows the depth of focus and magnitude (strength) of the earthquakes shown on Fig. 4.1.

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Table 4.1

Depth of focus (km)	Magnitude (Richter value)
206	3.9
36	5.5
121	4.5
68	5.2
36	4.6
54	4.5
44	2.7
8	3.4
35	2.6
5	2.6
1	2.6
7	2.6
6	3.5
110	3.2
35	3.3
108	5.9
216	4.2
11	4.8

Table 4.2 describes the depth of earthquake foci.

Table 4.2

Depth of focus (km)	Description
0–50	shallow
51–300	medium
301–670	deep

Using Table 4.2, what is the depth of most of the earthquakes shown on Fig. 4.1 and Table 4.1? Tick **one** box in the table below. [1]

	Tick (✓)
shallow	
medium	
deep	

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(c) (i) Table 4.3 describes the magnitude (strength) of earthquakes.

Table 4.3

Magnitude (Richter value)	Description	Average frequency per year
2–3.9	minor	More than 1 million
4–4.9	light	10 000–150 000
5–5.9	moderate	1000–1500
6–6.9	strong	100–150
7–7.9	major	10–20
8 and over	great	1

What term describes most of the earthquakes shown on Fig. 4.1 and Table 4.1? Tick **one** box below.

	Tick (✓)
minor	
light	
moderate	
strong	
major	
great	

[1]

(ii) Describe the relationship between the magnitude and frequency of earthquakes shown in Table 4.3.

.....

.....

.....[1]

(d) Give **two** earthquake hazards which cause death or injury to people.

1.....

2.....[2]

[Total: 8]

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5 Study the following information about the weather for one week in January in Cumbria, UK.

Table 5.1

Date in January	25	26	27	28	29	30	31
maximum temperature (°C)	6	7	8	8	8	5	4
minimum temperature (°C)	4	4	5	4	0	–2	–4
wind direction	SW	SW	W	W	N	E	E
rainfall (mm)	8	10	4	0	0	0	0
weather							

(a) Name **three** of the instruments used to collect the data in Table 5.1.

1.....

2.....

3..... [3]

(b) Using the information in Table 5.1 **only**, describe the relationship between wind direction and rainfall.

.....

.....

.....[1]

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[Turn over

(c) Look at the information about wind direction on January 30 and 31 shown in Table 5.1. **Plot this information** on Fig. 5.1. [1]

Wind rose for January

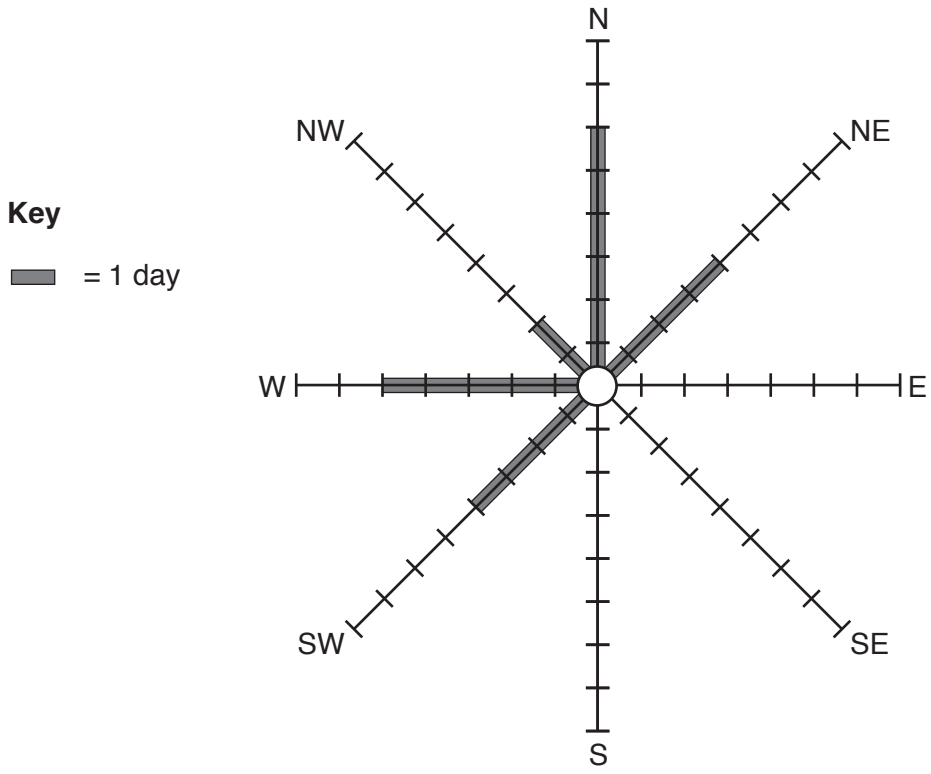

Fig. 5.1

(d) Using the information in Table 5.1, calculate the range of temperature on January 30.

.....°C [1]

(e) Using the information in Table 5.1, describe the influence of cloud cover on temperatures.

.....

.....

.....

.....

.....[2]

[Total: 8]

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6 Figs. 6.1 and 6.2 (Insert) are photographs which show two sides of the same street in Cambridge, UK.

(a) Describe the buildings seen in Fig. 6.1.

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.....[5]

(b) Using evidence from Figs. 6.1 and 6.2 **only**, suggest why the street is a popular destination for tourists.

.....

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.....[3]

[Total: 8]

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Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

9986507826

GEOGRAPHY **0460/22**

Paper 2 **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Calculator
Protractor

1:50 000 Survey Map Extract is enclosed with this Question Paper.

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Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 3.1 and 3.2 for Question 3, Fig. 4.1 for Question 4, and Figs. 5.1 and 5.2 for Question 5.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries
NICs – Newly Industrialised Countries

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **21** printed pages, **3** blank pages and **1** Insert.

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1 Study the map extract for Tollarp, Sweden. The scale is 1:50 000.

(a) Fig. 1.1 shows some of the features in the centre of the map extract around the settlement of Tollarp.

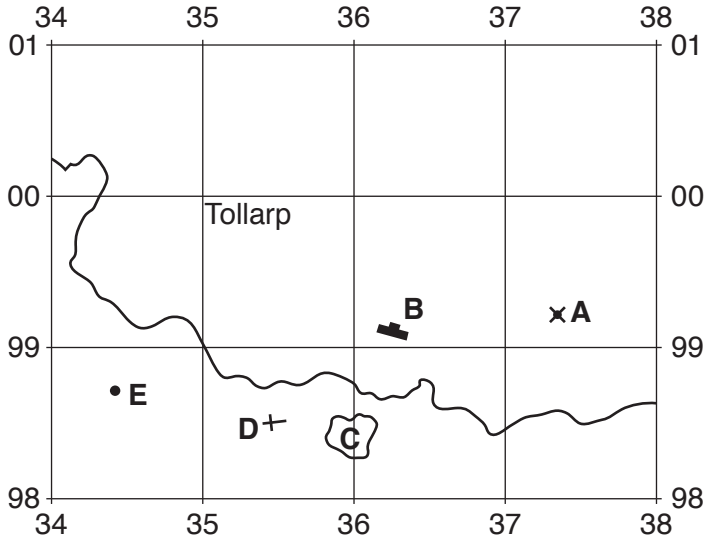

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**

..... [1]

(ii) feature **B**

..... [1]

(iii) the land use at **C**

..... [1]

(iv) feature **D**

..... [1]

(v) the height above sea level at spot height **E**.

..... metres [1]

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(b) Find the main river on the map extract, the Vramsån river. Describe the features of the river.

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.....[4]

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(c) Fig. 1.2 shows an area in the west of the map extract. Area **A** is south west of the E22 road and area **B** is north east of the E22 road.

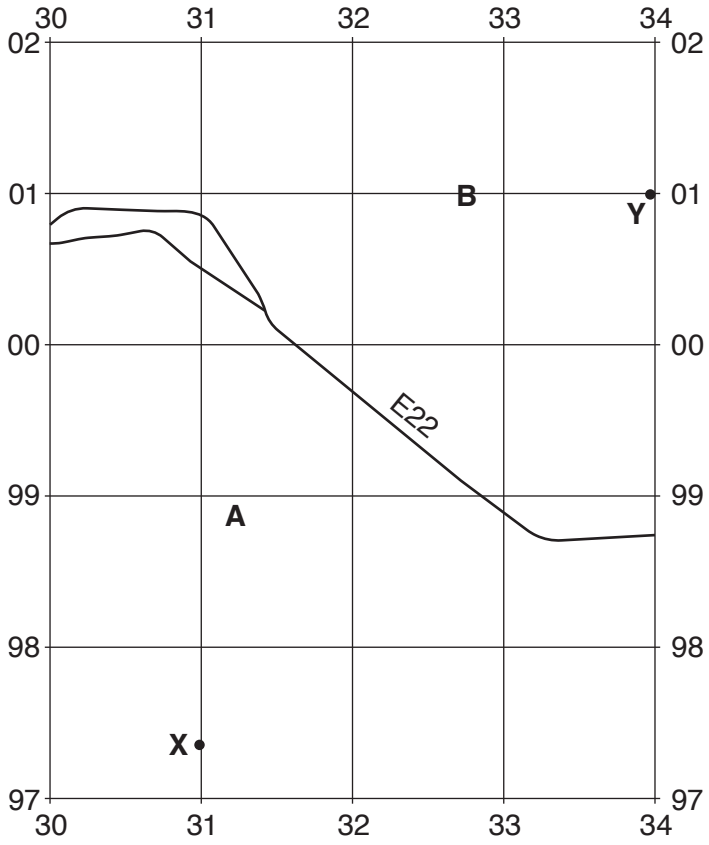

Fig. 1.2

Describe the differences in relief between area **A** and area **B**.

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.....[3]

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(d) Fig. 1.3 is a cross section between points **X** and **Y**, shown on Fig. 1.2 on the opposite page.

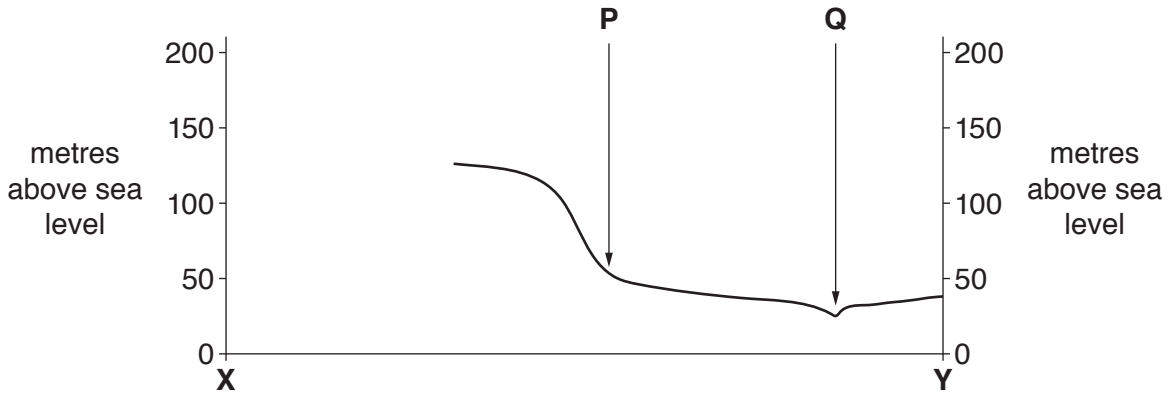

Fig. 1.3

Using the map extract:

(i) identify feature **P**

..... [1]

(ii) identify feature **Q**

..... [1]

(iii) **complete the cross section** on Fig. 1.3. [1]

(e) Look at the E22 road between where it crosses the Vramsån river and the eastern edge of the map extract.

(i) Measure the distance along this section of road. Give your answer in metres.

..... metres [1]

(ii) Give the compass direction **from** where the E22 crosses the river **to** where it meets the eastern edge of the map extract.

..... [1]

(iii) Measure the bearing **from** where the E22 crosses the river **to** where it meets the eastern edge of the map extract.

..... degrees [1]

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(iv) What is the six-figure grid reference of the point where the E22 crosses the river? Tick **one** box below.

	Tick (✓)
360987	
360983	
379993	
362977	
987360	

[2]

[Total: 20]

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2 (a) (i) Which **one** of the following statements describes a *transnational corporation*? Tick only **one** box.

	Tick (✓)
the way different countries cooperate to encourage development	
an organisation which helps development in LEDCs	
a company which exports goods all over the world	
a company which operates in two or more countries	

[1]

(ii) Which **one** of the following statements describes *globalisation*? Tick only **one** box.

	Tick (✓)
the way places on a map can be represented on a sphere	
the increased links between different parts of the world	
the way countries can be classified as MEDCs, LEDCs, NICs, etc.	
the way incomes of people in different parts of the world are becoming more equal	

[1]

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(b) Table 2.1 shows how features of a country change as the country develops.

Table 2.1

Feature of a country	How the feature changes as the country develops
Percentage of workers employed in agriculture	Falls to a very low level in rich countries
Energy consumption per person	Rises as a country develops
Adult literacy	Rises as a country develops
Number of people per doctor	....
Daily food supply	....
Cell (mobile) phone use	....

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(i) **Complete Table 2.1** (opposite) by describing the likely changes in number of people per doctor, daily food supply and cell (mobile) phone use as a country develops. [3]

(ii) Suggest reasons for the changes shown in Table 2.1 in:

percentage of workers employed in agriculture

.....

.....

.....

energy consumption

.....

.....

.....

adult literacy.

.....

.....

.....[3]

[Total: 8]

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3 **(a)** Figs. 3.1 and 3.2 (Insert) are photographs which show two bay and headland coastlines. Describe the features of each coastline.

Fig. 3.1

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Fig. 3.2

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.....

.....[6]

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(b) Explain how differences in rock type can lead to the formation of bays and headlands.

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.....

.....

.....[2]

[Total: 8]

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4 Fig. 4.1 (Insert) shows the distribution of population in Botswana, southern Africa.

(a) Describe the distribution of population shown on Fig. 4.1.

.....

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.....[4]

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(b) Fig. 4.2 shows the annual rainfall of Botswana.

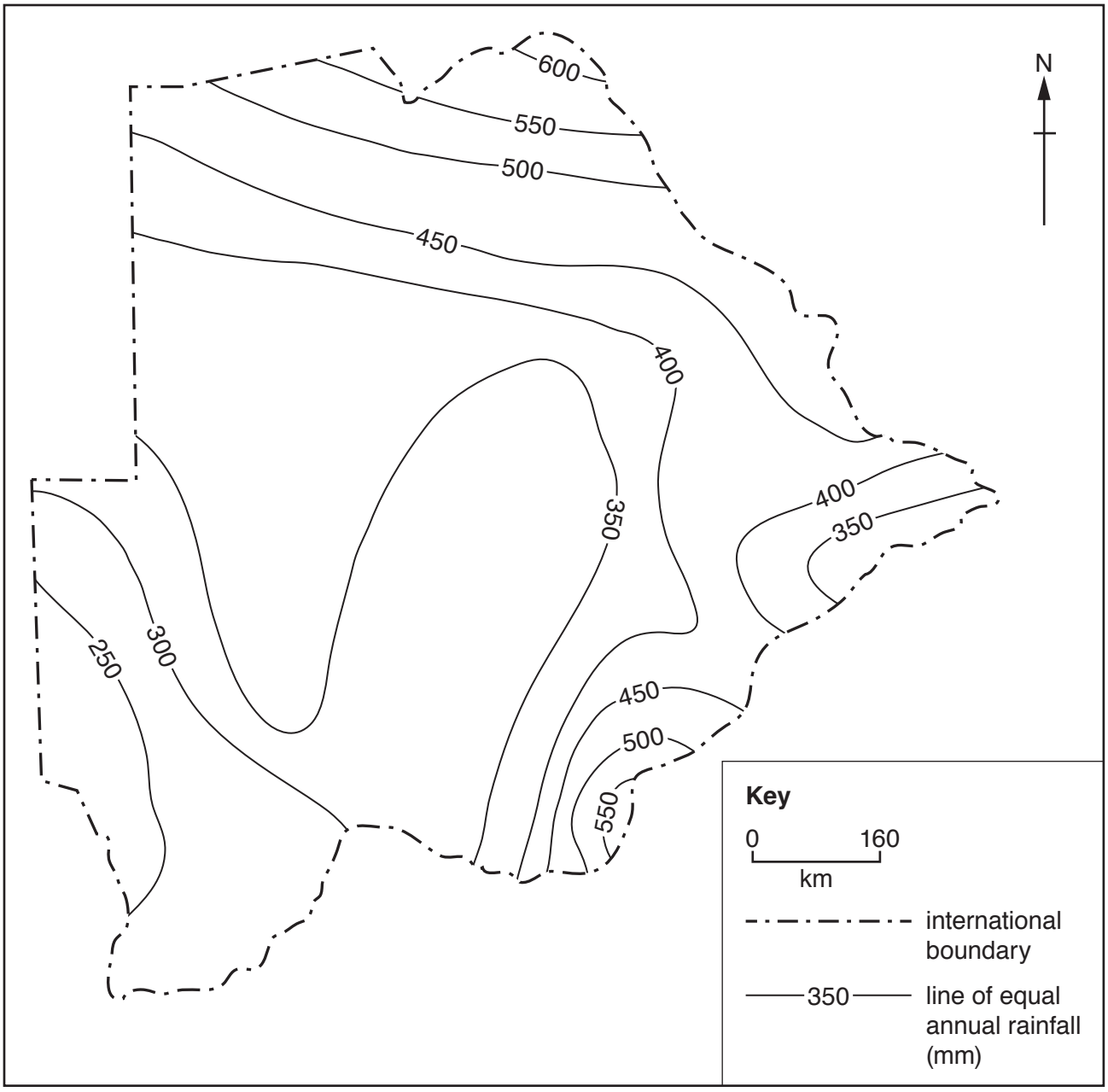

Fig. 4.2

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Using Figs. 4.1 (Insert) and 4.2, which **two** of the following statements are true? Tick **two** boxes to show which statements are true.

	Tick (✓)
there is a larger population in the drier areas	
there is a larger population in the wetter areas	
most areas with less than 300 mm of rainfall have less than 1 person per km^2	
most areas with more than 400 mm of rainfall have more than 10 people per km^2	
the wettest area in the north is more densely populated	
the driest areas in the west are more densely populated	

[2]

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(c) Fig. 4.3 shows the relief of Botswana.

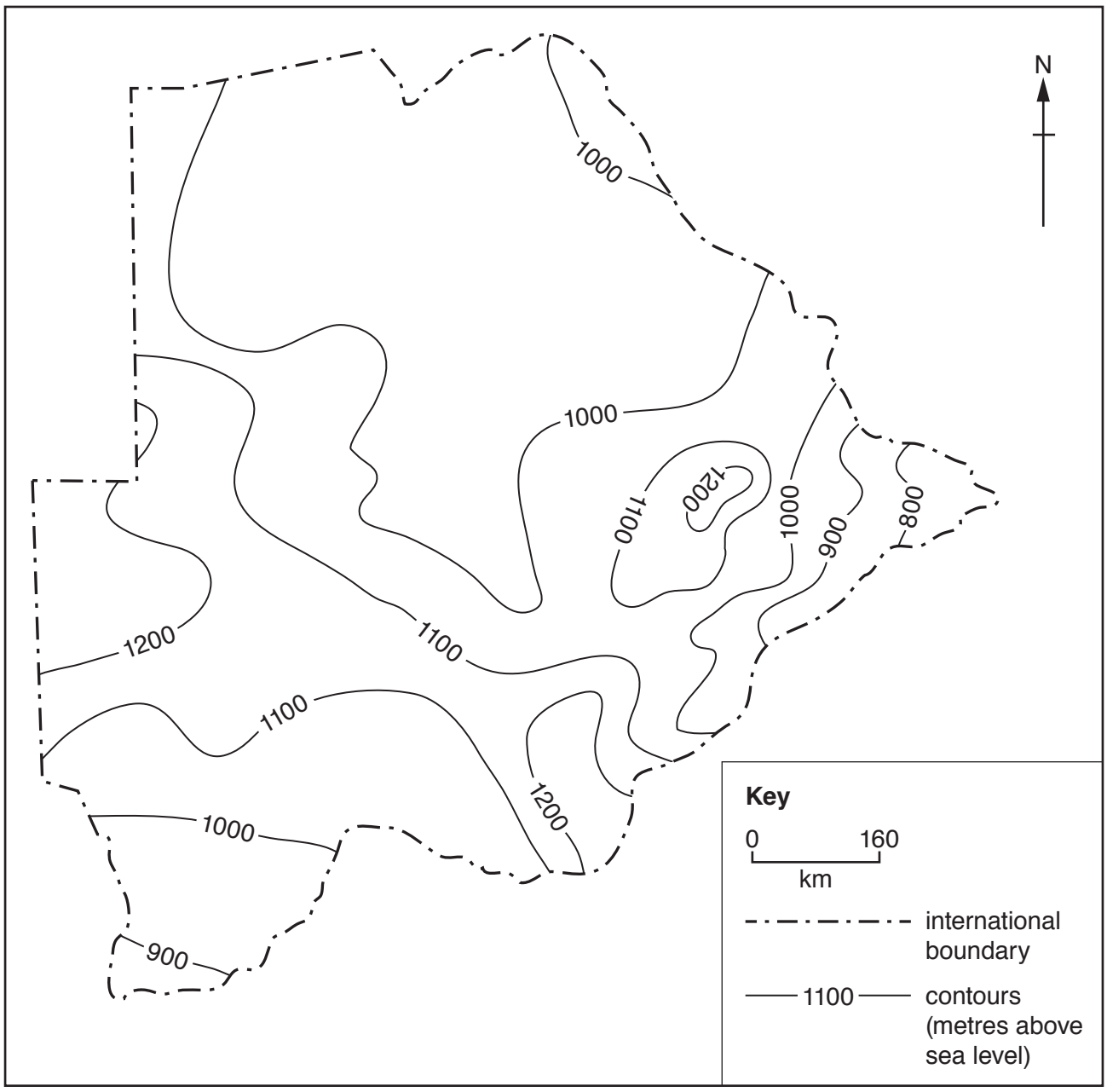

Fig. 4.3

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Using Figs. 4.1 (Insert) and 4.3, which **two** of the following statements are true? Tick **two** boxes to show which statements are true.

	Tick (✓)
the area above 1200 m in the south east is more densely populated	
all the area above 1200 m in the west has more than 10 people per km^2	
all the area below 900 m in the south has more than 10 people per km^2	
the area below 1000 m in the east has no areas with more than 10 persons per km^2	
there is a strong relationship between population density and relief	
there is no strong relationship between population density and relief	

[2]

[Total: 8]

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5 Figs. 5.1 and 5.2 (Insert) are photographs which show vegetation in two different climates.

(a) Describe the **vegetation** in Fig. 5.1.

.....

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.....

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.....[4]

(b) Describe the **trees** in Fig. 5.2.

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.....[4]

[Total: 8]

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6 Urbanisation is the increase in the proportion of the population that lives in towns and cities.

(a) Which **two** of the following are causes of urbanisation? Tick **two** boxes.

	Tick (✓)
under-population	
globalisation	
growth of industry	
sustainable development	
urban-rural migration	
rural-urban migration	

[2]

(b) In 2016, 54% of the world's population lived in urban areas but the distribution was not even between the continents. Fig. 6.1 shows levels of urbanisation and GDP per capita (a measure of wealth production) in the continents.

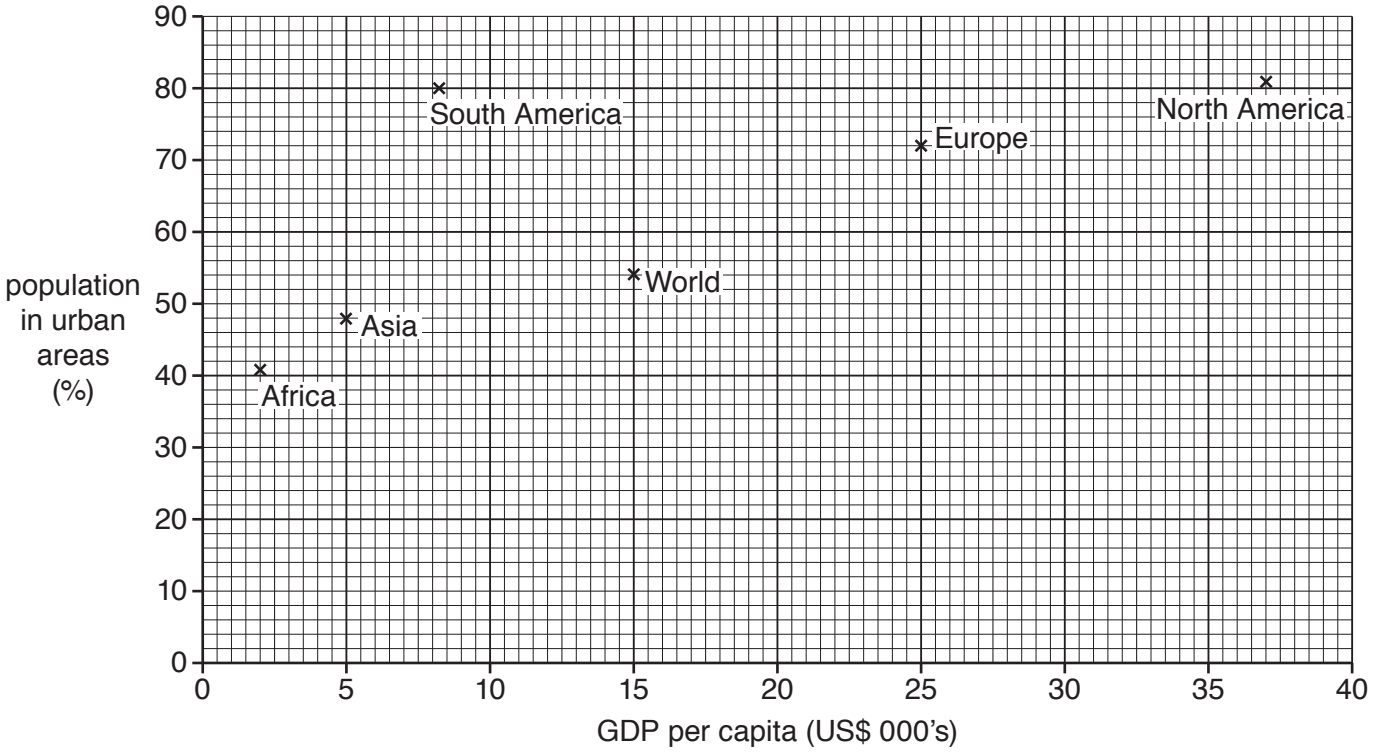

Fig. 6.1

(i) Australasia has a GDP per capita of 35 000 US$ and 70% of the population live in towns and cities. **Plot this information** on Fig. 6.1. [1]

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(ii) What is the relationship between GDP per capita and urbanisation shown on Fig. 6.1? Tick **one** correct answer below.

	Tick (✓)
positive correlation (as one increases the other increases)	
negative correlation (as one increases the other decreases)	
no relationship	

[1]

(iii) Describe how South America is an exception to the relationship shown by Fig. 6.1.

.....

.....

.....[1]

(c) Table 6.1 gives information about urbanisation in different parts of the world between 1960 and 2015.

Table 6.1

Area	Percentage of the population living in towns and cities	
	1960	2015
North America	70	82
Europe	62	76
South America	49	80
Sub-Saharan Africa	15	38

Urbanisation is the increase in the proportion of the population that lives in towns and cities. Using Table 6.1 only, compare urbanisation in the four parts of the world.

.....

.....

.....

.....

.....

.....

.....[3]

[Total: 8]

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GEOGRAPHY **0460/23**

Paper 2 **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Calculator

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1 Study the map extract for Kristianstad, Sweden. The scale is 1:50 000.

Fig. 1.1 shows some of the features in the south of the map extract.

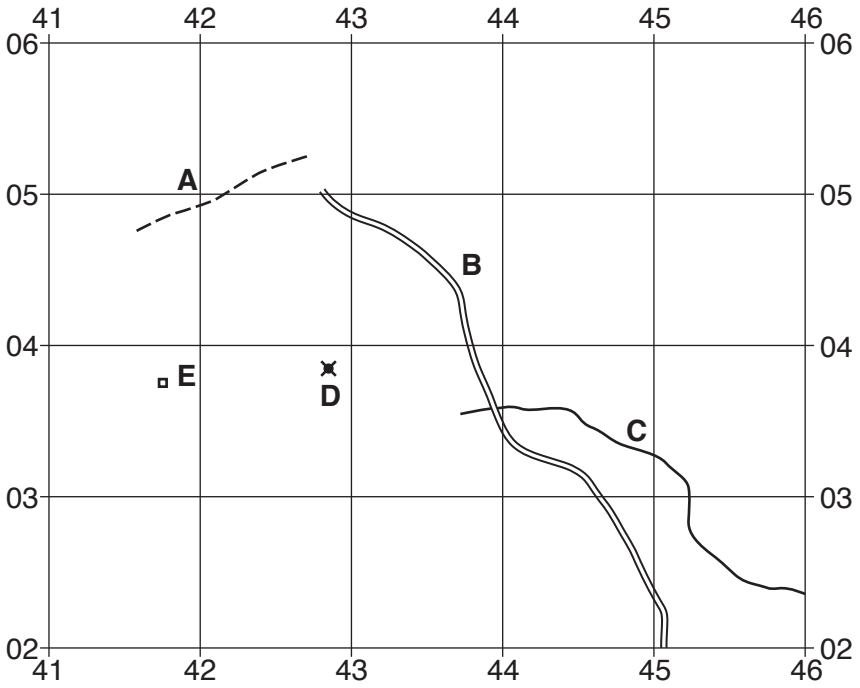

Fig. 1.1

(a) Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**

.....[1]

(ii) the type of road **B**

.....[1]

(iii) the width of the watercourse **C**

.....[1]

(iv) the feature at **D**

.....[1]

(v) the feature at **E**.

.....[1]

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(b) Fig. 1.2 shows three types of natural vegetation, **F**, **G** and **H**, in grid square 5007 in the east of the map extract.

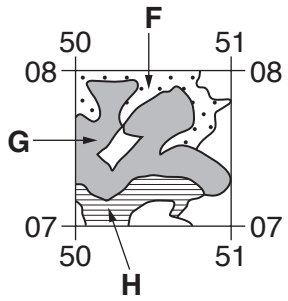

Fig. 1.2

Complete the table to identify the types of natural vegetation **F**, **G** and **H**, shown in Fig. 1.2.

Letter	Natural vegetation
F	.....
G	.....
H	.....

[3]

(c) **(i)** What is the grid reference of the centre of the triangulation point near Björkhäll in the south east of the map extract?

..... [1]

(ii) Identify the settlement pattern in the grid square in which Björkhäll is located.

.....

.....[1]

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(d) Fig. 1.3 shows the location of one of the industrial areas in Kristianstad.

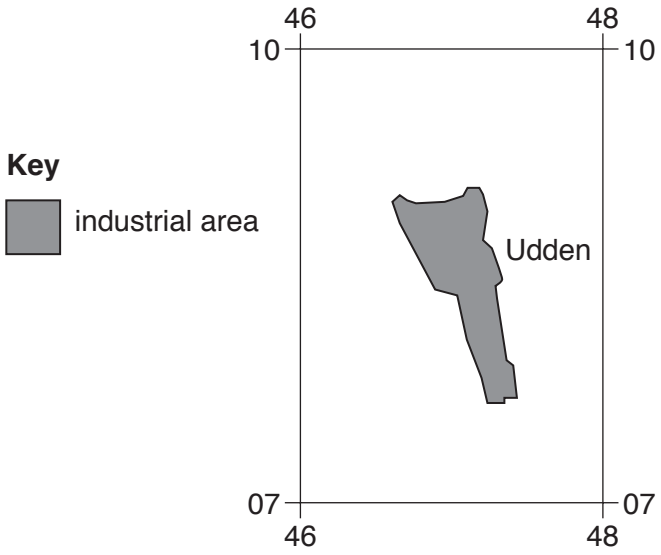

Fig. 1.3

Describe the advantages for industry of the location of this industrial area.

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.....

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.....[4]

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(e) Which **three** of the statements about Kristianstad are correct? Tick **three** correct statements below.

	Tick (✓)
high-rise buildings are found only in the town centre	
it is a village	
it is between 5 and 10 metres above sea level	
sport and leisure are important functions of the settlement	
the CBD is on the east side of the river Helge å	
there are areas of forest within the town	

[3]

(f) Fig. 1.4 shows an area in the north west part of the map extract, divided into two parts, **K** and **L**.

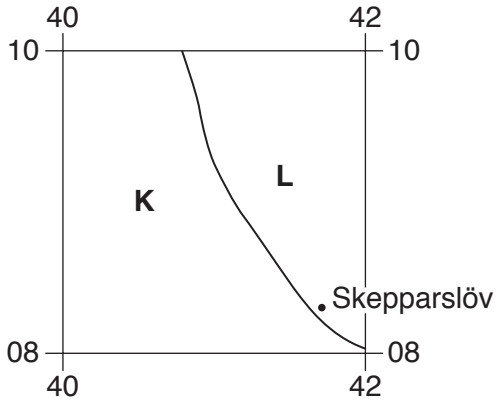

Fig. 1.4

Give **two** differences between the **relief** of areas **K** and **L**.

1 .....

.....

2 .....

.....[2]

(g) What is the name of the small settlement which is 1200 metres from, and on a bearing of 90° from, the small settlement Stensborg in grid square 4004?

.....[1]

[Total: 20]

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2 Fig. 2.1 shows Russia's natural population growth rate and birth and death rates between 1990 and 2015.

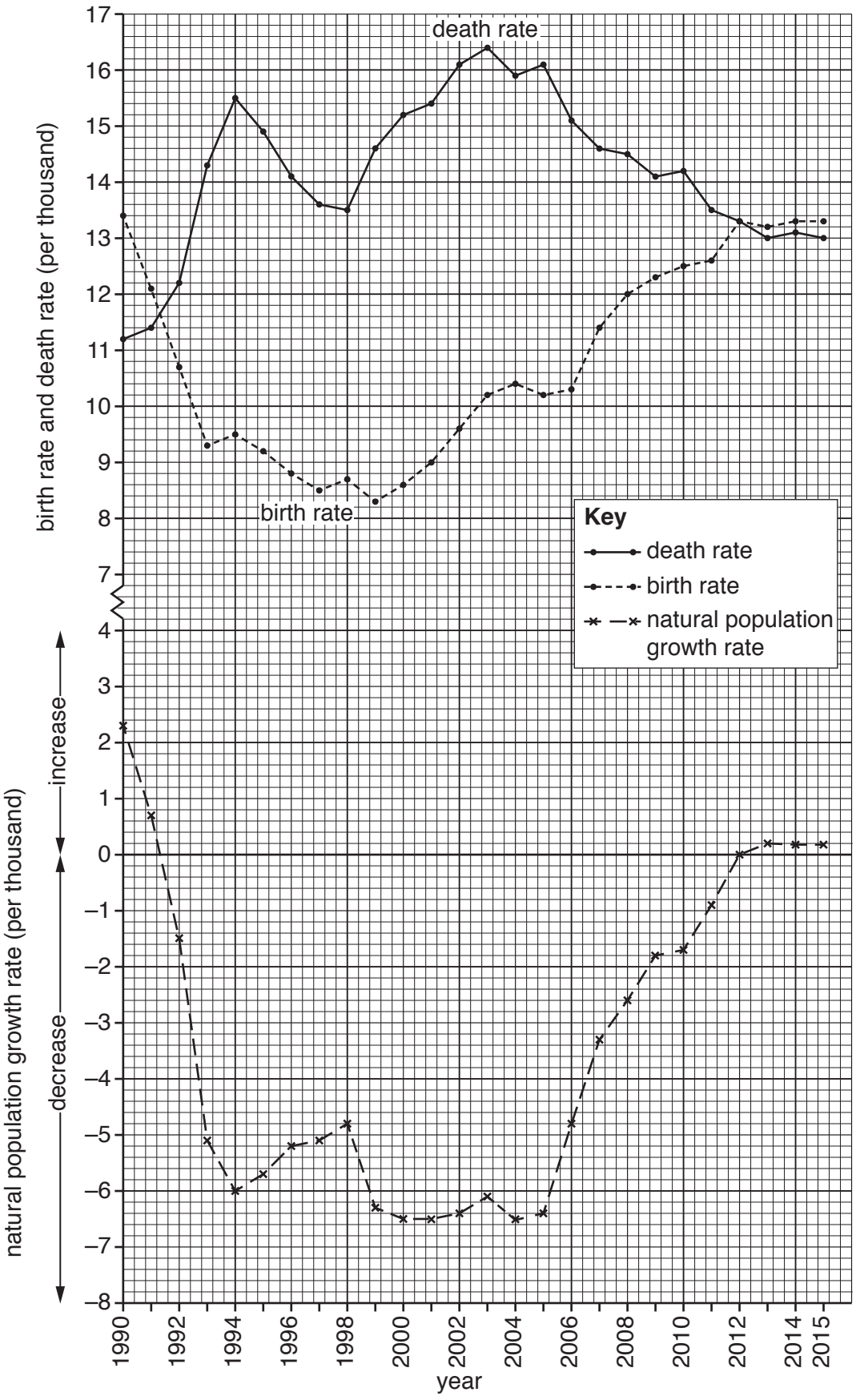

Fig. 2.1

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(a) Use Fig. 2.1 to answer the questions that follow.

(i) What was the highest death rate during the period 1990 and 2015?

..... per 1000. [1]

(ii) Which year had the lowest birth rate? .....[1]

(iii) Identify a year in which Russia had zero natural population growth.

.....[1]

(iv) Explain why there was zero natural population growth in the year you have identified in **(a)(iii)**.

.....

.....[1]

(v) Tick the statement which describes how the changes between 1994 and 2005 would have affected Russia's population total.

Between 1994 and 2005 ...	Tick (✓)
... the population total decreased	
... the population total increased	
... the population total stayed the same	

[1]

(vi) State evidence from Fig. 2.1 to explain your answer to **(a)(v)**.

.....

.....[1]

(vii) Tick the statement which describes the change in Russia's population total since 2013.

Since 2013 ...	Tick (✓)
... the population total decreased	
... the population total increased	
... the population total stayed the same	

[1]

(b) State the other factor, **not** shown on Fig. 2.1, which can change a country's population total.

.....[1]

[Total: 8]

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3 Figs. 3.1, 3.2 and 3.3 show information about a river and its valley in a country with intense rainstorms. The dam was built to control the flow of the river to reduce flooding.

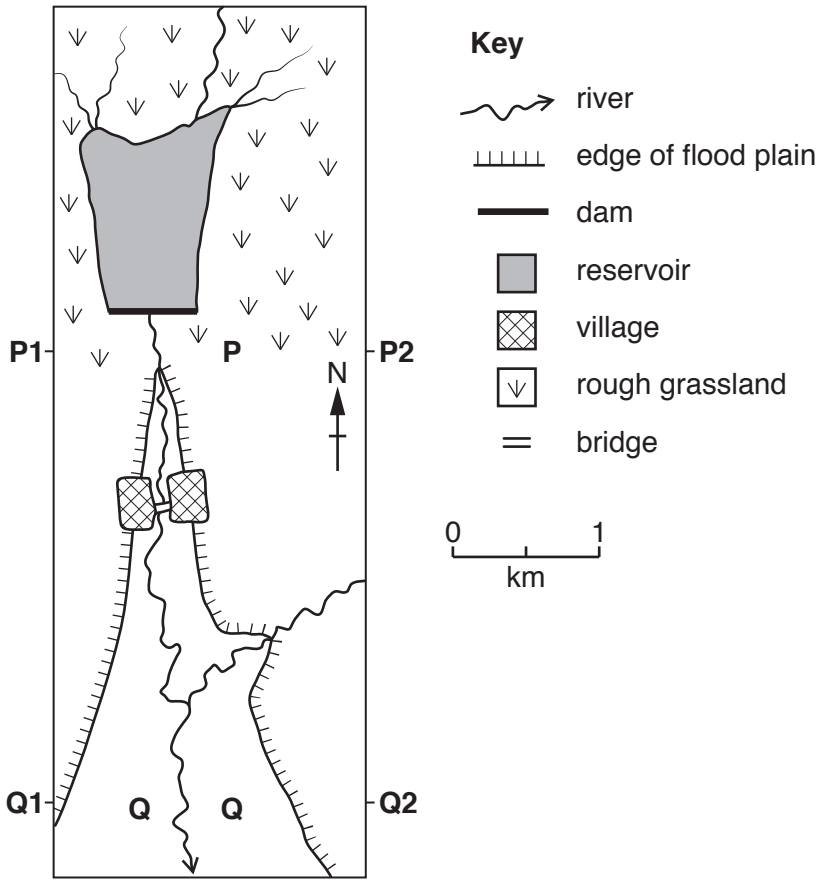


Fig. 3.1

cross section of the valley at **P**

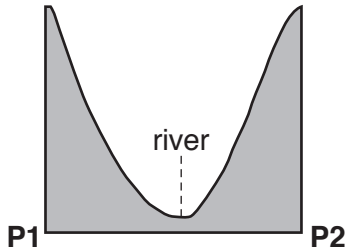


Fig. 3.2

cross section of the valley at **Q**

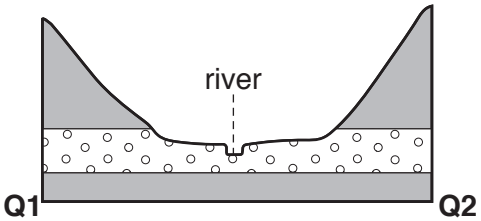
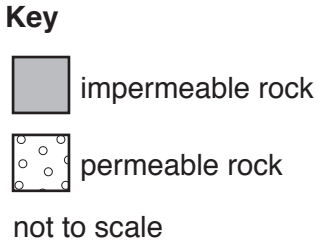


Fig. 3.3



(a) (i) Explain why the cross sectional shape of the valley at **P**, shown in Fig. 3.2, causes a rapid rise in the river level after rain.

.....

.....[1]

(ii) Circle below the river process which will decrease as river flow increases.

deposition erosion transportation [1]

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(iii) Use Fig. 3.1 to explain why there is more water in the river at **Q** than near the village.

.....

.....[1]

(b) (i) The river is allowed to flood the valley floor in area **Q**. Explain why this helps to reduce floods further downstream.

.....

.....[1]

(ii) Using Figs. 3.1 and 3.3, explain why area **Q** is a good location to allow flooding to occur.

.....

.....

.....

.....[2]

(c) Some people living in the village argued that the dam shown in Fig. 3.1 should not be built.

Give **two** disadvantages of a dam to support their opinion.

1 .....

.....

2 .....

.....[2]

[Total: 8]

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4 Figs. 4.1 and 4.2 (Insert) show different hot desert environments.

(a) (i) Describe the natural vegetation in Fig. 4.1.

.....

.....

.....

.....

.....

.....[3]

(ii) State **two** difficulties for plants growing on the type of ground surface shown in Fig. 4.1.

1 .....

.....

2 .....

.....[2]

(b) Describe ways in which the ecosystem in Fig. 4.2 is different from that in Fig. 4.1.

.....

.....

.....

.....

.....

.....[3]

[Total: 8]

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TURN PAGE FOR QUESTION 5

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5 **(a)** Table 5.1 gives information about Farm **R**, a farm in Canada and Farm **S**, a farm in South Africa.

Table 5.1

Farm feature	Farm **R** – an extensive farm	Farm **S** – an intensive farm
size of farm (ha)	600	20
average field size (ha)	100	0.3
land use	wheat, with some oats and barley	vegetables and some maize
total yield (tonnes per year)	1800	800
yield (tonnes per hectare)	3	40
labourers	4	34
other inputs	planting machines combine harvesters pesticide and fertiliser sprayers improved seeds	1000 kg of fertiliser per hectare sprinkler irrigation hand tools

(i) Using information from Table 5.1 **only**, explain why machines are used on Farm **R**.

.....

.....

.....

.....[2]

(ii) Circle below the type of farming that Farms **R** and **S** are both examples of.

arable mixed pastoral subsistence [1]

(iii) Explain why the owner of Farm **S** uses the 'other inputs' listed.

fertiliser .....

.....

irrigation .....

.....

hand tools .....

.....[3]

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(b) Farm **R** is extensive because it is a large farm in comparison with its small number of labourers.

Use Table 5.1 to compare **two** farm features of Farm **S** to show that it is an **intensive** farm.

.....

.....[2]

[Total: 8]

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6 **(a)** Figs. 6.1 and 6.2 show the human and livestock populations of Kenya from 1995 to 2015.

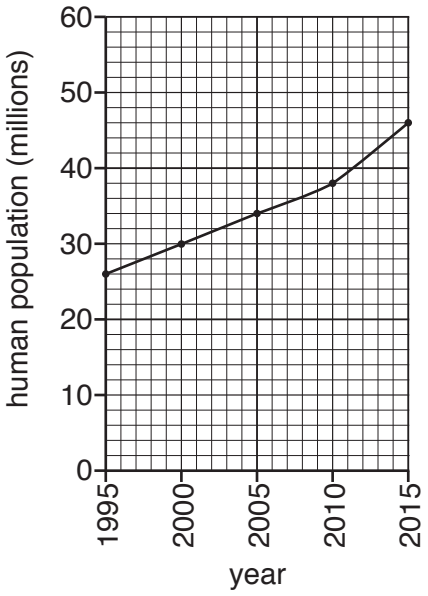

Fig. 6.1

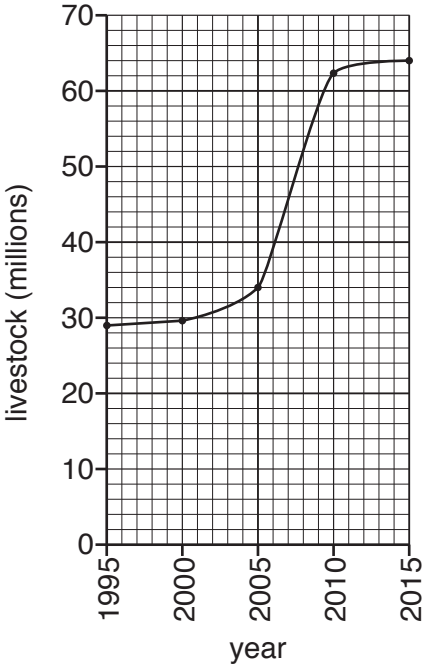

Fig. 6.2

Describe **two** differences between the growth of the human and livestock populations in Kenya between 1995 and 2015.

1 .....

.....

2 .....

.....[2]

(b) Fig. 6.3 shows the natural vegetation of Kenya.

The annual rainfall decreases from more than 2000 mm in the south west to 250 mm in the north east of the country and large areas of it are affected by desertification.

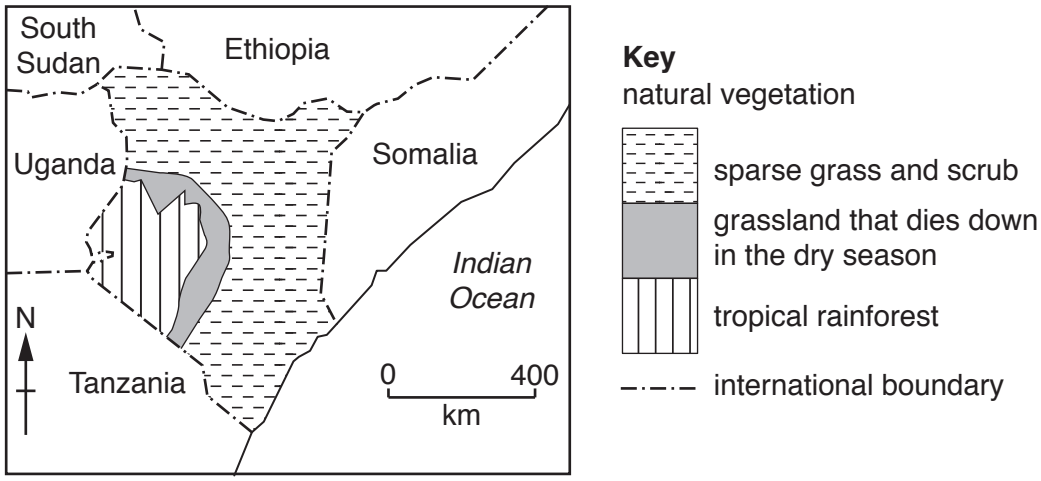

Fig. 6.3

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(i) Use Fig. 6.3 to explain why increasing livestock numbers are not sustainable in Kenya.

.....

.....[1]

(ii) In the dry season herders move their livestock in search of water and pasture. Explain how their movement damages the environment.

.....

.....[1]

(c) Fig. 6.4 shows processes that cause desertification.

Write in the empty boxes in Fig. 6.4 **two** ways in which growth in human and livestock populations cause desertification.

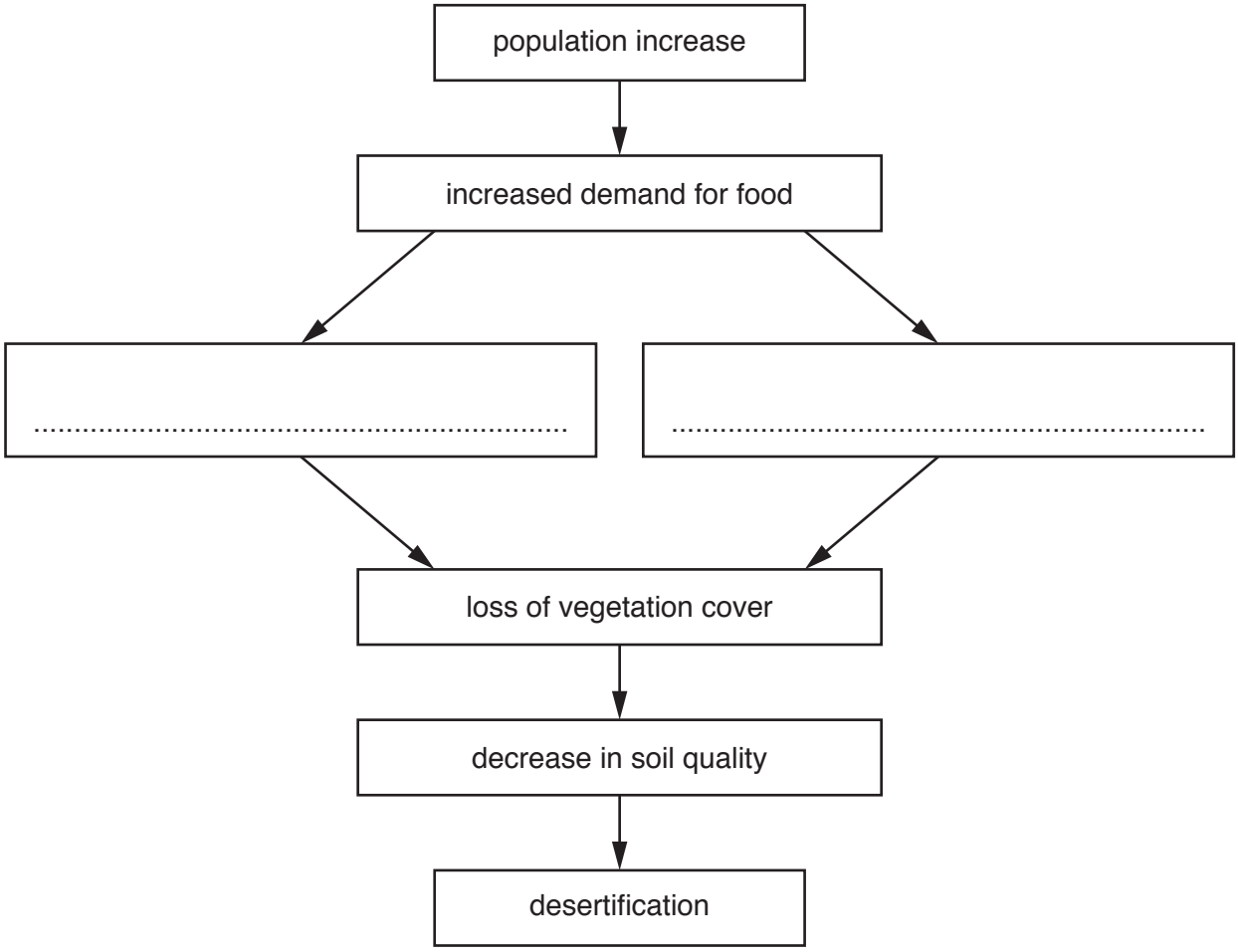

Fig. 6.4

[2]

(d) Give **one** problem of the following ways of reducing desertification.

(i) Reduce the number of livestock.

.....

.....[1]

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(ii) Use oil or gas in stoves instead of wood or charcoal.

.....

.....[1]

[Total: 8]

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CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

7121086852

GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

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You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1 and 1.4 and Tables 1.2 and 1.3 for Question 1, and Tables 2.1, 2.2 and 2.3 and Fig. 2.2 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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1 Students who lived in Campania, a farming region of Italy, did fieldwork to investigate the land use on a local farm.

(a) The farmer gave the students a map of the farm which showed the main field boundaries. The students were then given permission to investigate and draw a map to show the different ways that the fields were being used. Their map is shown in Fig. 1.1 (Insert).

(i) Use the map key to **identify the land use** in the two fields described below.

Description	Land use
a large field located 200 m east of the farmhouse	
a field located 300 m north-north west of the farmhouse	

[2]

(ii) The students did not recognise some of the crops growing in the fields. Suggest how they could solve this problem to complete their map.

.....

.....

.....

..... [2]

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(iii) From their map, the students estimated the area used for different types of farming. The results are shown in Table 1.1 below.

Table 1.1

Land use on the farm

Land use	Area (ha)	Percentage of farm area (%)
Wheat	14	24.6
Olives	11	19.3
Oranges	10	17.5
Sheep	7	12.3
Potatoes	6	10.5
Cattle	4	7.0
Tomatoes	2	3.5
Beans	2	3.5
Onions	1	1.8
Total		100

Calculate the total area of the farm.

.....hectares (ha) [1]

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(iv) The students plotted the area of each land use on a bar graph, and the percentage of the total farm area in each land use on a pie graph. These are shown in Figs. 1.2 and 1.3 below.

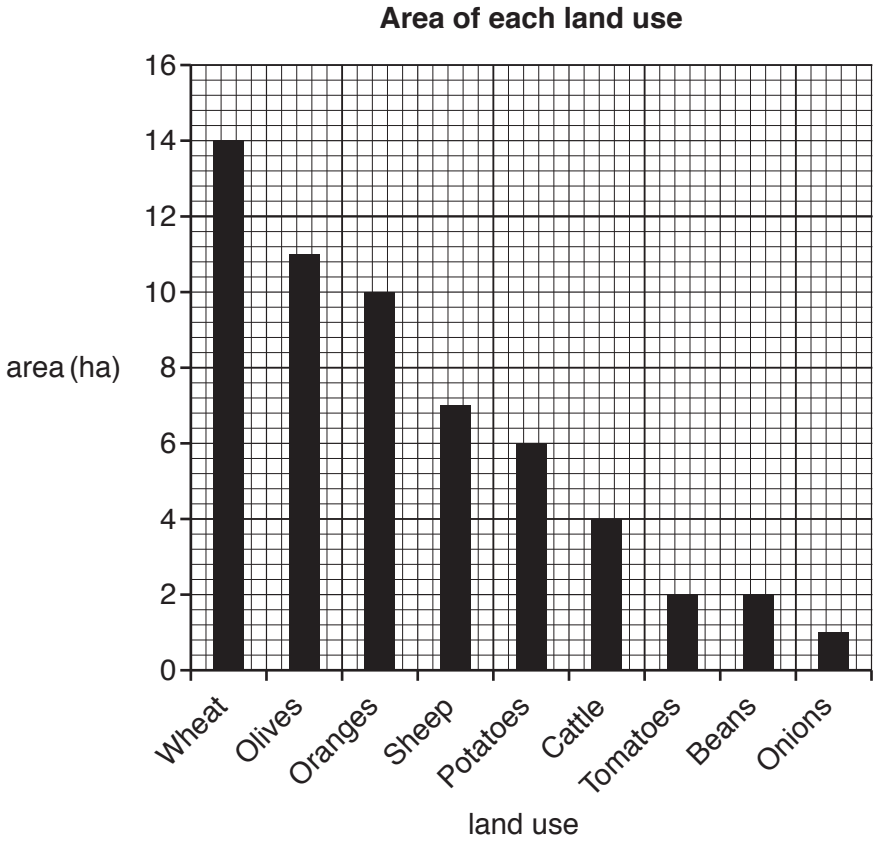

Fig. 1.2

Percentage of total farm area in each land use

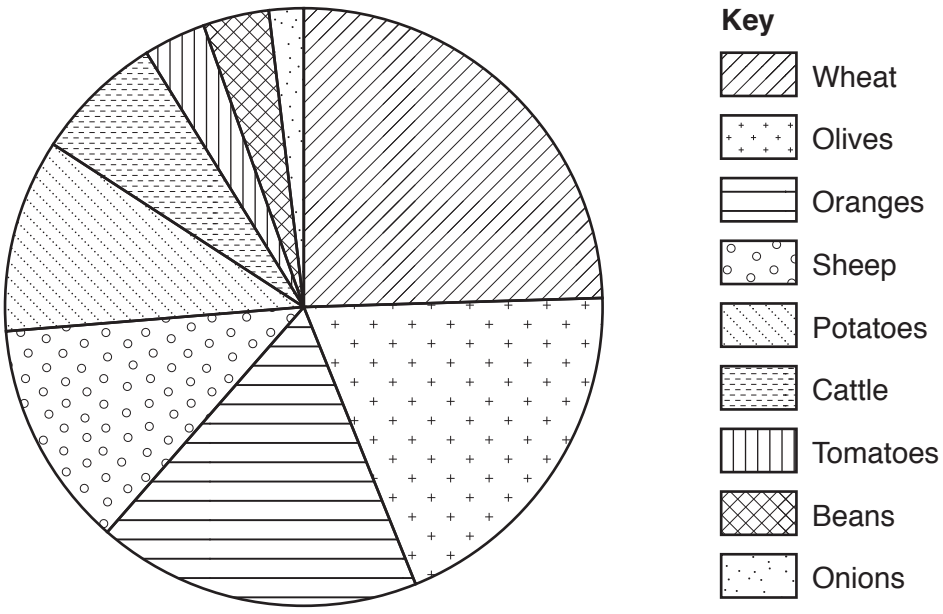

Fig. 1.3

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Give **one** advantage of each graph to show the data.

Bar graph .....

.....

Pie graph .....

..... [2]

The students decided to investigate two hypotheses:

Hypothesis 1: *The land use changes as land gets higher and steeper*.

Hypothesis 2: *There is a **positive** relationship between the size of fields and the amount of labour needed for different land uses*.

(b) To investigate **Hypothesis 1** the students needed to find out the height and steepness of slope in different fields. To do this they followed two paths up the hillside from the road on which the farmhouse was located. When they came to each different field they did two fieldwork tasks which are described below.

The paths and fieldwork locations are shown on Fig. 1.1 (Insert).

(i) They recorded the height of the land using their cell (mobile) phone. The application is shown in Fig. 1.4 (Insert). Which piece of information below would the students record? Tick your choice.

	Tick (✓)
altitude	
latitude	
longitude	

[1]

(ii) They measured the angle of slope along each path. Suggest what equipment they would use and how they would do this task.

.....

.....

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..... [4]

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(iii) Table 1.2 (Insert) shows the results of their fieldwork. The students made the conclusion that **Hypothesis 1:** *The land use changes as land gets higher and steeper* was true. Use evidence from Table 1.2 and Fig. 1.1 to support this decision.

.....

.....

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.....

.....

..... [3]

(iv) Suggest **two** reasons why the land use changes as the land gets higher and steeper.

1 .....

.....

2 .....

..... [2]

(c) To test **Hypothesis 2:** *There is a **positive** relationship between the size of fields and the amount of labour needed for different land uses*, the students obtained some secondary data from the farmer. This is shown in Table 1.3 (Insert).

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(i) Use the data in Table 1.3 to **plot the average field size and labour needed** for wheat and olives on Fig. 1.5 below. Label the two land uses. [2]

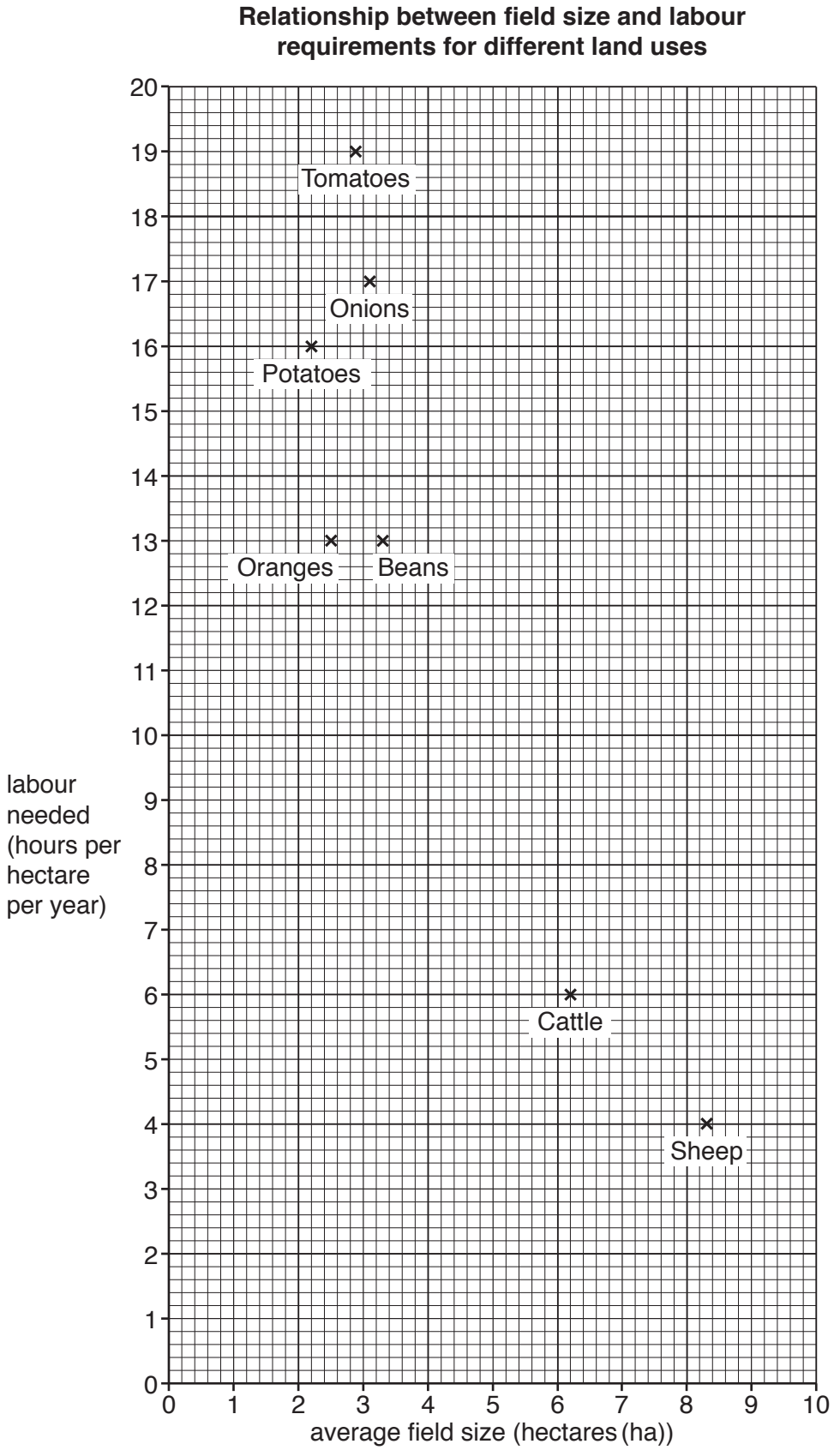

Fig. 1.5

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(ii) **Draw a best-fit line** onto Fig. 1.5. [1]

(iii) What is your conclusion about **Hypothesis 2:** *There is a **positive** relationship between the size of fields and the amount of labour needed for different land uses*? Support your conclusion with evidence from Table 1.3 and Fig. 1.5.

.....

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..... [4]

(d) **(i)** Labour is a human input of farming. Give **two** other human (economic and/or social) inputs on a farm such as this.

1 .....

2 ..... [2]

(ii) The steepness and height of the land are natural inputs which affect how the land is used. Give **one** other natural input which affects land use.

..... [1]

(e) To extend their investigation the students wanted to find out more about the processes which took place on the farm. Describe ways that they could do this.

.....

.....

.....

.....

.....

..... [3]

[Total: 30]

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2 Students investigated how the cross section and velocity of a local river changed downstream. They did fieldwork at five sites along the river.

The two hypotheses which the students tested were:

Hypothesis 1: *The wetted perimeter of the river channel increases* ***at each site*** *downstream*.

The wetted perimeter is the part of the river channel cross section which is in contact with the water.

Hypothesis 2: *River velocity (speed of flow) increases downstream*.

(a) Before beginning their fieldwork, the students discussed the fieldwork tasks they needed to do.

(i) Suggest **three** factors the students should have considered in choosing their fieldwork sites.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(ii) Suggest how the students could prepare for the fieldwork tasks before making their measurements so that their results would be as accurate as possible.

.....

.....

.....

..... [2]

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(b) To investigate **Hypothesis 1:** *The wetted perimeter of the river channel increases* ***at each site*** *downstream*, two groups of students used different fieldwork methods.
Group A measured the width of the river channel and the depth of the river at points across the channel to calculate the wetted perimeter.
Group B measured the wetted perimeter in the river channel itself.

(i) Describe how group A would measure the width of the channel and the depth at different points across the channel.

width of river channel .....

.....

.....

.....

depth of river channel.....

.....

.....

..... [4]

(ii) Group A's measurements for one site are shown in Table 2.1 (Insert).
Use these results to **complete the cross section and shade in the river channel** on Fig. 2.1 below. [2]

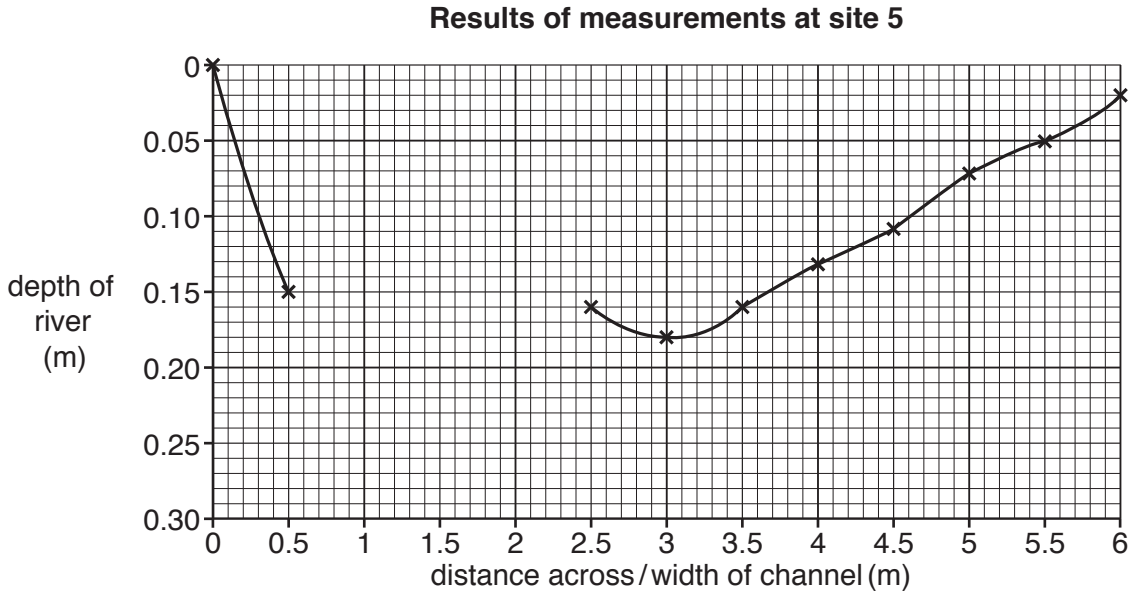

Fig. 2.1

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(iii) The method used by group B is shown in Fig. 2.2 (Insert). Suggest **two** difficulties of this method of measuring the wetted perimeter of the channel.

1 .....

.....

2 .....

..... [2]

(iv) Table 2.2 (Insert) shows the results obtained by groups A and B. What conclusions did the students in groups A and B make about **Hypothesis 1:** *The wetted perimeter of the river channel increases* ***at each site*** *downstream*?
Use evidence from Table 2.2 to support the conclusions.

Group A .....

.....

.....

.....

Group B .....

.....

.....

..... [4]

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(c) To investigate **Hypothesis 2:** *River velocity (speed of flow) increases downstream*, the students measured the velocity at each site.

(i) Describe **one** method to measure river velocity.

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.....

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..... [4]

(ii) The students' measurements are shown in Table 2.3 (Insert). **Plot the result for site 5** on Fig. 2.3 below. [1]

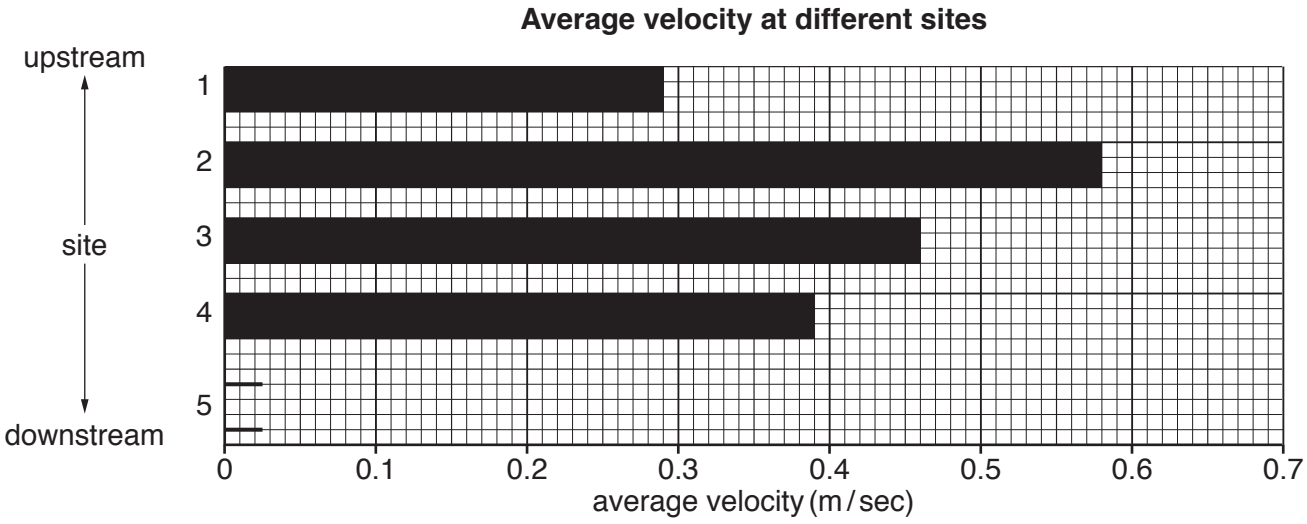

Fig. 2.3

(iii) The students' conclusion was that their results partially supported **Hypothesis 2:** *River velocity (speed of flow) increases downstream*. Give **two** pieces of evidence from Fig. 2.3 and Table 2.3 to explain why they reached this conclusion. Support each piece of evidence with data.

1 .....

.....

2 .....

..... [2]

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(d) A student in group A read in textbooks that the wetted perimeter of the river channel creates friction, so the longer the wetted perimeter, the more friction there will be between the channel and the river. Friction slows down the velocity of the river.

(i) The student plotted her results of the wetted perimeter and velocity measurements on a scatter graph, Fig. 2.4 below.

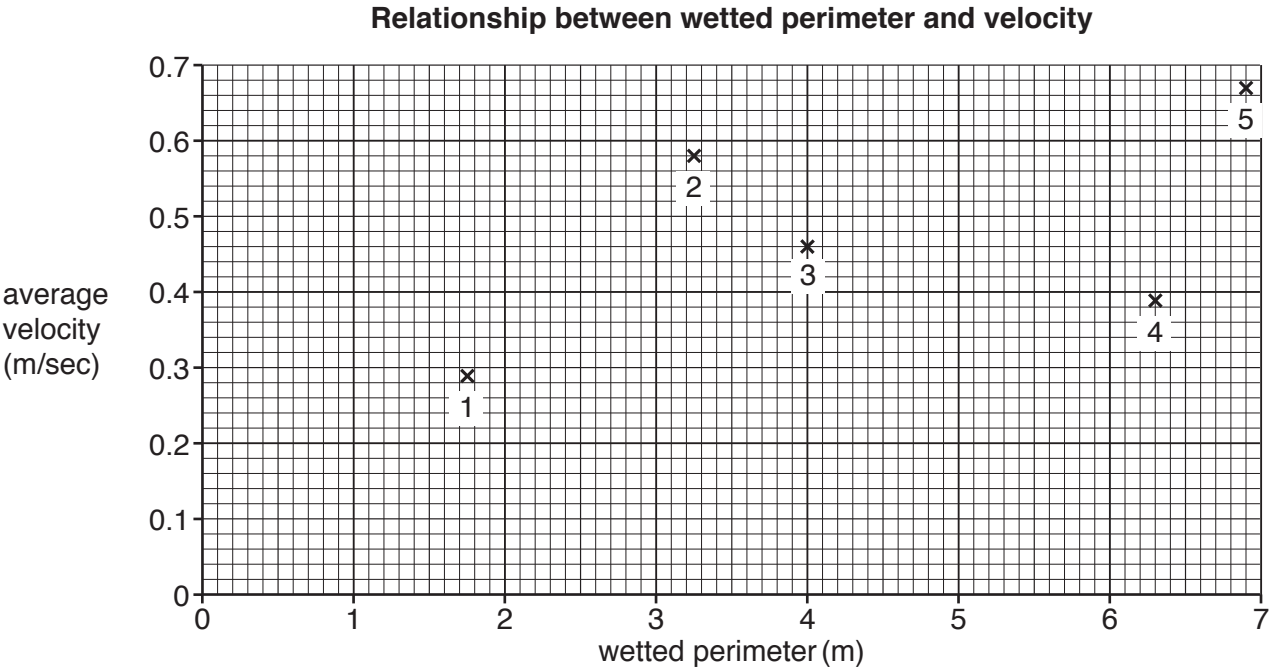

Fig. 2.4

Which **one** of the following are the student's results for **site 2**?
Tick (✓) your answer.

Wetted perimeter (m)	Average velocity (m/sec)	Tick (✓)
3.0	0.52	
3.25	0.58	
3.5	0.61	

[1]

(ii) The student decided that the results showed a partial relationship between the length of the wetted perimeter and river velocity. Support this decision with data from Fig. 2.4.

.....

.....

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.....

.....

..... [3]

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(iii) The wetted perimeter is one factor which affects a river's velocity. Give **two** other factors which also affect the velocity.

1 .....

.....

2 .....

..... [2]

[Total: 30]

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CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

2604646273

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

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Answer **all** questions.

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1 Students in South Korea investigated differences in temperatures around their school. They chose 10 sites at which to measure temperature, 5 in a built-up area and 5 in a rural area. The 10 sites are shown on Fig. 1.1 (Insert).

The students investigated the following hypotheses:

Hypothesis 1: *Temperatures are higher in the built-up area than in the rural area.*

Hypothesis 2: *Daily temperatures differ more in the built-up area than in the rural area.*

(a) To measure the temperature the students used a digital thermometer. This is shown in Fig. 1.2 (Insert).

(i) Give **three** advantages of using a digital thermometer such as the one shown in Fig. 1.2.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(ii) Suggest **two** ways that the students could check that their temperature measurements were correct.

1 .....

.....

2 .....

..... [2]

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(b) The students measured the temperature in the morning and afternoon at each of the 10 sites. Their results are shown in Table 1.1 below.

Table 1.1

Students' results

Measuring site location	Morning temperature (°C)	Afternoon temperature (°C)	Average temperature (°C)	Difference between morning and afternoon temperature (°C)
Sites in built-up area				
Pathway next to the canteen	19.2	26.8	23.0	7.6
Centre of the school buildings	18.9	30.3	24.6	11.4
Driveway leading to the school	22.1	39.8	31.0	17.7
Artificial grass next to the sports hall	**17.8**	**27.9**	22.9	10.1
Residential area for students	25.2	32.7	**29.0**	7.5
Sites in rural area				
Tea plantation	21.5	22.5	22.0	1.0
Small open woodland	17.1	18.7	17.9	1.6
Grassland	16.9	25.6	21.3	8.7
Large dense woodland	16.4	16.9	**16.7**	0.5
Large car park	17.5	38.7		

(i) Calculate the average temperature and the difference in temperature between morning and afternoon at the large car park. **Write your answers in Table 1.1.** [2]

(ii) The students decided **not** to use the results from the car park. Look again at Table 1.1 and Fig. 1.1 and suggest why they made this decision.

.....

.....

.....

.....

.....

..... [3]

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(iii) Use the results in Table 1.1 **to complete Fig. 1.3 below by plotting the average temperatures** of the sites in the residential area for students and the large dense woodland. [2]

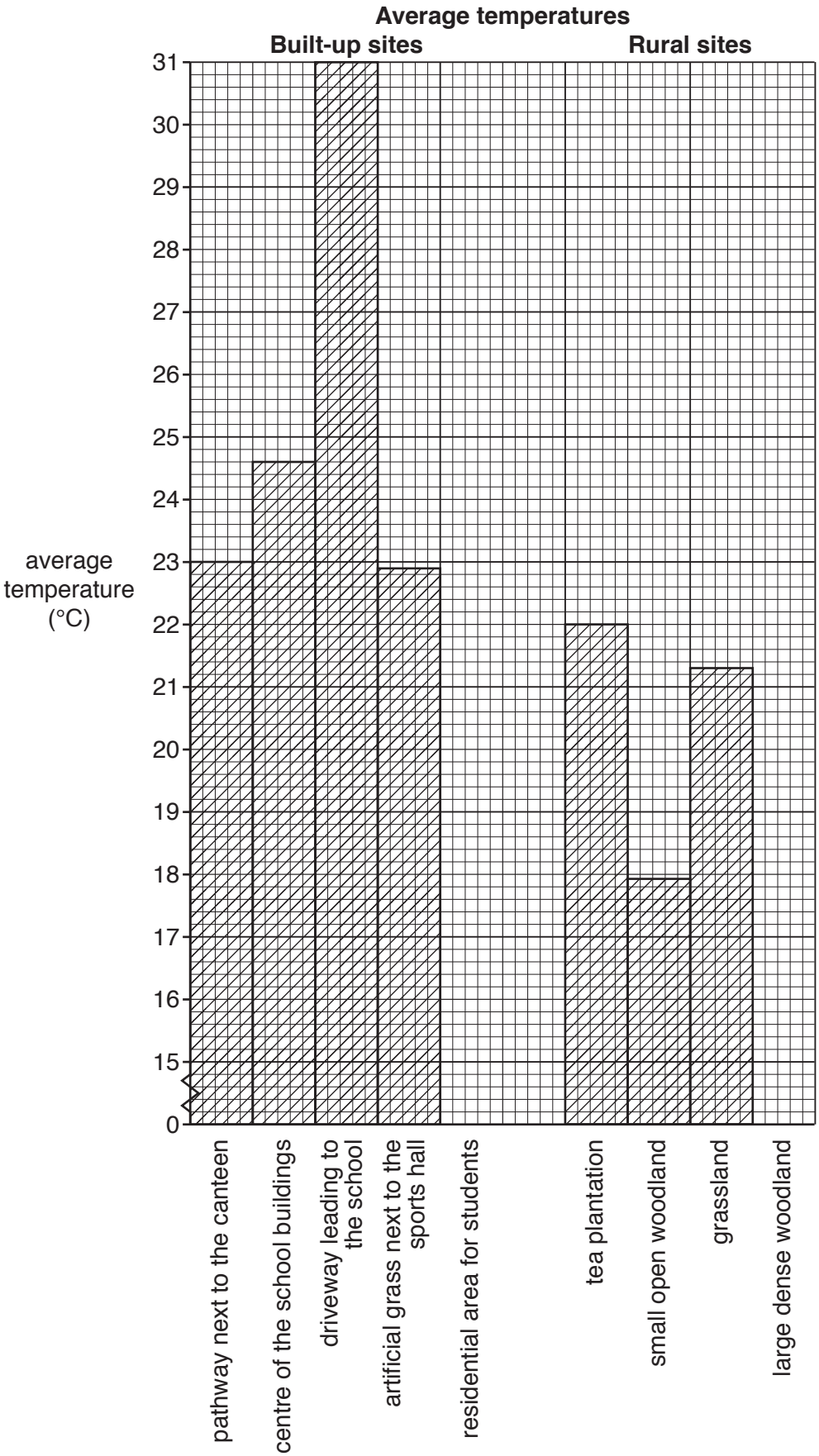

Fig. 1.3

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(iv) What is your conclusion to **Hypothesis 1:** *Temperatures are higher in the built-up area than in the rural area*? Support your decision with evidence from Fig. 1.3 and Table 1.1. Do **not** refer to results from the car park in your answer.

.....

.....

.....

.....

.....

..... [3]

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(c) To investigate **Hypothesis 2:** *Daily temperatures differ more in the built-up area than in the rural area*, the students studied the results of their morning and afternoon measurements (not including the car park).

(i) Use the results in Table 1.1 to **plot on Fig. 1.4** below the temperatures of the site on artificial grass next to the sports hall. [2]

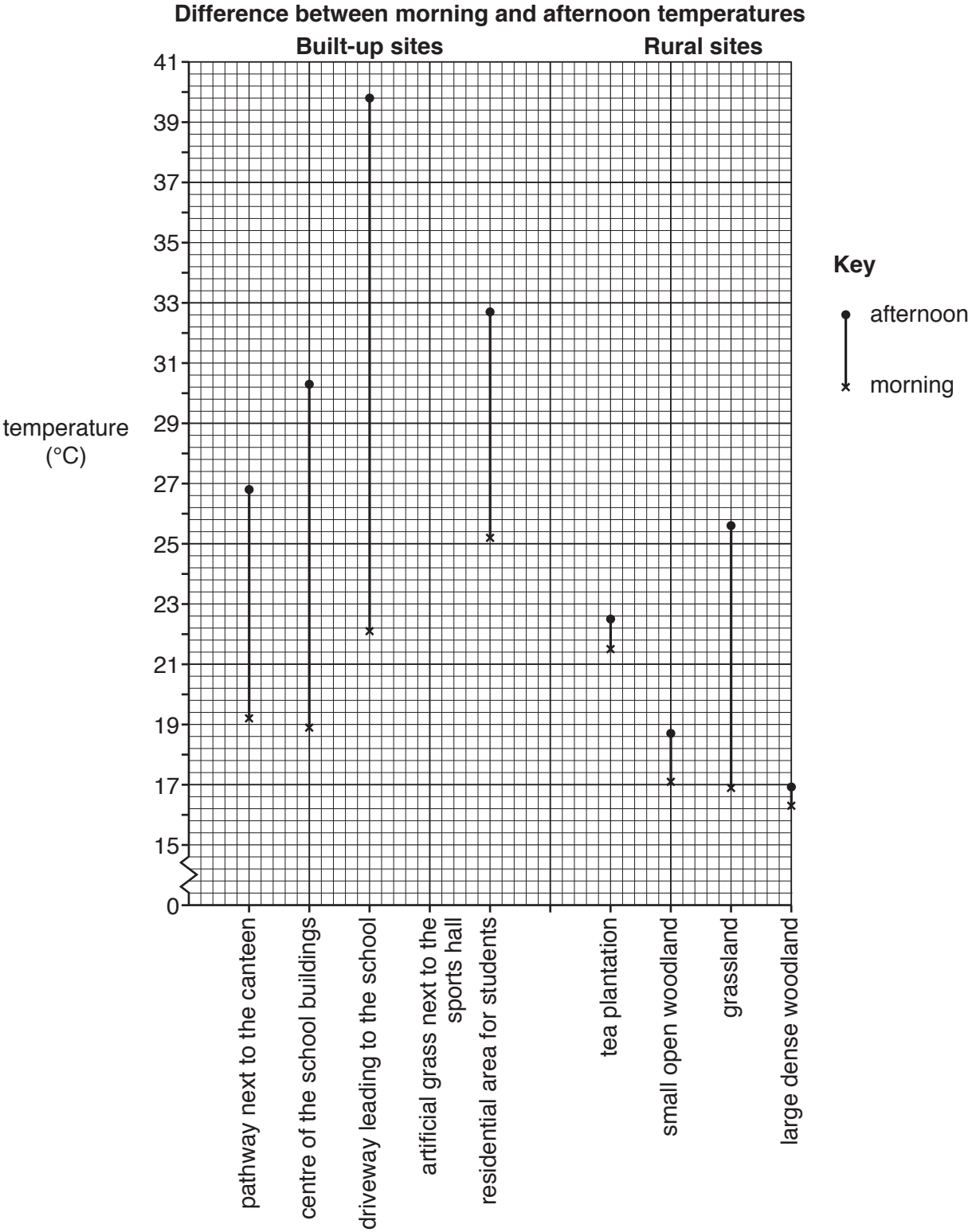

Fig. 1.4

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(ii) Which conclusion to **Hypothesis 2:** *Daily temperatures differ more in the built-up area than in the rural area* is most accurate? Tick your decision and support your answer with data from Fig. 1.4 and Table 1.1. Do **not** refer to results from the car park in your answer.

Conclusion	Tick (✓)
Hypothesis 2 is completely true.	
Hypothesis 2 is partially true.	
Hypothesis 2 is not true.	

.....

.....

.....

..... [3]

(iii) Suggest reasons for the difference in temperatures between built-up and rural areas shown in Fig. 1.4 and Table 1.1.

.....

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..... [4]

(d) Explain how and why an increase in the amount of cloud cover might affect daytime temperatures in the area around the school.

.....

.....

.....

..... [2]

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(e) Whilst measuring the temperatures at different sites the students realised that wind speed varied. An instrument to measure wind speed is shown in Fig. 1.5 (Insert).

(i) What is the instrument used to measure wind speed called?

..... [1]

(ii) Explain how this instrument measures wind speed.

.....

.....

.....

.....

.....

..... [3]

[Total: 30]

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2 Students from a popular tourist town in England wanted to find out how tourism affected traffic in the town. They decided to do a traffic survey to investigate this issue. Each student chose different hypotheses to investigate.

One student tested the following hypotheses:

Hypothesis 1: *Cars are the main category (type) of vehicle in the town throughout the day.*

Hypothesis 2: *The percentage of tourist coaches varies during the day.*

(a) To investigate the hypotheses the students did a traffic survey at four sites around the town centre.

The table below shows different features of a reliable traffic survey. **Complete the table** to explain how each feature makes a survey reliable. The first explanation has been done for you.

Feature	Explanation
Students must not stand too near the side of the road.	To make sure they are not in danger from traffic
Counting must start and finish at the same time at all counting sites.	....
At each site traffic must be counted moving past in both directions.	....
Students need to agree on the different categories in which to count vehicles.	....
A tally method is used to count and record vehicles.	....
A data recording sheet must be completed at each site.	....

[5]

(b) The students agreed to count the traffic in different parts of the town for 30 minutes at six times during the day. The results of the traffic counts between 08:30 and 09:00 and between 10:30 and 11:00 are shown in Tables 2.1 and 2.2 (Insert).

(i) Which category (type) of vehicle has the same total at both times?

..... [1]

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(ii) What do the results show about the number of cars counted between 08:30 and 09:00 and between 10:30 and 11:00?
Tick (✓) your answer below.

	Tick (✓)
The number of cars goes up.	
The number of cars is the same.	
The number of cars goes down.	

[1]

(iii) An example of the students' recording sheet is shown in Fig. 2.1 below. Use the data in Table 2.3 (Insert) to **complete the recording sheet**. [3]

Recording sheet

Site 1:		Time: 12:30 – 13:00
Vehicle category	Tally	Total
Car	𝍸 𝍸 𝍸 𝍸 𝍸	24
Local bus/ minibus	𝍸	4
Lorry/van	𝍸 𝍸 𝍸 𝍸 𝍸 II	27
Tourist coach	𝍸 𝍸	9
Motorbike		
Taxi		
Bicycle		
Total of all vehicles		

Fig. 2.1

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(c) The students constructed divided bar graphs from the total results of their traffic survey. These are shown in Fig. 2.2 below.

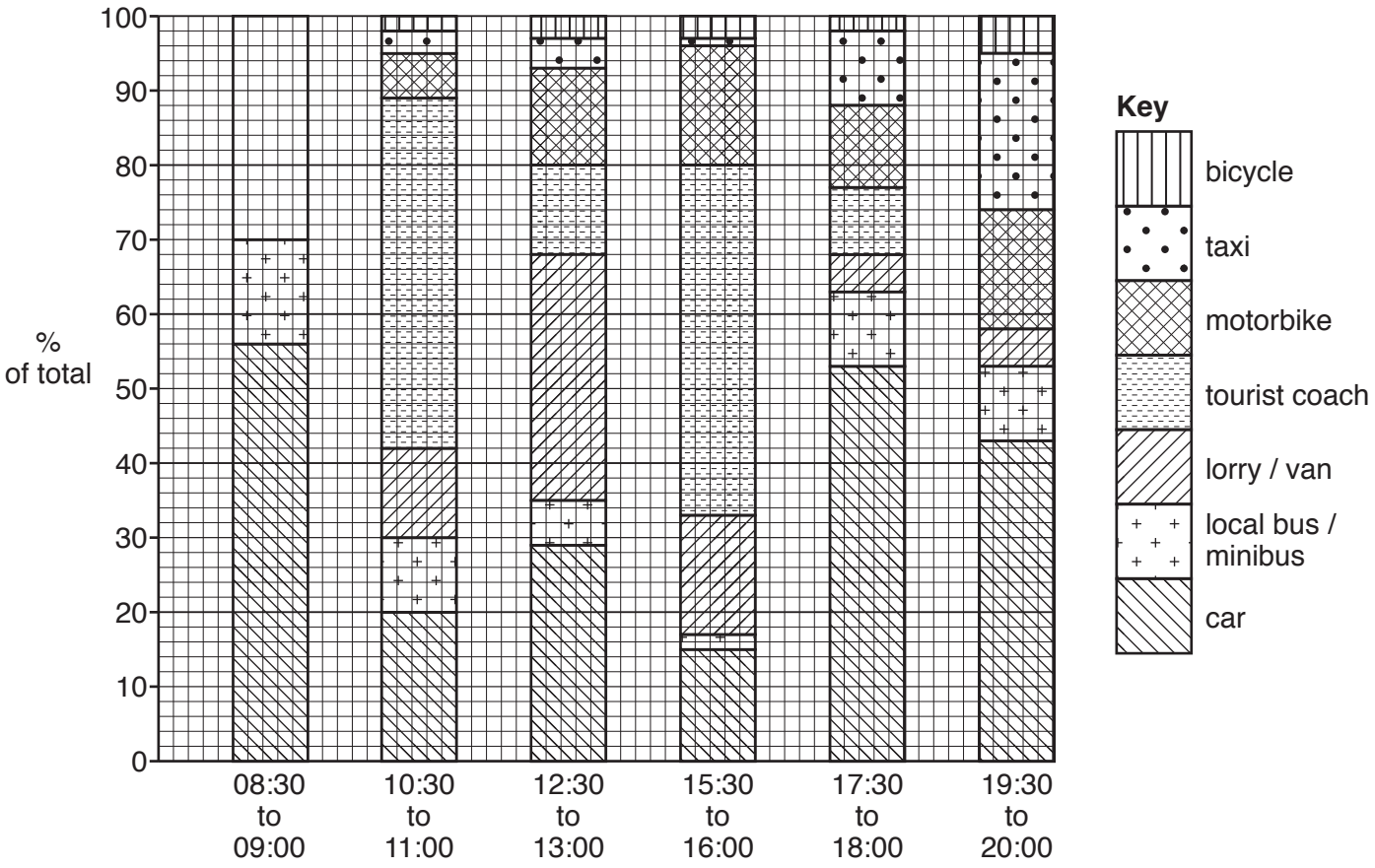

Fig. 2.2

(i) Use the results for the period 08:30 to 09:00 in Table 2.1 (Insert) to **complete the graph** in Fig. 2.2. [3]

(ii) At which survey time was the percentage of taxis greater than the percentage of motorbikes?

..... [1]

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(iii) What conclusion would you make about **Hypothesis 1:** *Cars are the main category (type) of vehicle in the town throughout the day*? Support your decision with evidence from Fig. 2.2.

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..... [4]

(iv) Suggest **different** reasons for the variation in the percentage of cars and lorries / vans during the day.

Cars

.....

.....

Lorries / vans

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..... [2]

(d) The student decided that **Hypothesis 2:** *The percentage of tourist coaches varies during the day* was **true**. Use evidence from Fig. 2.2 to support this conclusion.

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..... [3]

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(e) To extend her fieldwork the student decided to use a questionnaire to find out what opinions people had about the traffic-free zone in the centre of the town.

(i) Name and describe a sampling method to use with the questionnaire.

Name of sampling method .....

Description of method

.....

.....

.....

..... [3]

(ii) Give **two** advantages and **two** disadvantages of a traffic-free zone in a town centre.

Advantages

1 .....

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2 .....

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Disadvantages

1 .....

.....

2 .....

..... [4]

[Total: 30]

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Additional Pages

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Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

6687307305

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2 and 1.3 and Table 1.1 for Question 1, and Figs. 2.1, 2.2 and 2.4 and Tables 2.1, 2.2 and 2.3 for Question 2.

The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages, **1** blank page and **1** Insert.

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[Turn over

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1 Students in Greece were studying how different types of wave affected beaches.

(a) Destructive waves and constructive waves are shown in Fig. 1.1 (Insert).

Put the following features into the table below to identify important differences between destructive and constructive waves.

waves are close together waves are far apart

wave spills forward as it breaks wave plunges downwards as it breaks

Features of destructive waves	Features of constructive waves

[2]

The students decided to investigate the following hypotheses by doing fieldwork at Afandou beach and Archangelos beach on the island of Rhodes:

Hypothesis 1: *At Afandou the beach profile is produced by constructive waves.*

Hypothesis 2: *Beach material is larger at beaches formed by constructive waves.*

(b) The students had learned that destructive waves and constructive waves varied in their frequency as shown below.

Type of wave	Frequency
Destructive waves	10 to 15 waves per minute
Constructive waves	6 to 9 waves per minute

Describe a method the students could use to measure wave frequency to get the results shown in Table 1.1 (Insert).

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.....

..... [3]

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(c) The students researched typical beach profiles produced by destructive and constructive waves. These are shown in Fig. 1.2 (Insert).

(i) Fig. 1.3 (Insert) shows a method of measuring a beach profile. Describe the method shown.

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..... [4]

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(ii) The students used their measurements to draw the profile at Afandou beach shown in Fig. 1.4 below.

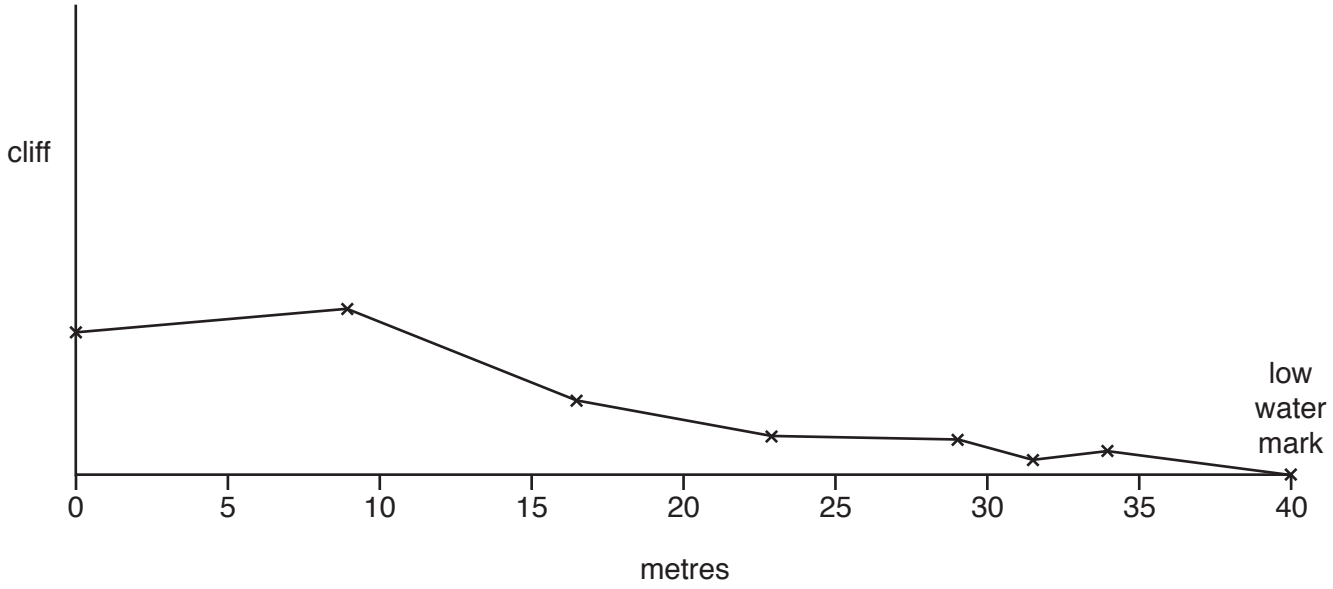

Fig. 1.4

What conclusion would the students make about **Hypothesis 1:** *At Afandou the beach profile is produced by constructive waves*? Support your decision with evidence from Table 1.1 and Figs. 1.2 and 1.4.

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..... [4]

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(d) (i) To investigate **Hypothesis 2:** *Beach material is larger at beaches formed by constructive waves*, the students then obtained a sample of pebbles from both beaches. Describe a method they could use to get reliable samples in order to compare them.

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..... [3]

(ii) Describe a method to measure the size (length) of each pebble the students collected.

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..... [2]

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[Turn over

(iii) The results of the students' fieldwork are shown in Fig. 1.5 below and Fig. 1.6 on page 7.
On Fig. 1.6 draw the bar to show that the length of pebble number 1 is 8.5 cm. [1]

Results of fieldwork

Afandou beach

Average pebble size = 9.6 cm	Median (middle) pebble size = 9.0 cm

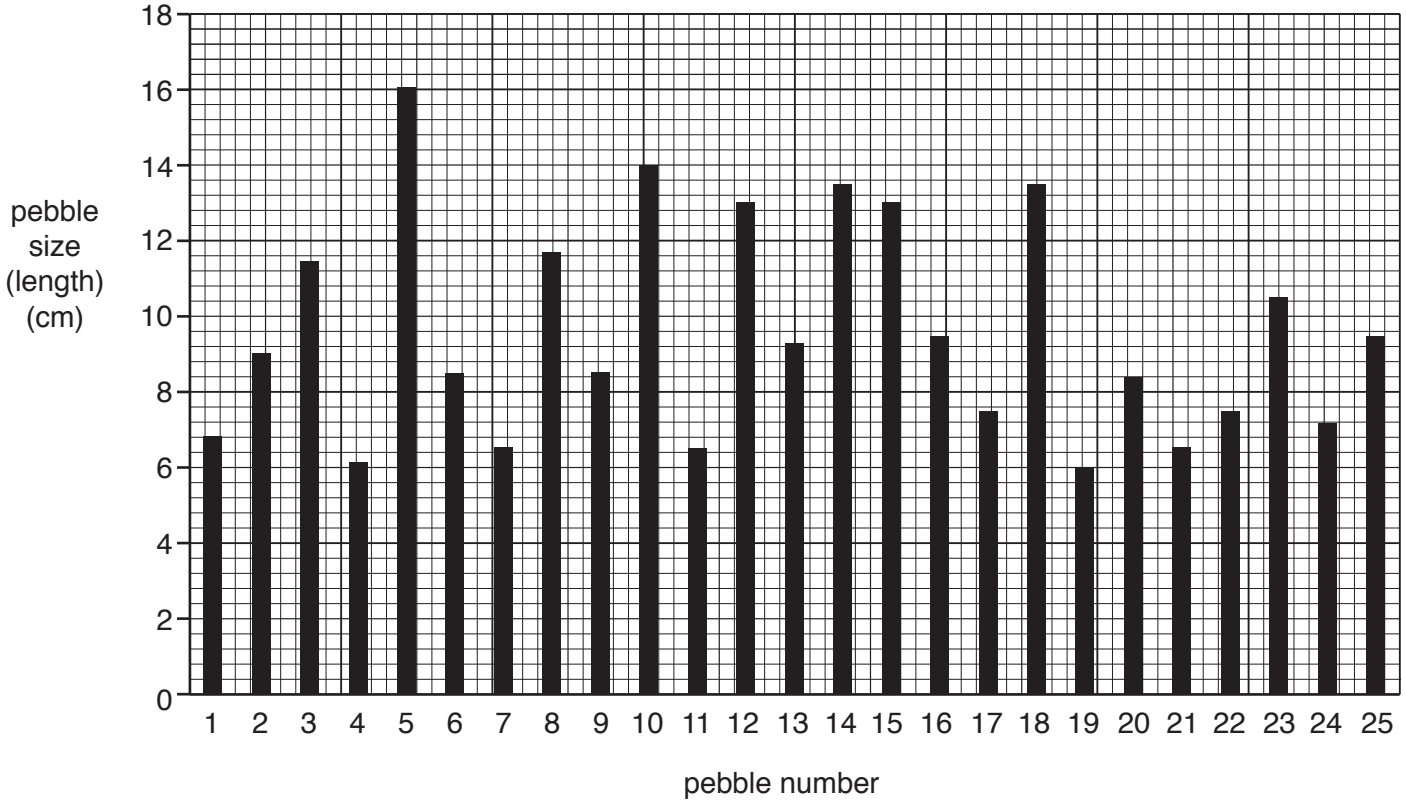

Fig. 1.5

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Archangelos beach

Average pebble size = 10.2 cm	Median (middle) pebble size = 9.5 cm

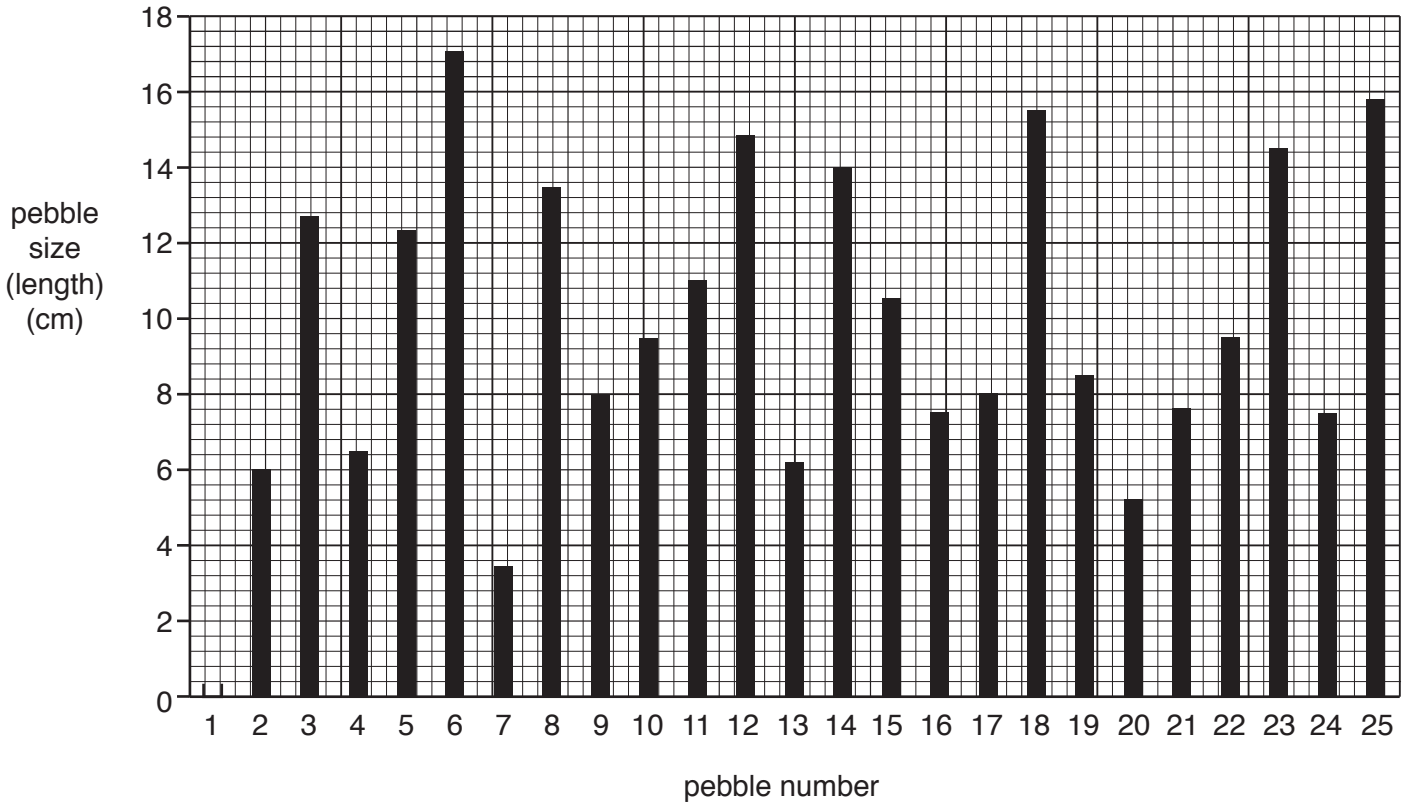

Fig. 1.6

(iv) What conclusion would the students make about **Hypothesis 2:** *Beach material is larger at beaches formed by constructive waves*? Support your decision with evidence from Figs. 1.5 and 1.6 and Table 1.1 (Insert).

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..... [4]

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(e) The students planned an additional piece of fieldwork to investigate longshore drift in the area.

(i) Describe and explain the process of *longshore drift*. You may use a diagram in your answer.

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[3]

(ii) Describe a fieldwork method to investigate longshore drift.

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..... [4]

[Total: 30]

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2 Students in the UK did some fieldwork to compare two residential areas of the 'inner city'. They divided their investigation into two parts. First, they studied the environment of the areas, and second, they investigated what people who lived in the areas thought about their quality of life there.

Quality of life is a measurement of a person's well-being and satisfaction which result from factors in their environment such as health care, education opportunities, safety, and community spirit.

The two areas which the students chose to investigate, Mossbank and Ratcliffe, are shown in Fig. 2.1 (Insert). Mossbank is an area of old housing. Ratcliffe is an area of new apartments in buildings which used to be warehouses and factories.

They decided to investigate the following hypotheses:

Hypothesis 1: *Ratcliffe has a better quality of environment than Mossbank.*

Hypothesis 2: *Residents of Ratcliffe have a better quality of life than residents of Mossbank.*

(a) To investigate **Hypothesis 1** the students observed some features of the local environment at one site in each area. They recorded their results on the form shown in Fig. 2.2 (Insert).

(i) Before they began their fieldwork, the students went with their teacher to practise their survey in an area near the school.
Suggest **two** reasons why they did a practice survey.

1 .....

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2 .....

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[2]

(ii) Explain how the students would organise and carry out their fieldwork survey using the form shown in Fig. 2.2.

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..... [4]

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(b) The results of the fieldwork survey are shown in Table 2.1 (Insert).

(i) Use the results for Ratcliffe in Table 2.1 **to complete Fig. 2.3** below.

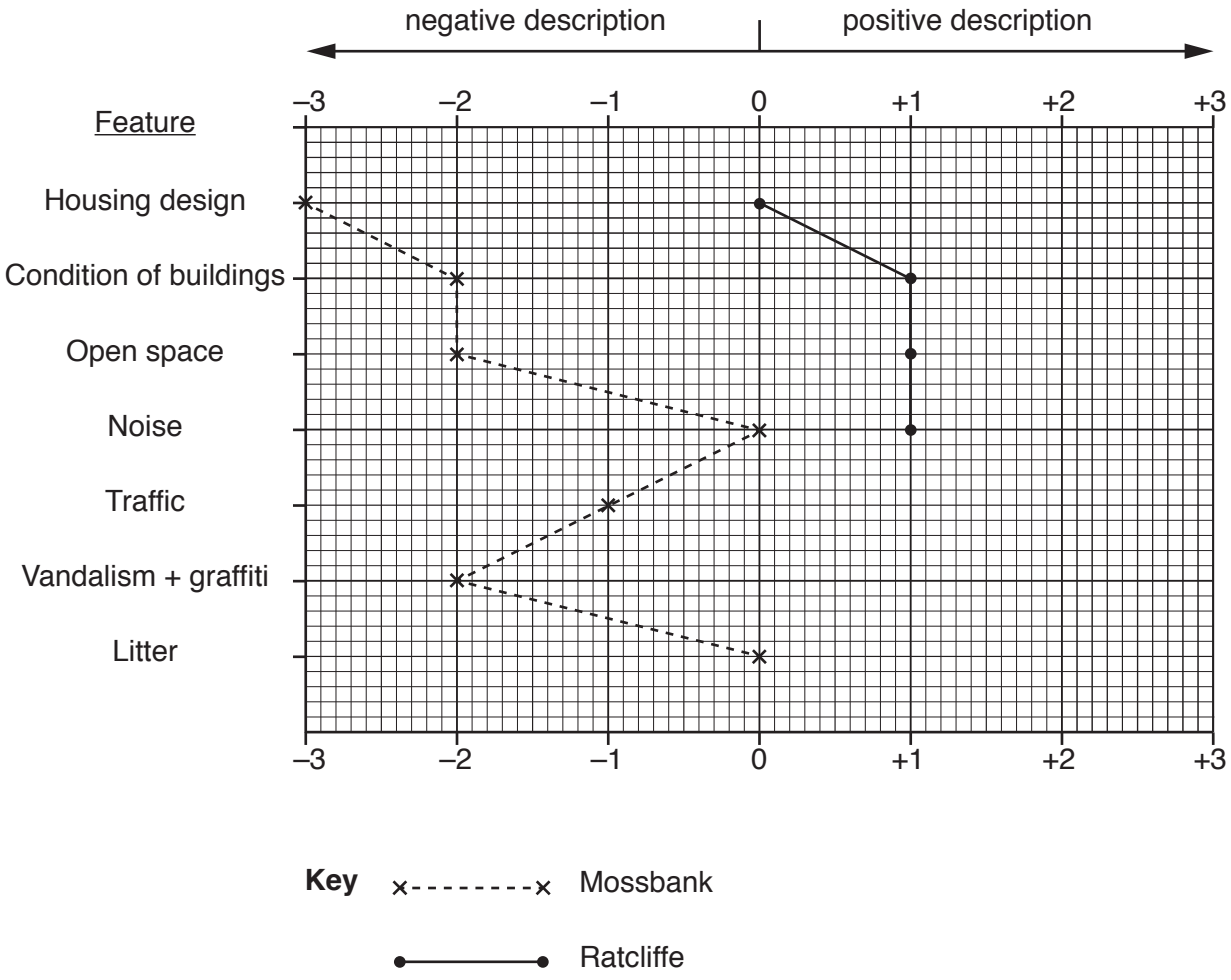

Fig. 2.3

[2]

(ii) What conclusion would the students make about **Hypothesis 1:** *Ratcliffe has a better quality of environment than Mossbank*? Use evidence from Fig. 2.3 and Table 2.1 to support your answer.

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..... [4]

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(c) To investigate **Hypothesis 2:** *Residents of Ratcliffe have a better quality of life than residents of Mossbank*, the students used a questionnaire with 25 residents in each area.

(i) Name and describe **one** sampling method the students could use to select 25 people to take part in their survey.

Name of sampling method: .....

Description: .....

..... [2]

(ii) Explain why it was necessary for the students to take a sample of people.

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..... [2]

(d) The questionnaire is shown in Fig. 2.4 (Insert). In the first part of the questionnaire the students asked local residents to complete the same survey which they had used to investigate **Hypothesis 1**. The average result of the 25 residents in each area is shown in Table 2.2 (Insert).

(i) Compare the residents' results in Table 2.2 with those of the students in Table 2.1.

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..... [2]

(ii) Suggest **two** reasons why the results shown in Tables 2.1 and 2.2 are different.

1 .....

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2 .....

.....
[2]

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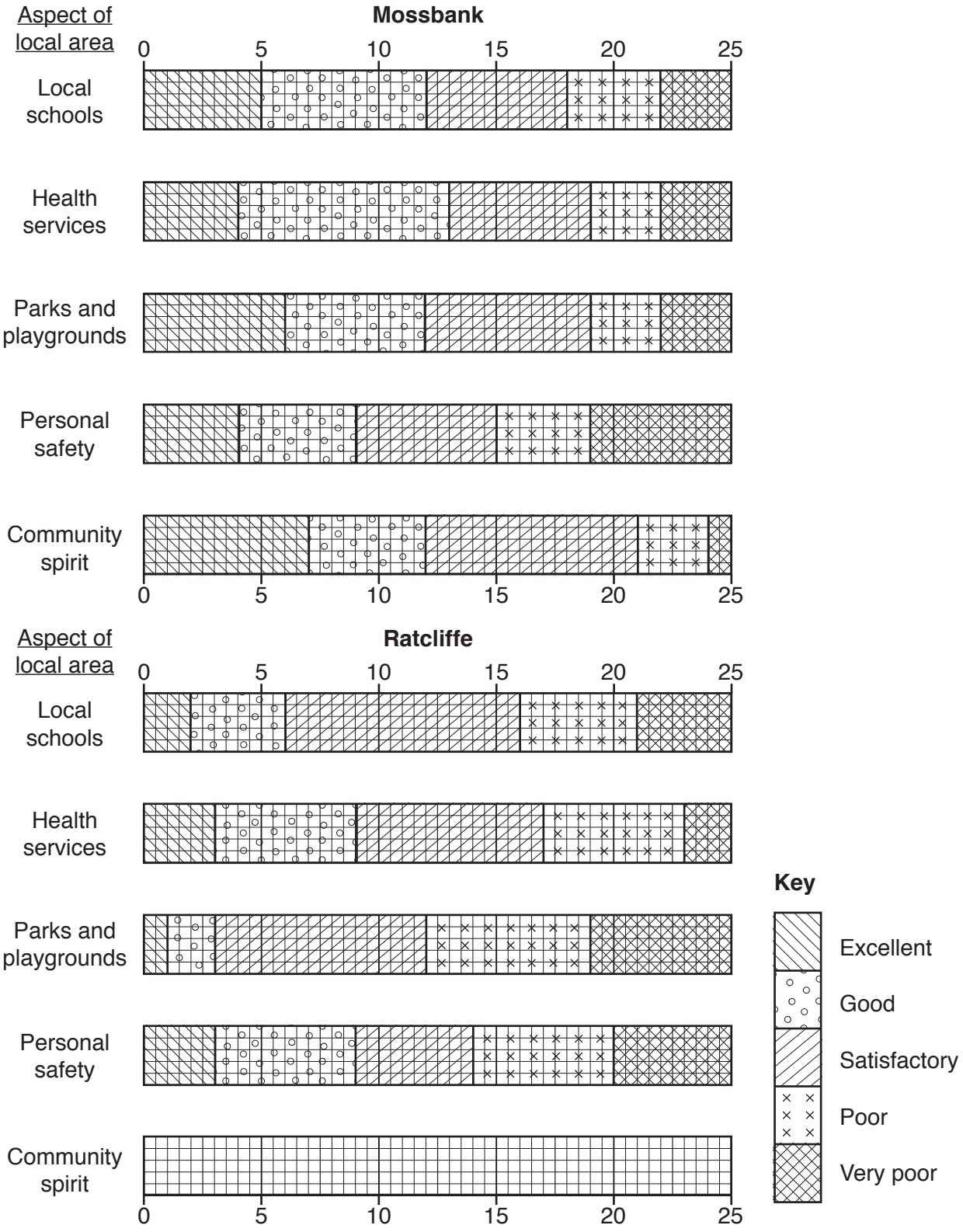
(e) In the second part of the questionnaire the students asked residents to give their opinion about five aspects of the local area. These results are shown in Table 2.3 (Insert).

(i) Use the results in Table 2.3 **to plot in Fig. 2.5** below residents' scores for community spirit in Ratcliffe.



[2]

Fig. 2.5

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(ii) The students' conclusion was that **Hypothesis 2:** *Residents of Ratcliffe have a better quality of life than residents of Mossbank*, was false. What evidence from Table 2.3 and Fig. 2.5 supports this conclusion?

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..... [3]

(f) Describe a piece of fieldwork the students could do to compare housing in Ratcliffe and Mossbank. Include the following in your description:

- which features of the housing they could look at
- fieldwork methods they could use
- how they could record their findings and results

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..... [5]

[Total: 30]

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Additional Pages

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Grade thresholds – November 2019

Cambridge IGCSE™ Geography (0460)

Grade thresholds taken for Syllabus 0460 (Geography) in the November 2019 examination.

		minimum raw mark required for grade:						
	maximum raw mark available	A	B	C	D	E	F	G
Component 11	75	55	46	38	33	28	22	16
Component 12	75	56	47	39	34	29	24	19
Component 13	75	50	40	31	27	24	20	17
Component 21	60	40	35	28	24	20	17	14
Component 22	60	42	40	36	32	27	23	19
Component 23	60	42	38	32	28	23	19	15
Component 3	60	50	42	35	28	22	17	12
Component 41	60	38	33	28	25	22	19	16
Component 42	60	37	31	26	22	18	14	10
Component 43	60	38	34	31	26	22	17	12

Grade A* does not exist at the level of an individual component.

The maximum total mark for this syllabus, after weighting has been applied, is **220**.

The overall thresholds for the different grades were set as follows.

Option	Combination of Components	A*	A	B	C	D	E	F	G
AX	03, 11, 21	188	163	138	114	96	79	63	47
AY	03, 12, 22	189	167	145	123	105	88	72	56
BX	11, 21, 41	173	151	129	107	93	79	65	51
BY	12, 22, 42	174	154	134	114	99	84	69	54
BZ	13, 23, 43	169	147	125	104	90	77	63	49
CY	12, 22, 83	189	167	145	123	105	88	72	56
CZ	13, 23, 83	185	159	133	108	92	77	63	49

Survey Map

In order to preserve the scale, the map should be printed in colour onto A3 paper.

When printing, select ‘Actual size’.

Do not select ‘Fit’ as this will re-size the map.

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Ensure the orientation is Portrait.

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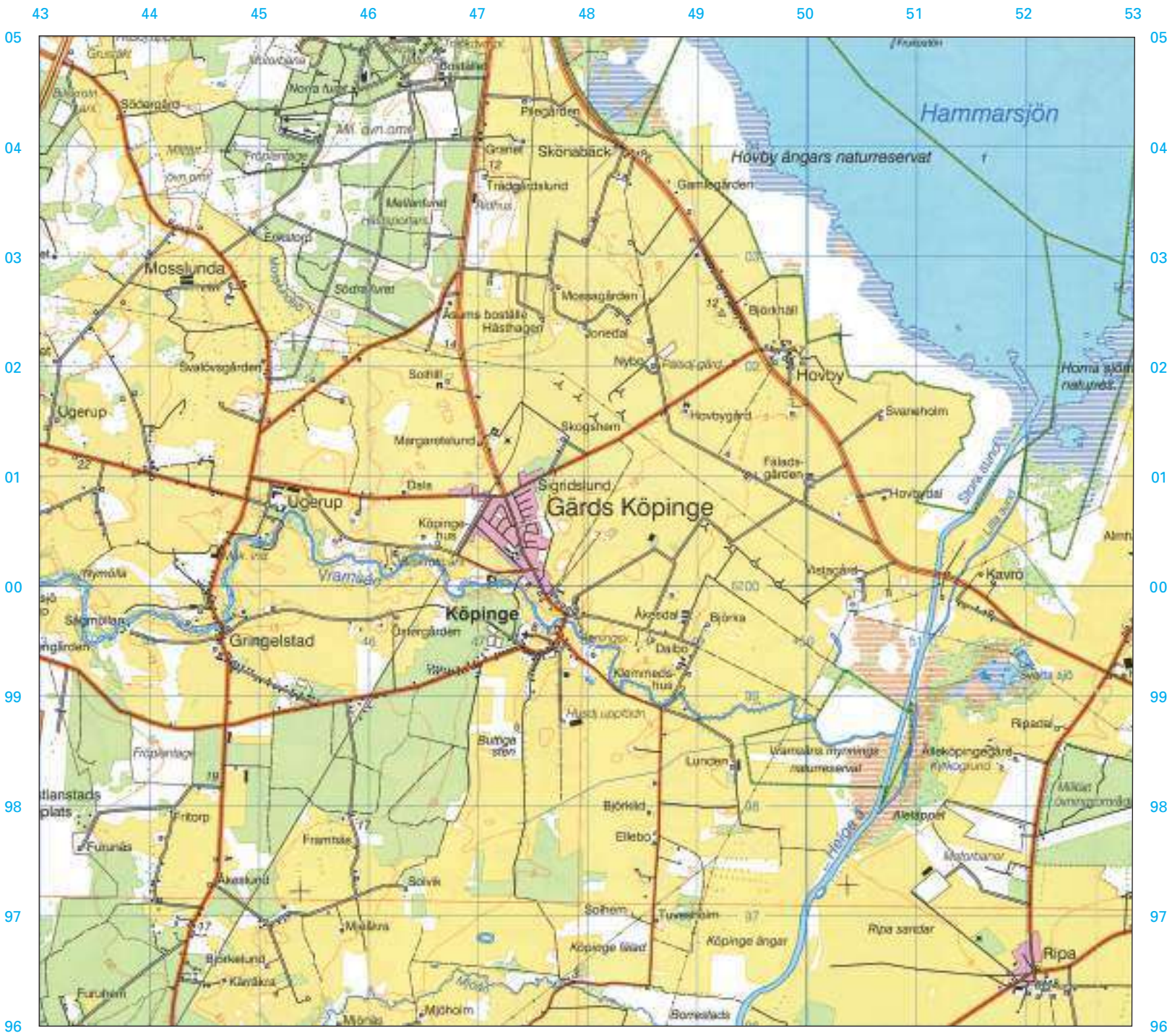
1:50 000 Scale

Hammarsjön



Legend

- National boundary with cairns
- County boundary
- Municipality boundary
- Boundary of National Park; nature reserve
- Boundary of other area
- Prohibited area for cross-country vehicles
- Boundary of firing range
- Boundary of military restricted area
- Motorway
- Public road, at least 7 m wide
- 184 Public road, 5–7 m wide; road number
- Public road, less than 5 m wide
- Public road under construction
- Through street; main street
- Street; street in precinct
- Private road, good standard; milestone
- Private road with barrier; avenue
- Private road, poor standard; turning place
- Approach road, park road, cycle path
- Tractor track; foot path
- Illuminated track; hiking trail
- Railway, double track electrified
- Railway, not electrified
- Railway, narrow gauge
- Railway station; tunnel
- Crossing, overpass or underpass
- Runway, surfaced; unsurfaced
- Aerial cableway, ski lift; gas pipeline
- Electricity transmission line, national
- Electricity transmission line, reg.; transformer
- Precincts
- High-rise buildings
- Low-rise buildings
- Leisure homes, second homes
- Industrial area
- Rock outcrop; boulders
- Coniferous and mixed forest
- Forest of mountain type
- Deciduous forest; other open land
- Arable land; orchard
- Marsh; marsh liable to flooding
- Peat cutting; limestone bog
- Mast; tower
- Windmill; wind generator
- Chimney; cistern
- Sawmill; timber depot
- Settlement remains; ruin
- Natural monument, botanical; geological
- Monument; ancient monument of special interest
- Building of cultural and historical value
- Bathing; camp site; marina
- Lay-by; wind shelter
- Belt of forest; small forest stand
- Castle; manor; farm
- Dwelling house, industrial building; hut
- Other major building
- Parish church; other church
- Cemetery; bell tower
- Sports Ground; football ground
- Trotting track
- Shooting range, large; small
- Mine shaft, large; small
- Watercourse, less than 6 m wide
- Watercourse, at least 6 m wide; footbridge
- Underground watercourse; flume line or chute
- Opening bridge; ferry route
- Lock; direction of flow
- Waterfall; rapids
- Dam structure; landing-stage
- Jetty; lighthouse; pier
- Shoreline
- Diffuse shoreline
- Depth contour lines; shoal (rock, awash)
- Depth in metres; navigable fairway, channel
- Contour lines, vertical interval 5 m
- Cutting; depression
- Triangulation point
- Measured height or surface

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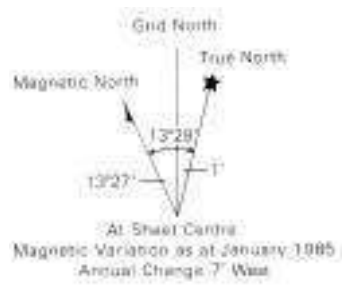
Scale 1 : 50 000

3 1 2 3 4 5 km



Survey Map

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Ensure the orientation is Portrait.

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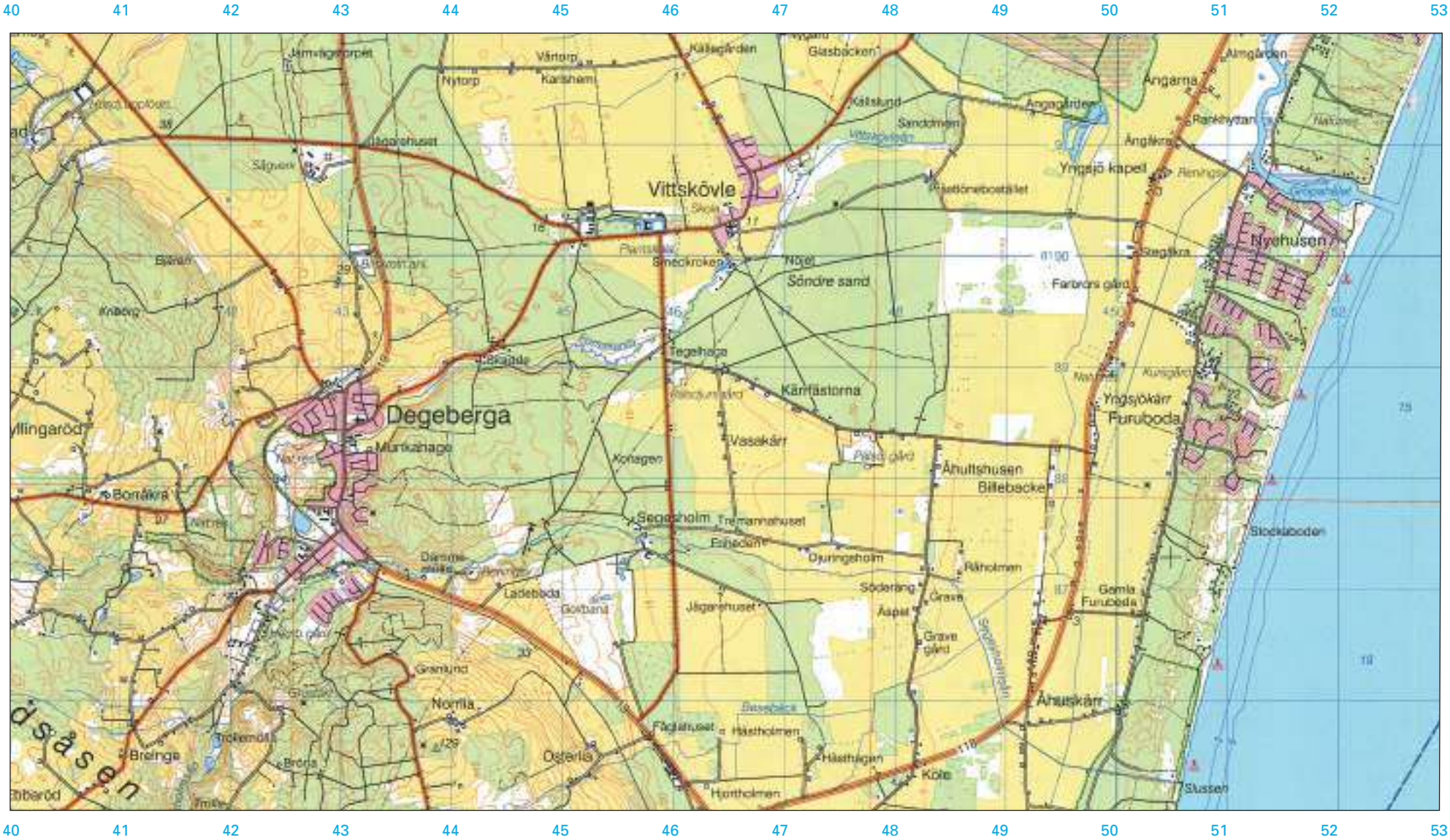
1:50 000 Scale

Degeberga


40 41 42 43 44 45 46 47 48 49 50 51 52 53
92 91 90 89 88 87 86 85
Vittskövle
Degeberga
Nyehusen
Furuboda
Åhultshusen
Billebecke
Stockaboden
Åhultskärr
Gamla Furuboda
Yngsjökärr
Yngsjö kapell
Ängarna
Ängåkra
Bonåkra
Breinge
Normla
Österlia
Köle
Slussen
Segeholm
Ljuringeholm
Vassakärr
Tegelhaga
Kärrfästorna
Söndre sand
Ladebäcka
Jägarehuset
Grava
Åsen
Råholmen
Hästholmen
Hästhagen
Fågelhuset
Granlund
Munkahage
Smeckroken
Sandviken
Glasbacken
Källegården
Almgården
Rankhyttan
Farbrors gård
Segåkra
Nygård
Vårtorp
Karlshem
Nytorp
Björkhem
Knäbo
Yllingaröd
Ebberöd
Tremannahuset
Fiskedam
Söderäng
Gravegård
Kungsgården
Vittsgårdsv.
Sandvikenv.
Renhagev.
Nybyvägen
Kungsgårdsv.
Skolv.
Parkvägen
Kyrkv.
Nybyv.
Gravegårdsv.
Snogehallsv.
Skogsbacksv.
Ängåkrav.
Ängsgårdsv.
Nybyvägen
Vittsgårdsvägen
Sandvikenvägen
Renhagevägen
Kungsgårdsvägen
Skolvägen
Parkvägen
Kyrkvägen
Nybyvägen
Gravegårdsvägen
Snogehallsvägen
Skogsbacksvägen
Ängåkravägen
Ängsgårdsvägen
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Nyby

Survey Map

In order to preserve the scale, the map should be printed in colour onto A3 paper.

When printing, select ‘Actual size’.

Do not select ‘Fit’ as this will re-size the map.

You may need to change the paper size to A3.

Ensure the orientation is Portrait.

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Knislinge

1:50 000 Scale

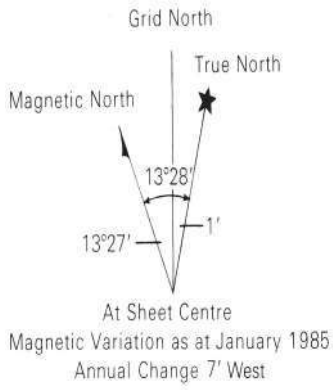


Legend

- Motorway
- Public road, at least 7 m wide
- 184 Public road, 5–7 m wide; road number
- Public road, less than 5 m wide
- Through street; main street
- Street; street in precinct
- Private road, good standard; milestone
- Private road with barrier; avenue
- Private road, poor standard; turning place
- Approach road, park road, cycle path
- Tractor track; foot path
- Illuminated track; hiking trail
- Municipality boundary
- Railway, double track electrified
- Railway, not electrified
- Railway, narrow gauge
- Railway station; tunnel
- Crossing, overpass or underpass
- Runway, surfaced; unsurfaced
- Aerial cableway, ski lift; gas pipeline
- Electricity transmission line, national
- Electricity transmission line, reg.; transformer
- Precincts
- High-rise buildings
- Low-rise buildings
- Leisure homes, second homes
- Industrial area
- Coniferous and mixed forest
- Deciduous forest; other open land
- Arable land; orchard
- Marsh; marsh liable to flooding
- Peat cutting; limestone bog
- Mast; tower
- Windmill; wind generator
- Chimney; cistern
- Monument; ancient monument of special interest
- Building of cultural and historical value
- Lay-by; wind shelter
- Belt of forest; small forest stand
- Castle; manor; farm
- Dwelling house, industrial building; hut
- Other major building
- Parish church; other church
- Cemetery; bell tower
- Sports ground; football ground
- Trotting track
- Shooting range, large; small
- Watercourse, less than 6 m wide
- Watercourse, at least 6 m wide; footbridge
- Dam structure; landing-stage
- Jetty; lighthouse; pier
- Shoreline
- Diffuse shoreline
- Depth in metres; navigable fairway, channel
- Contour lines, vertical interval 5 m
- Cutting; depression
- Triangulation point
- Measured height or surface

Scale 1:50 000





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GEOGRAPHY **0460/11**

Paper 1 **October/November 2019**

INSERT

1 hour 45 minutes

3804102977-I

READ THESE INSTRUCTIONS FIRST

The Insert contains Figs. 2.1 and 2.2 for Question 2, Figs. 3.2, 3.3 and 3.4 for Question 3, and Figs. 6.1 and 6.2 for Question 6.

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Fig. 2.1 for Question 2



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Fig. 3.2 for Question 3



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Fig. 3.3 for Question 3



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Fig. 6.1 for Question 6



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GEOGRAPHY **0460/12**

Paper 1 **October/November 2019**

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GEOGRAPHY **0460/13**

Paper 1 **October/November 2019**

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Fig. 5.1 for Question 5



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Fig. 6.1 for Question 6



Key

Important biodiversity

- wetlands and river deltas
- existing and planned protected areas
- Caspian seal habitats
- sturgeon spawning grounds

Energy production and distribution

- oil and gas fields
- major energy producing areas
- oil processing plants
- oil tanks
- oil and gas pipelines (with direction of flow)

Environmental concerns

- oil pollution (figures given in mg/l)
- abandoned and flooded oil wells
- major waste sites
- historical pollution due to oil spills
- flood risk zone

- major urban areas

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Fig. 6.2 for Question 6



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Fig. 6.3 for Question 6



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Fig. 3.1 for Question 3



Fig. 3.2 for Question 3



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Fig. 5.1 for Question 5



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Fig. 5.2 for Question 5



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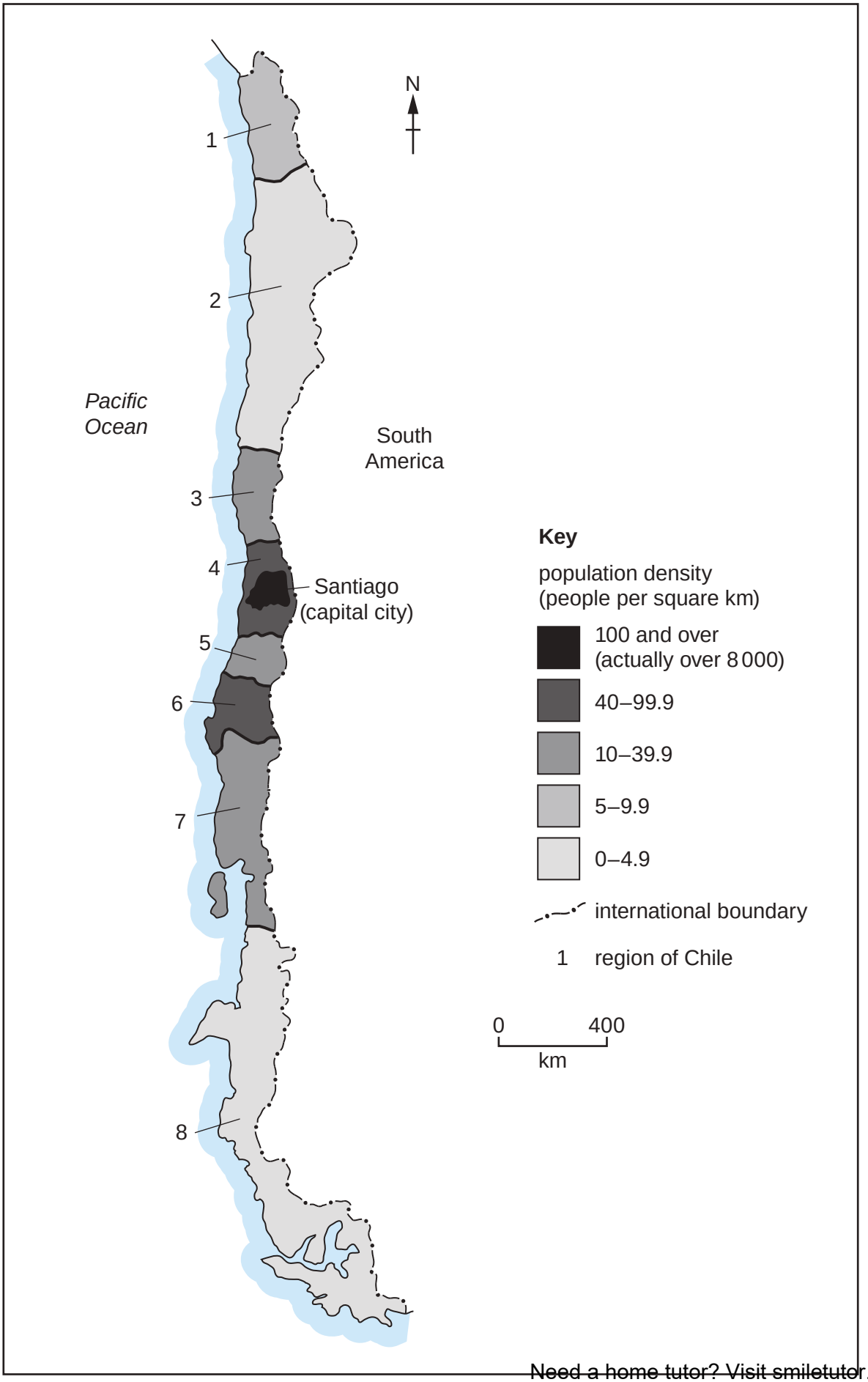

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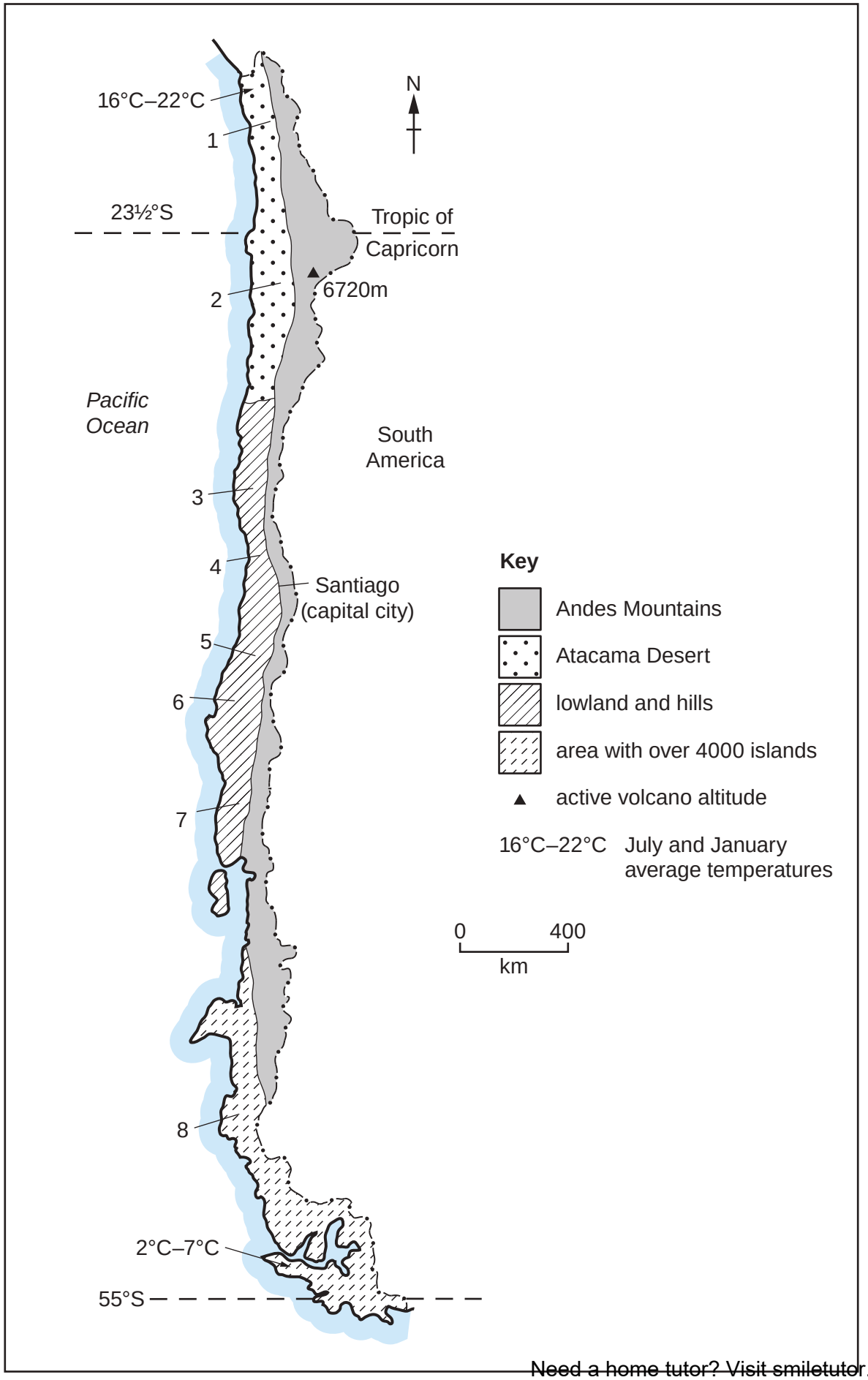

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Fig. 4.1 for Question 4



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Fig. 1.1 for Question 1

High technology industrial area in 2006

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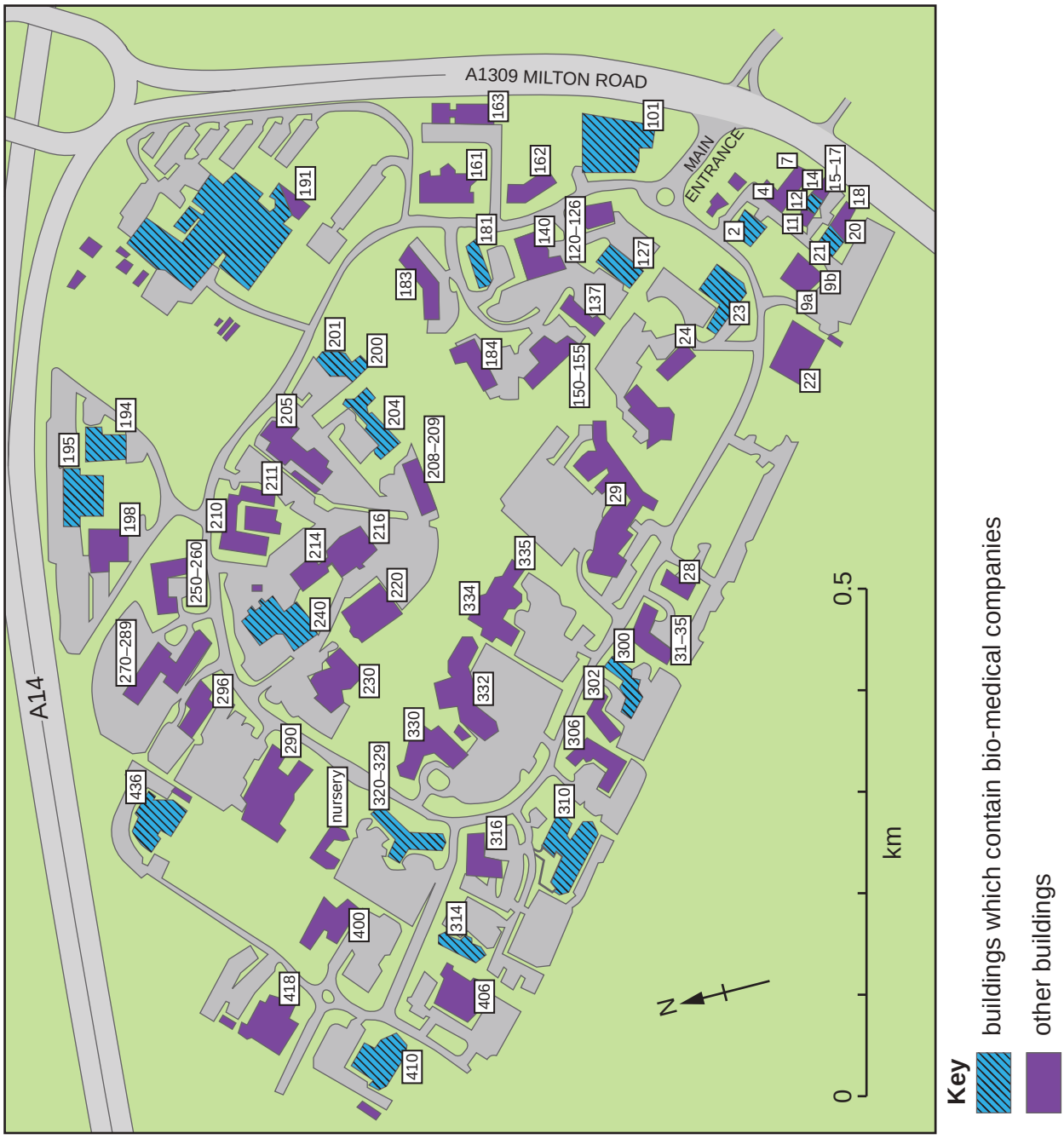
Fig. 1.2 for Question 1

High technology industrial area in 2016



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Figs. 1.3 and 1.4 for Question 1

Two views of the industrial area



Fig. 1.3



Fig. 1.4

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Table 1.1 for Question 1

Companies in each industrial sector

High technology industries in the industrial area	Number of companies in 2016	Percentage of total number of companies
Bio-medical	21	31
Computer / telecommunications	17	25
Energy	1	2
Environmental	3	5
Financial / business	6	9
Industrial technologies	7	10
Technical consulting	5	**8**
Other industries	7	**10**
Total	67	100

Table 1.2 for Question 1

Comparison of numbers of companies in each industrial sector

High technology industries in the industrial area	Number of companies in 2006	Number of companies in 2016
Bio-medical	28	21
Computer / telecommunications	7	17
Energy	4	1
Environmental	26	3
Financial / business	5	6
Industrial technologies	7	7
Technical consulting	6	5
Other industries	10	7
Total	93	67

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Fig. 1.7 for Question 1

Employee questionnaire

I am a student at the nearby college. I am doing this questionnaire as part of my Geography coursework. I want to find out about the qualifications of people who work in this industrial area. Please will you answer the following questions?

1. Which **one** of the following is your highest academic qualification?

   School qualification (e.g. IGCSE) ☐

   Higher school qualification (e.g. A level or International Baccalaureate) ☐

   University degree (e.g. BA or BSc) ☐

   Higher university degree (e.g. Master's degree or PhD) ☐

2. Do you think your job is highly skilled?

   Yes ☐ No ☐

3. If you answered 'Yes' why do you think your job is highly skilled?

   .....

   .....

   .....

4. What are the main benefits which you get from your job?

   .....

   .....

   .....

Thank you for your time

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Table 1.3 for Question 1

Answers to questionnaire

Question 1: Which one of the following is your highest academic qualification?

Qualification	Number of answers
School qualification	1
Higher school qualification	7
University degree	**23**
Higher university degree	**19**

Question 2: Do you think your job is highly skilled?

Yes = 45	No = 5

Question 3: Why do you think your job is highly skilled?

Reason	Number of answers
I am able to give advice and support to other people and companies.	34
I understand how the results of my work can be used in other industries.	33
I receive a lot of training to understand what I need to do in my work.	38
I use complex machinery and technology in my work.	36

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Fig. 2.1 for Question 2

Weather instrument



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Table 2.1 for Question 2

Atmospheric pressure and rainfall data

	Time	Measurement number	Atmospheric pressure (mb)	Rainfall during last three hours (mm)
Day 1	10:00	1	1009	0.1
	13:00	2	1008	0.5
	16:00	3	1005	0.6
	19:00	4	1003	0.4
	22:00	5	1002	0.2
Day 2	01:00	6	1001	3.6
	04:00	7	999	1.0
	07:00	8	998	2.8
	10:00	9	997	0.8
	13:00	10	997	4.6
	16:00	11	998	3.9
	19:00	12	999	2.0
	22:00	13	1002	0.1
Day 3	01:00	14	1003	0.1
	04:00	15	1004	0.1
	07:00	16	1005	0.1
	10:00	17	1007	0.2
	13:00	18	1010	0
	16:00	19	1011	0
	19:00	20	1011	0
	22:00	21	1013	0
Day 4	01:00	22	1016	0
	04:00	23	1015	0
	07:00	24	1017	0

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Table 2.2 for Question 2

Wind direction and temperature data

	Time	Measurement number	Direction wind came from	Temperature to nearest degree (°C)
Day 1	10:00	1	SE	11
	13:00	2	SE	13
	16:00	3	SE	11
	19:00	4	ESE	**12**
	22:00	5	ESE	**10**
Day 2	01:00	6	SSE	9
	04:00	7	S	10
	07:00	8	S	9
	10:00	9	SSE	10
	13:00	10	SSE	12
	16:00	11	NNW	10
	19:00	12	NNW	9
	22:00	13	NW	7
Day 3	01:00	14	NNW	7
	04:00	15	NNW	6
	07:00	16	N	5
	10:00	17	N	7
	13:00	18	NNW	9
	16:00	19	NNW	8
	19:00	20	NNW	7
	22:00	21	N	4
Day 4	01:00	22	N	4
	04:00	23	N	3
	07:00	24	N	3

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Fig. 1.2 for Question 1

Students' boundaries of CBD

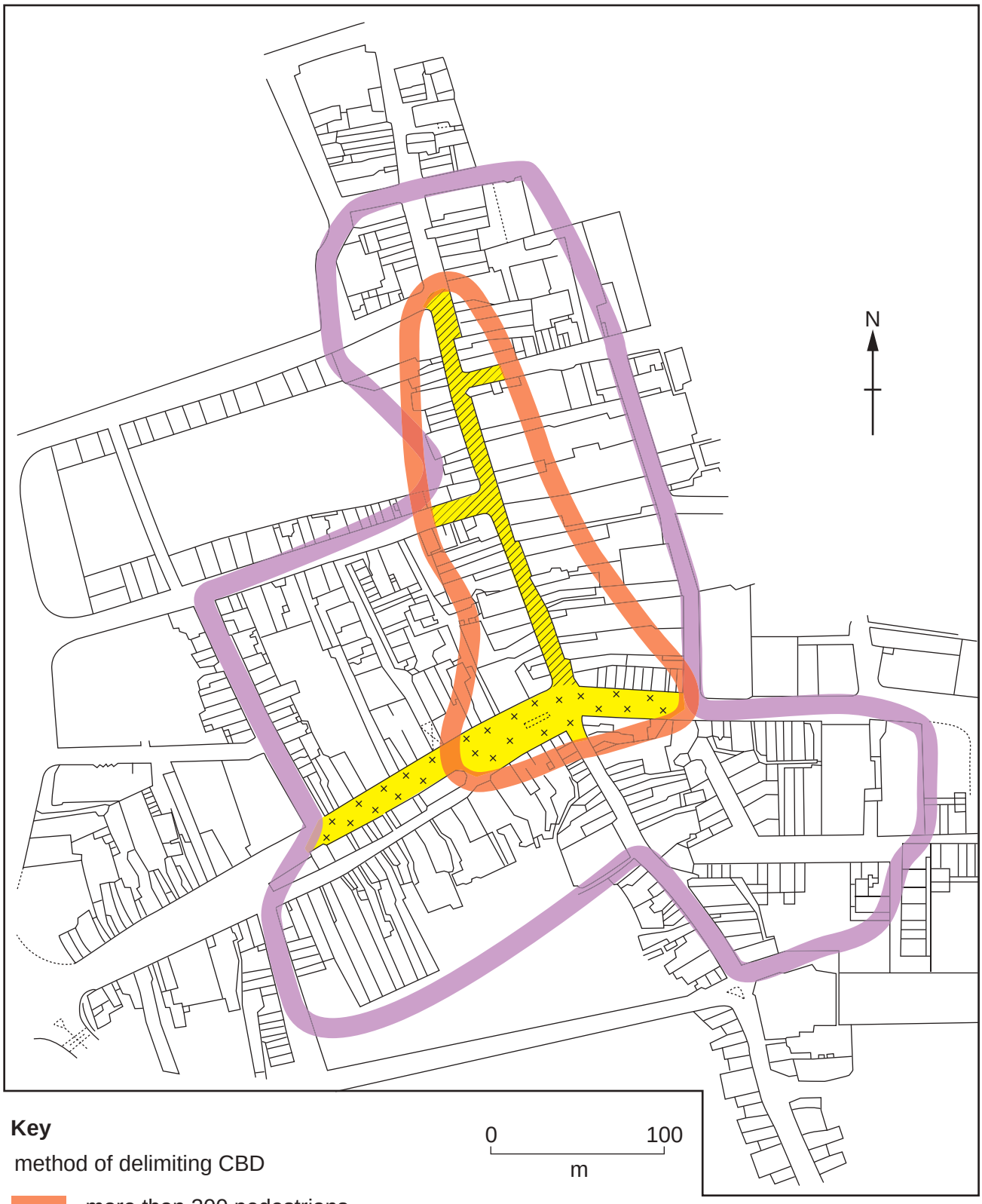

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Fig. 1.3 for Question 1

Shopping environment index

Site number:

	Score					
	1	2	3	4	5	
Small local business						Large national business
Surrounded by houses and industry						Surrounded by shops and services
Low price goods and services						High price goods and services
Few people shopping						Many people shopping
Run-down shop exterior						Well maintained shop exterior
Busy traffic and no parking						Pedestrianised area

Total score =

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Table 1.1 for Question 1

Results of shopping environment survey

Site number	Total index score (maximum score = 30)
1	14
2	13
3	17
4	19
5	20
6	24
7	25
8	30
9	28
10	21
11	19
12	**17**

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Fig. 2.1 for Question 2

Fieldwork area



Key

G groynes

R rock armour / rip rap

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Fig. 2.2 for Question 2

A student measures the beach profile



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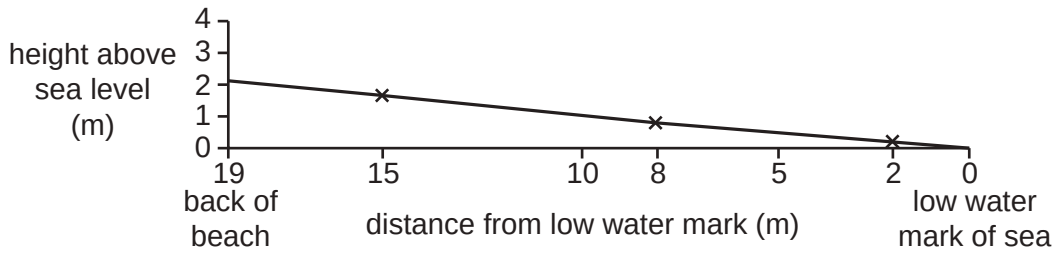
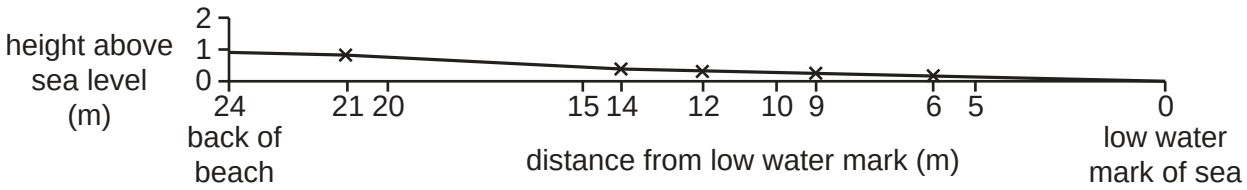
Fig. 2.3 for Question 2

Beach profile



Wave-cut platform profile



Key ×——× measured section of profile

Fig. 2.4 for Question 2

How to measure infiltration

1	Use a mallet to hammer a tube into the ground.
2	Pour water into the tube up to a height of 12 cm (120 mm).
3	Time for one minute.
4	Measure how many millimetres the water level in the tube has fallen.
5	Record the result and repeat the test twice more.

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Table 2.2 for Question 2

Results of infiltration measurements

	Decrease in water level in one minute (mm)							
		Beach				Wave-cut platform		
	Measuring point along profile	Measurement			Measuring point along profile	Measurement		
		1	2	3		1	2	3
Sea ↓ Cliff	A	30	42	**58**	A	0	6	3
	B	60	68	**85**	B	2	8	12
	C	75	94	90	C	5	2	2
	D	90	102	120	D	10	5	10

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Fig. 2.6 for Question 2

Questionnaire about coastal protection

Questionnaire

I am a student and I am doing this questionnaire as part of my Geography coursework. Please will you answer the following questions about coastal protection in this area?

1. Are you aware that the cliffs are being eroded?

   Yes ☐ No ☐

2. Do you think that the cliffs should be protected against erosion by the sea?

   Yes ☐ No ☐ Don't know ☐

3. Coastal protection is very expensive. Do you think it is worth spending so much money?

   Yes ☐ No ☐ Don't know ☐

4. Which one of these protection methods would you prefer to be used?

   Groynes ☐

   Breakwater ☐

   Rip rap / rock armour ☐

   Sea wall ☐

5. Who do you think should pay for the protection work?

   Local government ☐

   National government ☐

   Residents of the area ☐

   Visitors to the area ☐

Thank you for your time

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Table 2.3 for Question 2

Results of the questionnaire

Question 1: Are you aware that the cliffs are being eroded?

Yes	85%
No	15%

Question 2: Do you think that the cliffs should be protected against erosion by the sea?

Yes	71%
No	21%
Don’t know	8%

Question 3: Coastal protection is very expensive. Do you think it is worth spending so much money?

Yes	67%
No	27%
Don’t know	6%

Question 4: Which one of these protection methods would you prefer to be used?

Groynes	38%
Breakwater	20%
Rip rap / rock armour	**13%**
Sea wall	**29%**

Question 5: Who do you think should pay for the protection work?

Local government	19%
National government	51%
Residents of the area	**11%**
Visitors to the area	**19%**

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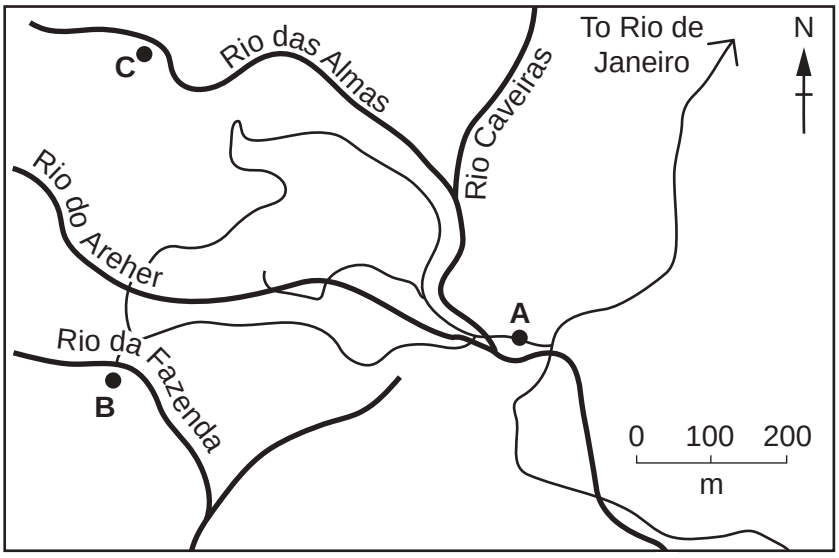
Fig. 1.1 for Question 1

Three fieldwork sites

Site A is located 460 m above sea level. It is a popular site for people to visit. The site contains a car park and picnic tables from which footpaths lead into the forest. Tourist developments have changed the original forest so it is less dense than originally.

Site B is located 560 m above sea level. Much of the original vegetation was removed to create a coffee plantation. Since the plantation was closed the natural vegetation has grown back but the vegetation is less dense than it was originally.

Site C is located 685 m above sea level. It is an area of natural rainforest which is less accessible than sites A and B. Little development has taken place here.



Key

● **A**,**B**,**C** fieldwork sites

river

road

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Fig. 1.2 for Question 1

Fieldwork equipment

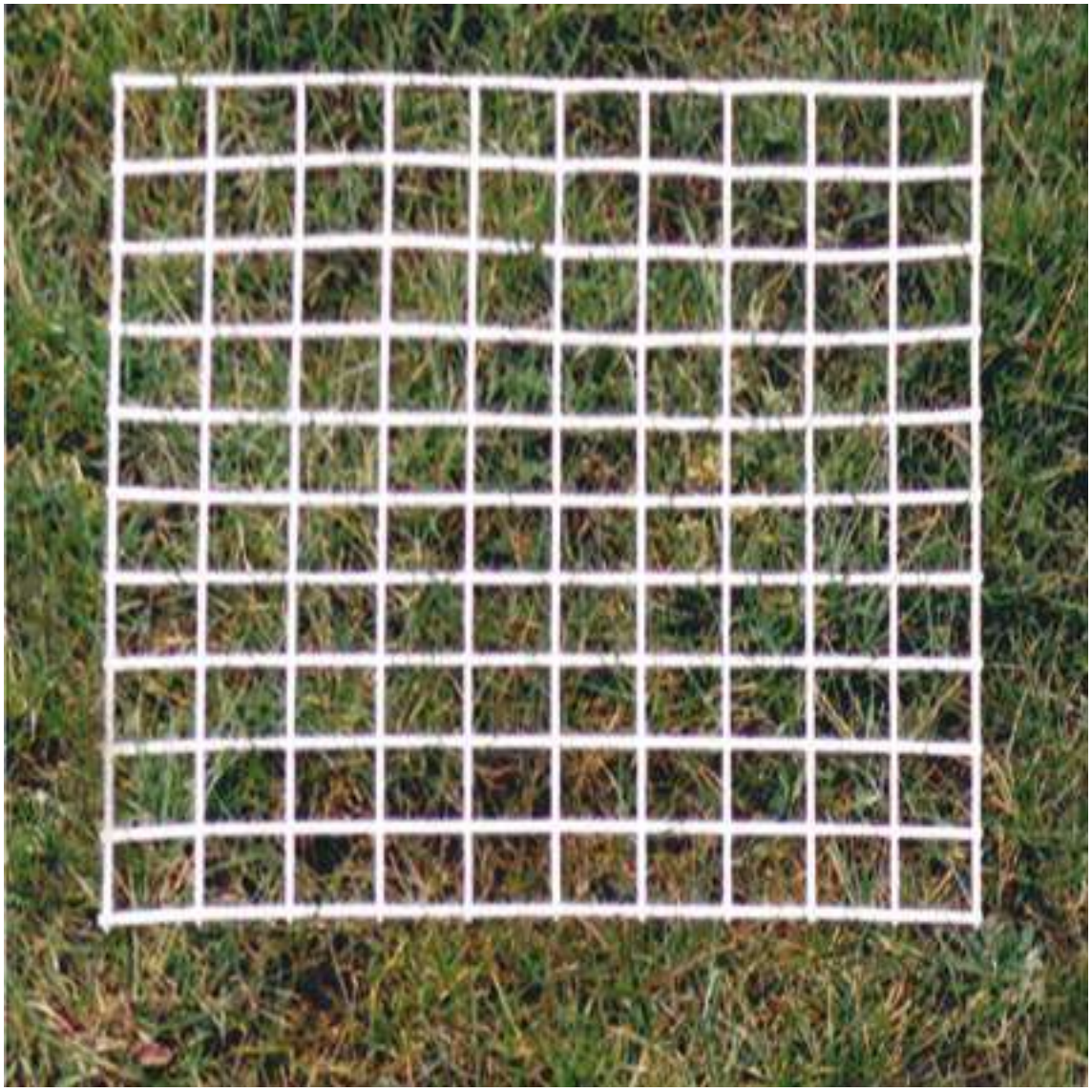

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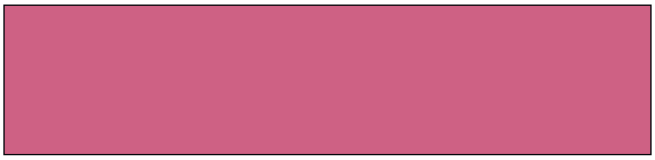
Fig. 1.3 for Question 1

How to measure humidity

We used cobalt chloride paper to measure the humidity of the air. This paper is blue when it is dry and turns pink when exposed to humid air. We took a piece of cobalt chloride paper from the dry container where it had been kept and held it in the air. We used a stopwatch to measure how long it took for the paper to change from blue to pink. **The faster this change of colour occurred, the greater the humidity of the air.**



DRY air



HUMID air

Table 1.1 for Question 1

Results of students' measurements

	Measure-ment 1	Measure-ment 2	Measure-ment 3	Measure-ment 4	Measure-ment 5	Average
Site A						
Percentage of vegetation cover	36	20	8	38	19	24.2
Percentage of bare ground	64	80	92	62	81	75.8
Humidity measurement (seconds)	60	52	46	49	56	52.6
Infiltration time (seconds)	36	40	58	60	44	47.6
Site B						
Percentage of vegetation cover	65	48	68	28	12	44.2
Percentage of bare ground	35	52	32	72	88	55.8
Humidity measurement (seconds)	100	175	135	129	**125**	132.8
Infiltration time (seconds)	25	35	21	48	52	
Site C						
Percentage of vegetation cover	72	68	**80**	57	65	68.4
Percentage of bare ground	28	32	**20**	43	35	31.6
Humidity measurement (seconds)	96	90	103	115	84	97.6
Infiltration time (seconds)	20	28	25	22	**30**	25.0

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Fig. 1.5 for Question 1

Species of vegetation

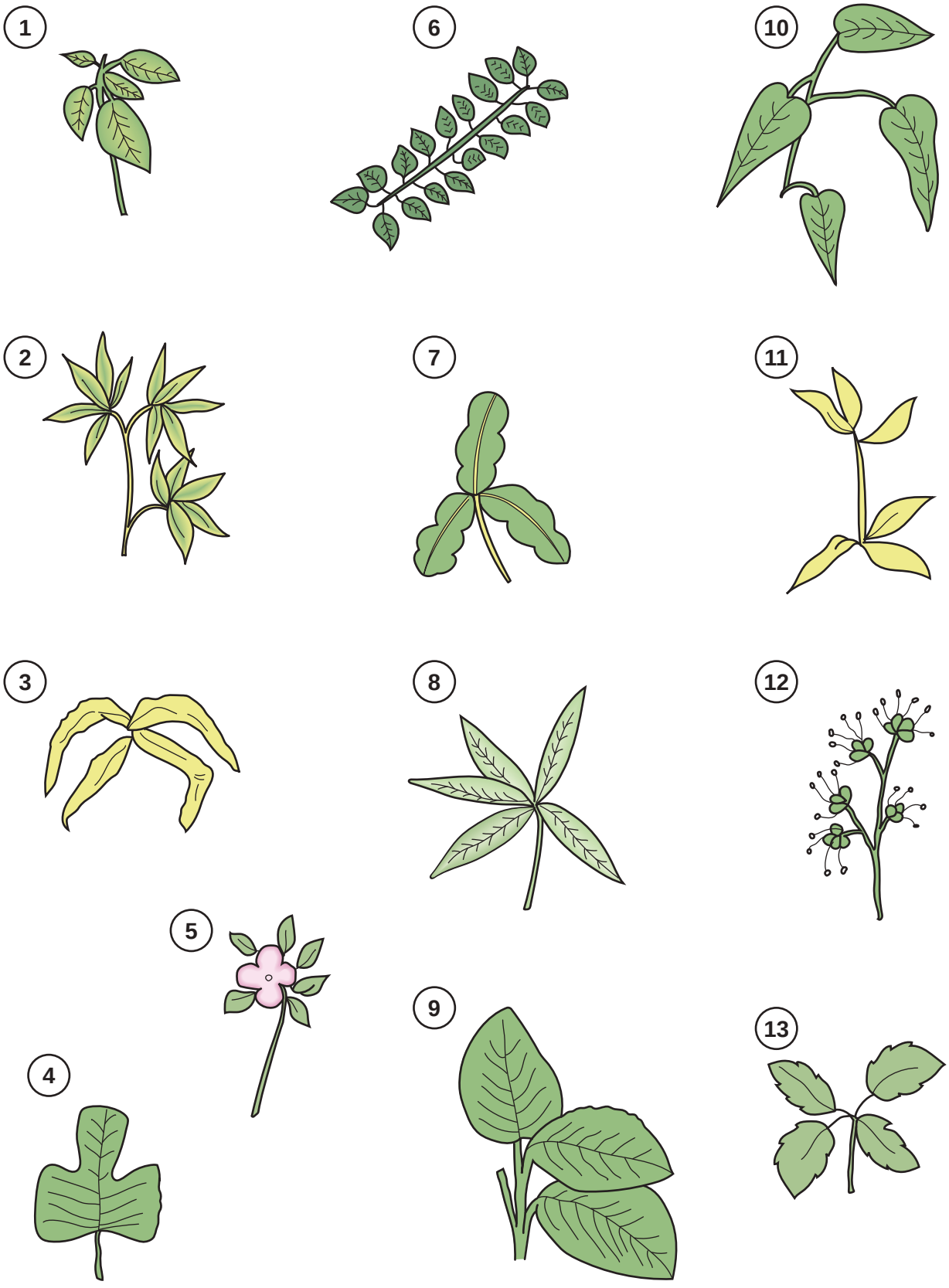

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Table 1.2 for Question 1

Different species* identified by students

Species reference number	1	2	3	4	5	6	7	8	9	10	11	12	13
Site A	✓	✓				✓		✓		✓		✓	
Site B	✓	✓	✓	✓	✓				✓		✓		
Site C	✓	✓	✓	✓			✓	✓	✓		✓		✓

*Species reference number in Fig. 1.5

Key
✓ species seen at the site

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Fig. 2.1 for Question 2

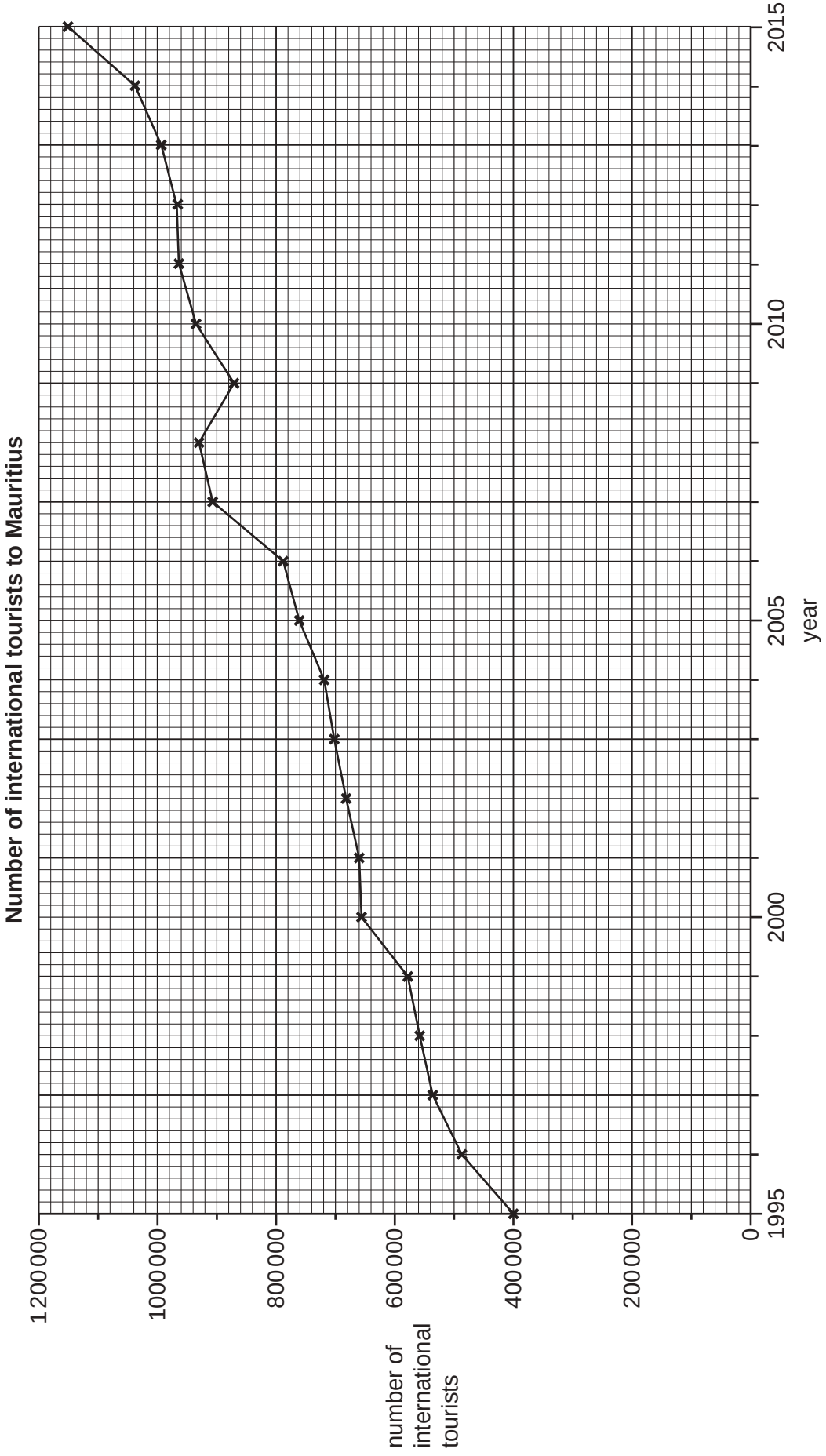

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Fig. 2.2 for Question 2

Tourist questionnaire

We are doing a tourism survey as part of our Geography fieldwork. Please answer the following questions.

1. Which continent do you come from?

☐ Asia ☐ Africa ☐ Europe

☐ Australasia ☐ North America ☐ South America

2. Which of the following physical landscape attractions are you visiting in Mauritius?

☐ Black River Gorges National Park ☐ Casela Bird Park

☐ Chamarel coloured earths ☐ Grand Baie beach

☐ Ile aux Cerfs ☐ National Botanical Garden

☐ Rochester Falls

3. Which of the following human landscape attractions are you visiting in Mauritius?

☐ Cap Malheureux church ☐ Chamarel distillery

☐ Fort Adelaide ☐ Flic-en-Flac

☐ Grand Bassin temples ☐ Le Caudan waterfront

☐ Port Louis market

4. Overall which attracted you most to Mauritius?

☐ Physical landscape attractions ☐ Human landscape attractions

Thank you for your time.

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Table 2.2 for Question 2

Answers to Questions 2 and 3 of the tourist questionnaire

Q2 Physical landscape attractions	Number of visits
Black River Gorges National Park	30
Casela Bird Park	**34**
Chamarel coloured earths	67
Grand Baie beach	49
Ile aux Cerfs	51
National Botanical Garden	38
Rochester Falls	21
Total	290

Q3 Human landscape attractions	Number of visits
Cap Malheureux church	22
Chamarel distillery	12
Fort Adelaide	25
Flic-en-Flac	28
Grand Bassin temples	**45**
Le Caudan waterfront	39
Port Louis market	33
Total	204

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Fig. 2.5 for Question 2

Resident questionnaire

We are doing a tourism survey as part of our Geography fieldwork. Please answer the following questions.

1. Do you live in Mauritius?

☐ Yes

☐ No (Finish interview if 'No')

2. Which are the three main benefits of tourism in Mauritius?

Number your first, second and third choices '1', '2' and '3'.

☐ More jobs and income	☐ Improved standard of living
☐ More modern services	☐ Cleaner environment
☐ Improved transport	☐ More global awareness
☐ Reduction in crime	☐ More goods in shops

3. Which are the three main disadvantages of tourism in Mauritius?

Number your first, second and third choices '1', '2' and '3'.

☐ Noise pollution	☐ Air pollution
☐ Traffic congestion	☐ More crime
☐ Decline of traditional culture	☐ Destruction of natural environment
☐ More litter	☐ Increase in cost of living

4. Overall which do you think are greater in Mauritius?

☐ Benefits of tourism

☐ Disadvantages of tourism

Thank you for your time.

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Table 2.3 for Question 2

Results of resident questionnaire

Question 2: Main benefits of tourism	First choice	Second choice	Third choice	Total index score
More jobs and income	39	25	11	178
Improved standard of living	15	20	28	113
More modern services	4	10	13	45
Cleaner environment	5	2	3	22
Improved transport	12	10	14	**70**
More global awareness	3	19	11	58
Reduction in crime	10	9	7	55
More goods in shops	12	5	13	59

Question 3: Main disadvantages of tourism	First choice	Second choice	Third choice	Total index score
Noise pollution	7	12	10	55
Air pollution	26	16	12	**122**
Traffic congestion	27	23	18	145
More crime	5	7	8	37
Decline of traditional culture	11	8	16	65
Destruction of natural environment	5	12	15	54
More litter	7	14	12	61
Increase in cost of living	12	8	9	61

Question 4: Overall effect of tourism	Answers
Benefits	87
Disadvantages	13

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GEOGRAPHY **0460/11**

Paper 1 **October/November 2019**

MARK SCHEME

Maximum Mark: 75

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	increased	**1**
1(a)(ii)	18948–9319 (1 mark) = 9629 (1 mark) 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: There are more/large numbers of immigrants and few emigrants ; Jobs/work/better paid; Politically stable/not at war; Health care services are good; Education facilities are good; Food supply is better; Water supply/sanitation. Etc 3 @ 1 mark	**3**
1(a)(iv)	Difficulties such as: Dangers on journey; Obtaining paperwork/work VISA/political restrictions/threat of deportation; Cost of moving; Finding somewhere to live/poor quality housing/shanty towns or examples of problems within them e.g. poor sanitation; Language problems; Jobs are hard to obtain/low paid; Racial/religious discrimination/hostility/not hired because are immigrants; Away from family/friends/don't know people; Hard to adapt to/different culture; Can't practice religion/adapt to different religions; High cost of living/can't afford food/schooling/healthcare/water/rent. etc 4 @ 1 mark	**4**
1(b)(i)	Larger/bigger population in China (than in Nigeria); Growth in both countries up to 2020/30/initially; More rapid growth in China than Nigeria up to any date before 2016/initially; China expected to decrease/decreases later but Nigeria doesn't/decline in China predicted after 2030 but growth continues/speeds up in Nigeria; Growth in both countries <u>overall;</u> **Supporting** statistics which need to be comparative and must use `billions' in answer (MAX 1 RESERVED) One date and two statistics or a difference in growth rate statistic for first line of markscheme, but two dates each with two statistics for other lines in markscheme. 3 @ 1 mark	**3**

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Question	Answer	Marks
1(b)(ii)	Ideas such as: Low use/lack of/lack of access to contraception/cannot afford contraception/family planning; Lack of knowledge of/information about contraception/impacts of large families; Religious issues which encourage large families/object to use of contraceptives; Traditionally people want male heirs; Children are often used to work in fields/send out to work from a young age/work in family business/at home/economic assets; Children look after elderly relatives/no pensions available; High infant mortality rate/many people have more babies in case other children do not survive; Women not educated/don't have careers; Emancipation/womens rights; Polygamy. etc 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe positive and/or negative impacts of migration on destination country. Level 2 (4–6 marks) Uses named example. More developed statements which describe positive and/or negative impacts of migration on destination country. **Note:** Credit development of impacts and not causes. (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe positive and negative impacts of migration on destination country, including some place specific reference. Content Guide: Answers are likely to refer to: • Labour supply • Many immigrants will do dirty/low paid jobs • Cultural understanding • Provision of services e.g. ethnic restaurants • Increases size of market for local businesses • Racial tension; • Pressure on employment • Pressure on services e.g. health care, education • Need for more housing/creation of ghettoes etc Place specific reference is likely to consist of: Named parts of the chosen country, Countries where migrants have arrived from, Population data etc	**7**

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Question	Answer	Marks
2(a)(i)	Rural	**1**
2(a)(ii)	Ideas such as: Dispersed/scattered/spread out homes/houses/dwellings; Few buildings/small settlement/almost no houses; On higher land/on top of rocks; Farms/farmland. Etc 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: Few/no services will be available/have no water/shops or other example/long distance to travel to water/shops or other example; Mainly low order; Small sphere of influence/used by local people only; Services to provide basic needs/daily items/convenience goods; Eg primary school, church, general store. etc 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Diagram/list of settlements showing relative importance of settlements within an area; As you move up the hierarchy, the size of the settlement increases; and the numbers of settlements decrease; There are more cities than conurbations/more towns than cities and more villages than towns etc; The number of services that a settlement provides increases with settlement size; Small settlements will only provide low-order services (such as a post offices, doctors and newsagents)/large towns, cities and conurbations will provide low and high-order services (such as leisure centres, chain stores and hospitals) .etc **Note:** Check the diagram for annotations. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Nucleated/nuclear; Buildings tightly packed together; Some extensions along roads; White buildings/red roofs; In a valley/low/flat/surrounded by mountains; Rural/surrounded by farmland. 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: In a valley/low(er)/flat land; Easy to build on flat land; In a sheltered position; Main settlement is accessible; Close to main road; Close to a water source; Fertile land/farming; South facing slope. Etc 5 @ 1 mark or development	**5**
2(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain why the population size has changed. e.g. Migration/pull factor/push factor =L1 Migration/move there plus a simple reason such as better schools =L2. Other push/pull factors then have to be well developed for credit at L2 to the this same stem/idea of migration. e.g. Move for jobs in tourism =L1 and so can feed family =L2. e.g. BR>DR or DR>BR =L1 BR>DR due to better hospitals =L2. Other DR>BR ideas then have to be well developed for credit at L2 to the this same stem/idea of migration. e.g. Government funds pension schemes which means old people can retire. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which explain why the population size has changed. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements which explain why the population size has changed, with some place specific reference. <u>Content Guide:</u> Answers could relate to the population growing or declining and are likely to refer to ideas relating to either migration,economic growth or decline, or natural population growth or decline. <u>Place specific reference is likely to consist of:</u> Locational details, Specific details of the rural area chosen etc	**7**

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Question	Answer	Marks
3(a)(i)	Diagram B	**1**
3(a)(ii)	Diagram A (1mark); There is the largest amount of water in the river; The flood plain/river/valley is widest/more flat land near river ; Meandering/oxbow lake. 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: Hydraulic action/bed and bank material loosened by power of water; Corrosion/rocks like limestone dissolved by acids in river water; Corrasion/river picks up loose materials and uses them to grind the bed and banks; Attrition/materials reduced in size as they hit each other when being carried or moved around by river; Vertical erosion in B/in the hills/near source; Lateral in A/near mouth; Erosion on outside of meanders. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as: River is carrying large amount of sediment ; River slows/stops; Loses/does not have energy(to move all the load)/cannot carry load; Occurs on inner bends of meanders; River may flood; Sediment seals the neck of the oxbow lake. 4 @ 1 mark	**4**
3(b)(i)	Agriculture/grazing/farmland/fertile soils/growing crops/cultivation/keeping animals; Fishing/fish market/fish farming; Transportation/moving cargo/imports/exports; Tourism; Industry; Flat land for building. 3 @ 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	Ideas such as: Flooding/floods; People die/drown; Crocodiles/snakes etc; Damage to/destruction of property/homes/possessions; Damage to business or example; Loss of earnings/jobs; Disruption to transport/flooding of road/railways; Erosion threatens farmland/homes etc; Reduce food production/crops washed away/farm animals/livestock killed; The area may have mosquitos/threat of malaria/dengue fever; Waterborne disease; e.g. typhoid. etc. 5 @ 1 mark or development	**5**
3(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain how a delta is formed. <u>Level 2</u> (4–6 marks) More developed statements which explain how a delta is formed. <u>Level 3</u> (7 marks) Comprehensive and accurate statements including fully labelled diagram. <u>Content Guide:</u> Answers are likely to refer to: River carries large amount of load; River slows/loses strength/can't carry sediment Flocculation, Deposition, Formation of distributaries/new channels, Build up of new land, Colonization by vegetation, Lack of strong currents etc	**7**

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Question	Answer	Marks
4(a)(i)	61/63 metres	**1**
4(a)(ii)	**In the canopy:** Toucan, Spider Monkey, Ocelot and Iguana **Ground level:** Tapir/Agouti/anaconda 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Some are able to climb/fly; Some need shelter/protection; Food supplies available (in canopy/at ground level); Different habitats/nesting areas etc. Note: Comparison assumed here. 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: Close to equator/in tropics; Overhead/direct/high angle of sun; Low pressure; Ascending/rising air; Cooling/condensation/saturation; Large amounts of evaporation/transpiration; Convectional rainfall. 4 @ 1 mark	**4**
4(b)(i)	Ideas such as: Uneven/clustered; More deforestation in southern part/south of Equator; More/lots/mainly in Brazil; In North/North East/West (Brazil)/near (border of) Bolivia/Peru; Lots of deforestation close to roads/less deforestation in remote areas; Lots of deforestation close to coast/sea/smaller amounts inland; 3 @ 1 mark	**3**

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Question	Answer	Marks
4(b)(ii)	Ideas such as: Population growth; For economic growth to take place/country/government to make money/to repay debt; Exploitation of land by TNCs; Weak legislation/corruption; Lumbering/export of timber/logging/e.g. such as furniture; Mining/quarrying; Road building; HEP generation/dams/reservoirs; Agriculture/ranching/e.g. such as cattle/palm oil/slash and burn; Urbanisation/building settlements/housing/places for people to live; Industrialisation/building manufacturing industry; Tourism/hotels; Firewood. Etc 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking **Note:** Local not global impacts. <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the impacts of deforestation on the local people and/or local natural environment. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe the impacts of deforestation on the local people and/or local natural environment. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements which describe the impacts of deforestation on the local people and the local natural environment, including some place specific details. <u>Content Guide:</u> Answers are likely to refer to: Death of wildlife, Extinction, Loss of habitat, Impacts on food chains/ecosystems, Soil erosion, Flooding, Threat to local tribes, Loss of their food supplies/resources, Migration into urban areas, Genocide, Haze/smoke from fires Jobs for locals Etc. <u>Place specific reference is likely to consist of:</u> Locational details, named tribes; named places within the rain forest etc	**7**

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Question	Answer	Marks
5(a)(i)	E.g. teacher, nurse, worker in a shop, banker, driver, office worker, cleaner etc	**1**
5(a)(ii)	Completion of pie chart: 1 mark for dividing line (at 30/75 – 1% tolerance); 1 mark for correct shading in correct order. 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: More primary in Cameroon/less in Italy; More secondary in Italy/less in Cameroon; More tertiary in Italy/less in Cameroon; Primary is largest in Cameroon and tertiary is largest in Italy; Primary is smallest in Italy and tertiary is smallest in Cameroon. 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Exhaustion of resources; Less dependence on subsistence agriculture; Mechanization of/technology/hi tec in agriculture/examples such as tractors; Foods/raw materials are imported; Improved education/skills ; Growth of factories/offices/industrialisation/moving to secondary/tertiary sector; 4 @ 1 mark	**4**
5(b)(i)	Country = Philippines (1 mark) Justification: GDP/production of goods is lowest/lower than others; Water supply is smallest/less access to water; Life expectancy is shortest/lowest. 3 @ 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	**Note:** To answer the question and so gain credit reference must be made to MEDC/LEDC or countries with more/less money at least once somewhere in the answer. MEDCS have better healthcare = 1 Ideas for MEDCs such as: Better/more access/more investment in health care/hospitals/clinics; More/better qualified doctors/nurses; Cures for diseases/medicines are more readily available/can afford medicines; Improved/safe water supply; Better hygiene/sanitation; Better food supplies/investment in agriculture; Pensions to be paid to elderly. Education about….. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which identify different methods of energy supply. e.g coal=L1, oil =L1 renewables = L1 Level 2 (4-6 marks) More developed statements which describe and/or explain the importance of different methods of energy supply. Use of valid statistics (max 1 × L2) (**Note:** Max 5 if no named or inappropriate example) (**Note:** Max 6 if only one energy) Examples of development as appropriate to energy type renewable availability of hot rocks/coal reserves/dams or example have other energy sources to rely on Government policy lack of air pollution Etc. Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers are likely to refer to methods such as: Fossil fuels (eg oil, coal, natural gas) Power stations, Renewable forms of energy (eg wind, wave power, HEP), Geothermal, Nuclear power, Wood/charcoal, Etc. Note: Do not credit how the energy is used Place specific reference is likely to consist of: Locational details/named areas within country/country if named area in example chosen Specific details/locations of energy supplies, Statistics etc	**7**

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Question	Answer	Marks
6(a)(i)	(Farming) to sell/for profit.	**1**
6(a)(ii)	Ideas such as: Crops are being grown/land cultivated/cultivation; Animals/cows are grazing/pasture. 2 @ 1 mark	**2**
6(a)(iii)	Inputs: pesticides, water Processes: ploughing, harvesting Outputs: wheat, milk 3 marks if all are correct 2 marks if 4 or 5 are correct 1 mark if 2 or 3 are correct 3 @ 1 mark	**3**
6(a)(iv)	**Note:** The following factors are acceptable: Flat land; Soil fertility, Amount of precipitation; Temperatures; Length of growing season; Demand for/price of products, Amount of land available; Capital availability/grants etc Two marks are available for each factor, one for reference to each photograph. So credit one mark for identification of an appropriate factor **and** applying this to a photograph, two marks for applying that factor to both photographs. e.g. flat land for crops (1) and cattle (1) e.g. fertile soil for growing crops (1) and grass for cattle/cattle on less fertile/fertile enough to grow grass for cattle (1) **Note:** Following factors are not acceptable: Labour Natural disasters/acid rain Climate Closeness to farmhouse Land value Chemicals/fertilizer. 2 @ 2 marks	**4**

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Question	Answer	Marks
6(b)(i)	Both increased; Larger <u>increase</u> in production than in harvested area/little change in harvested area (do not give credit for line one of MS within this statement); Increase in harvested area fluctuates/goes up and down and less so for increase in production/is steady/does not alter much; **Supporting** statistics which need to be comparative and must use `tonnes' and `hectares' somewhere in answer **(MAX 1 RESERVED).** Stats: 1900 2014 55000 – 195000 (production) 35000 – 56/57000 (area) 3 @ 1 mark	**3**
6(b)(ii)	Ideas such as: Farm the land more intensively; Use fertilizers/manure; Irrigation/water supply to crop; Pesticides/herbicides; Use of better quality seeds/GM crops; More mechanization/or examples such as tractors; Wind breaks/contour ploughing(to prevent soil erosion); Increase in amount of land used/deforestation/plant in larger area; Crop rotation; Terracing; Grow e.g. wheat rather than cattle. Etc 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why there are food shortages. Level 2 (4–6 marks) Uses named example. More developed statements which explain why there are food shortages (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements, including some place references. Content Guide: Answers are likely to refer to: drought, infertile soils, desertification, soil erosion, poverty, war/conflict, poor distribution network population increase etc Note: Simple development of one stem e.g. war = L2. However allow good detailed development of that same stem e.g. war for further L2s.	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/12**

Paper 1 **October/November 2019**

MARK SCHEME

Maximum Mark: 75

Published

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Question	Answer	Marks
1(a)(i)	International migration involves (movement) between countries **but** internal migration occurs within a country/area to area. 1 mark	**1**
1(a)(ii)	**International migration:** Bolivia to USA/Spain/Argentina; Europe/Brazil/Paraguay to Bolivia/Santa Cruz. **Internal migration:** Andes/Andean regions/La Paz/Cochabamba **to** Santa Cruz. 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: Work/jobs/business opportunities; Health care/medical services/hospitals/clinics; Education facilities/schools; Farmland. 3 @ 1 mark	**3**
1(a)(iv)	Difficulties such as: Finding somewhere to live/poor quality housing/shanty towns or examples of problems within them e.g. poor sanitation; Language problems; Jobs are hard to obtain/low paid; Racial/religious discrimination/hostility/taking jobs; Away from family/friends/don't know people; Hard to adapt to/different culture/religion; High cost of living/can't afford food/schooling/healthcare/water; Threat of deportation/difficult to get legal documents, etc. 4 @ 1 mark	**4**
1(b)(i)	Amenities such as: Restaurants; Food shops; Meeting places/places to watch TV; Football leagues/teams/pitches. 3 @ 1 mark	**3**
1(b)(ii)	Ideas such as: Remittances sent back; Benefit from winnings/donations from football leagues in USA; For investment in schools/infrastructure/churches; Less pressure on employment; Less pressure on healthcare; Less pressure on food supply; Less pressure on water supply;	**5**

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Question	Answer	Marks
	Less pressure on education; Empty houses; Schools close; Shops close/less customers in shops; New skills brought back; Gender imbalance/less partners; Imbalance in age structure/mainly old and young are left/higher dependent population; Family breakdowns; Brain drain/loss of skills/less workforce or examples; Impact on culture-positive or negative; Village or country economy develops, etc. 5 @ 1 mark or development	

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Question	Answer	Marks
1(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which explain why natural population growth rates are high. e.g. Lack of/don't use contraception = L1 as are too expensive/don't know about (becomes L2), however, without lack of contraceptive idea then lack of knowledge about contraception (L1) and contraception too expensive (L1). e.g. Birth rate greater than death rate = L1 Note: Can develop this statement with use of statistics for a L2 but do not credit development of this point e.g. high birth rate due to lack of birth control does not equal L2. Level 2 (4–6 marks) More developed statements which explain why natural population growth rates are high. Use of valid statistics – must be BR and DR only (max. 1 × L2). (Note: Max. 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which explain why natural population growth rates are high, including some place specific reference. Content Guide: Answers are likely to refer to: (High birth rates due to …): Lack/use of contraceptives (availability/cost/education); Lack of/don't use/no contraceptives (L1) Religious influences; Cultural influences; Infant mortality; Children sent out to work (on land/in homes/on streets etc); Lack of pensions, etc. (Declining death rates due to …): Better health care; Improvements in sanitation; Improvements in water supply; More food supply, etc. Place specific reference is likely to consist of: Named parts of the chosen country; Population data; Statistics, etc.	**7**

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Question	Answer	Marks
2(a)(i)	Fig. 2.2	**1**
2(a)(ii)	Fig. 2.1/New York/Stock Exchange Fig. 2.3/Punjab Textiles/Chatsworth Street Fig. 2.2/Pharmacy/Gun Hill All correct = 2 marks 1 or 2 correct = 1 mark 2 @ 1 mark	**2**
2(a)(iii)	Fig. 2.1 = City/conurbation/capital Fig. 2.2 = Village Fig. 2.3 = (Small) Town 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: There are similar services closer to home/there are many of these services/found in a lot of places; Items are low cost/low order; Services are used frequently/daily; They sell convenience goods/necessity; It is not worth the expense of travelling to them, etc. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Positive relationship/the greater the population size the more services; e.g. Hamlets have fewer services than towns or cities which have larger populations or other relevant examples; Some anomalies/relationship is not perfect. 3 @ 1 mark	**3**
2(b)(ii)	Ideas such as: Larger settlements are able to support/have a demand for/need more services; Services will not be viable/make a loss/less economic/profitable if there are few people; Larger settlements have a larger sphere of influence; People will travel from elsewhere to use services in larger settlements; Many people will travel to work in larger settlements and use their services; Larger settlement is better served by transport network so people will be able to travel there to use services, etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking Note: one problem only, if more than one then credit the best answer. Level 1 (1–3 marks) Statements including limited detail which describe the causes of an urban problem and/or explain how authorities are attempting to solve it. Note: no credit at L1 for listing problems. Level 2 (4–6 marks) More developed statements which describe the causes of an urban problem and/or explain how authorities are attempting to solve it. Use of valid statistics (max. 1 × L2); Note: simple cause and solution = 2 × L1 and not 1 × L2; Max. 5 if no named or inappropriate example. Level 3 (7 marks) Uses named example. Comprehensive and accurate statements which describe the causes of an urban problem and explain how authorities are attempting to solve it, with some place specific reference. Content Guide: Content will depend on the problem selected and these are likely to relate to urban problems such as: Traffic issues, Inequality, Housing issues, Conflicts over land use change, Specified pollution, Crime, Poverty, Unemployment. These are the problems listed in the syllabus, but the list is not exhaustive, and all examples used should be credited if appropriate causes and solutions are referred to. Place specific reference is likely to consist of: Locational details, Specific details of the urban area chosen, etc.	**7**

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Question	Answer	Marks
3(a)(i)	Barometer	**1**
3(a)(ii)	Ideas such as: They are more accurate/reliable/precise; It is quicker/easier/faster to use/read them; There is less chance of human error; They can automatically plot results, etc. 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: Wooden construction; Painted white; Slatted/louvres/air holes/ventilation; Insulated roof/2 layers on roof; Above ground level/on legs/1.25–2 metres. 3 @ 1 mark	**3**
3(a)(iv)	Factors such as: Away from buildings/in the open/not sheltered; Away from trees/in the open/not sheltered (only credit ‘in the open’ and ‘not sheltered’ once); On grass/not on concrete/ground type; Security/fence around; Doors open away from sun/direction doors face. Explanations as appropriate to factors such as: So, it is not sheltered; So is not shaded; To avoid ground radiation; So, don’t block wind; So not tampered with, etc. 1 mark for stating the factor, and another mark for explaining why it is important Note: No mark for explanation without factor. 2 @ 2 marks	**4**
3(b)(i)	(Campbell Stokes) sunshine recorder (Reserve mark); Insert/replace card/paper; Leave for/check after 24 hours/set period of time; Measure/record/see/observe length of burn line on card, etc. Note: Credit explanation even if name of instrument is incorrect. 3 @ 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	Ideas such as: Choose set/the same times during the day/at a given time/examples of times; Observe at several times each day/e.g. early morning, midday and late afternoon; Look up at the sky; Identify cloud types using an identification chart/looking at vertical extent/shape of clouds; Estimate cover/use a grid to look through; Record names/cover of cloud types in table/chart/diary; Record cloud cover in oktas/eighths, etc. Note: Development must be what the student does, not for example for naming cloud types. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the impacts of a tropical storm. Level 2 (4–6 marks) Uses named example. More developed statements which describe the impacts of a tropical storm. Use of valid statistics (max. 1 × L2). (Note: Max. 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements including place specific information. Content Guide: Answers are likely to refer to: Death/injury, Damage to homes, Loss of property/possessions, Flooding, Damage to vegetation, Roads/railways blocked, Electricity supply disrupted, Economic impacts, Secondary/long term impacts, etc. Place specific reference is likely to consist of: Locational details, Specific details of the areas affected, Statistical information e.g. deaths/damage, Name of storm/date, etc.	**7**

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Question	Answer	Marks
4(a)(i)	St Louis is at the confluence of the Mississippi and Missouri. 1 mark	**1**
4(a)(ii)	Ideas such as: It is (further) downstream/at/nearer mouth; Several tributaries have joined the Mississippi by then; It is likely to have a large flood plain/flat/low land around the river. 2 @ 1 mark	**2**
4(a)(iii)	Impacts such as: Roads/railways/bridges flooded/impassable/destroyed; Farmland flooded/loss of crops/food shortages/soil eroded; Farm animals die/drown/need to be rescued; Loss of lives/people drown; Electricity supply disrupted; Water supply contaminated/waterborne diseases or example; Homes/buildings/villages/settlements/personal possessions destroyed/flooded; Natural vegetation/trees/habitats/wildlife destroyed; Fertile soils/land, etc. 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: Build a dam/reservoir (upstream); Levees/embankments/barriers; Sandbags; Dredging; Overflow channels; Use sluice gates/spreading areas upstream; Straighten the river/line with concrete; Tree planting/reduce deforestation; Monitoring/prediction/early warning/alarms/evacuation; Land use zoning/keep grassy areas near rivers; Build on stilts/housing design, etc. 4 @ 1 mark	**4**
4(b)(i)	Characteristics such as: Curved/horseshoe/crescent/semi-circle/backward C; North–south orientation; Long and thin; Width approximately 0.5 to 1 km; Length approximately 10–16 km; Small island; Wider in middle/south/narrower at ends, etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(b)(ii)	Ideas such as: River flows around a meander/formed from meander; Erosion on outer bends; Due to faster flowing water; Hydraulic action/abrasion (or description of process); Helicoidal/helical flow; Deposition on inside bends; Due to slower flowing water; River becomes more sinuous/winding/extreme meander; Neck of meander reduced in thickness; Eventually river erodes across neck/river flows straight on/cuts off meander; During time of flood; Deposition seals former meander, etc. Credit either text or labelling on diagram but do not award double credit. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
4(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the benefits of living on a flood plain or delta. e.g. transport (L1). e.g. jobs in tourism (L1). Level 2 (4–6 marks) Uses named example. More developed statements which describe the benefits of living on a flood plain or delta. Use of valid statistics (max. 1 × L2). e.g. fertile soils and plant crops (L2). e.g. jobs in tourism give income to locals/allow them to pay for schooling (L2). (Note: Max. 5 if no named or inappropriate example). Level 3 (7 marks) Comprehensive and accurate statements, including some place specific details. Content Guide: Answers are likely to refer to: Fertile soils, Transport routes, Flat land, Domestic water supply, Irrigation, Fishing, Jobs in tourism, Jobs in industry, etc. Place specific reference is likely to consist of: Locational details, named places alongside river/country name/area, etc.	**7**

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Question	Answer	Marks
5(a)(i)	How the population is divided up by the type of work they do/in which sector people are employed/proportion in each economic sector/employment in primary, secondary, tertiary. 1 mark	**1**
5(a)(ii)	Manufacturing industry = e.g. iron and steel/cars/textiles/food processing/sugar refining/making of relevant product/named industry e.g. Toyota, etc. Service sector = e.g. banker/teaching/nurse/shopkeeper/cleaner/taxi driver/working in a school. Note: not a named industry here but look for worker/working at/in or example, etc. 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: Increase in service/tertiary sector; Decrease in manufacturing/secondary; Decrease in agriculture/primary. 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Automation/hi-tec/mechanisation of/use of technology in agriculture/e.g. tractors; Automation/hi-tec/mechanisation of/use of technology in manufacturing/e.g. assembly line; More foods/manufactured goods are imported/no need to be self-sufficient; Improved education/skills; Growth of tourism; More demand for services; Raw materials running out, etc. 4 @ 1 mark	**4**
5(b)(i)	Ideas such as: Mainly/most in Africa; Except Egypt and South Africa/except in North and South; A few/some in Asia; Near/on equator/mainly in tropics/between Tropics of Cancer and Capricorn/Central Africa/sub-Saharan Africa; Uneven/clustered. 3 @ 1 mark	**3**

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Question	Answer	Marks
5(b)(ii)	Ideas such as: Poor water supply is likely to slow down/hinder development; Dehydration; Many people will have water borne diseases; E.g. cholera/typhoid/bilharzia; People will not be able to work/be educated; Money will be spent on treating disease/dehydration; There may be a lack of water for use in agriculture/irrigation; Yields of crops/livestock will be low/lack of food; There will be little surplus for sale/export; There will be insufficient water for development of some manufacturing industries; Insufficient water for HEP; Pay to import water/cost of reservoirs/buy bottled water, etc; Conflict over water supplies, etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which identify different methods of energy supply. e.g. coal = L1, oil = L1, renewables = L1 Level 2 (4–6 marks) More developed statements which describe and/or explain the importance of different methods of energy supply. Use of valid statistics (max. 1 × L2) (Note: Max. 5 if no named or inappropriate example) (Note: Max. 6 if only one energy) Examples of development as appropriate to energy type: Renewable; availability of hot rocks/coal reserves/dams or example; have other energy sources to rely on; Government policy; lack of air pollution, etc. Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers are likely to refer to methods such as: Fossil fuels (e.g. oil, coal, natural gas), Power stations, Renewable forms of energy (e.g. wind, wave power, HEP), Geothermal, Nuclear power, Wood/charcoal, etc. Note: Do not credit how the energy is used. Place specific reference is likely to consist of: Locational details/named areas within country/country if named area in example chosen Specific details/locations of energy supplies, Statistics, etc.	**7**
6(a)(i)	The process by which fertile land becomes less productive/makes surface unsuitable for vegetation to grow/land becomes desert/dry/arid. 1 mark	**1**

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Question	Answer	Marks
6(a)(ii)(A)	Ideas such as: Less rain falls/drought/rapid evaporation; Plants do not grow/die/soil becomes bare, etc. Note: Credit 'soil becomes bare' once only – in **6(a)(ii)(A)** or **6(a)(ii)(B)**. 2 @ 1 mark	**2**
6(a)(ii)(B)	Ideas such as: More food is needed; Areas are overgrazed/overcultivated; People need more fuel/homes/settlements; Trees are cut down/soil/land becomes bare. Note: Credit 'soil becomes bare' once only – in **6(a)(ii)(A)** or **6(a)(ii)(B)**. 3 @ 1 mark	**3**
6(a)(iii)	Methods such as: Limit size of herds/rotate grazing land; Plant trees/shelter belts/afforestation; Contour ploughing/ploughing across slope; Education about agricultural techniques; Crop rotation; Terracing; Maintain soil cover/plant drought resistant plants; Mulching; Micro HEP project/small scale cookers. Note: Do not accept do nots for methods e.g. do not overgraze, stop deforestation. <u>Explanations as appropriate to method such as</u>: So, less overgrazing; Roots bind soil; So, less soil erosion; Less surface runoff; So, less deforestation; Improve soil fertility, etc. Note: Don't credit explanation if no appropriate method. Credit one mark for identification of each strategy and another mark for an explanation. 2 @ 2 marks	**4**
6(b)(i)	Ideas such as: More/build up of greenhouse gases/ or named examples/chemical symbols; More heat trapped;	**3**

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Question	Answer	Marks
	Less heat escapes, etc. 3 @ 1 mark	
6(b)(ii)	Ideas such as: Burning of fossil fuels; E.g. oil/coal; Cars/engines; Aircraft emissions; Deforestation/forest fires; Reduces capacity of vegetation to convert carbon dioxide to oxygen/absorb carbon dioxide/gases; Methane from rice fields/grazing livestock; Thermal/coal/oil/gas power stations/electricity generation; Industry/manufacturing/industrialization, etc. 5 @ 1 mark or development	**5**
6(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the problems of global warming. e.g. flooding = L1 <u>Level 2</u> (4–6 marks) More developed statements which describe the problems of global warming. e.g. flooding of low lying/coastal land = L2 e.g. ice melts and sea level increases = L2 Note: Max. 5 if no place references. Max. 6 if one place reference. <u>Level 3</u> (7 marks) Comprehensive and accurate statements which describe the problems of global warming, including some place references. Must refer to two place references. <u>Content Guide</u>: Answers are likely to refer to: Changing rainfall patterns/drought/desertification; Difficulty producing food; Lack of water supplies; Melting of ice caps/glaciers; Impacts on species/biodiversity/food chains; Flooding of coastal lowlands; Spread of tropical diseases to other areas; Loss of habitat;	**7**

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Question	Answer	Marks
	Heat stroke, etc.	

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GEOGRAPHY **0460/13**

Paper 1 **October/November 2019**

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Question	Answer	Marks
1(a)(i)	Number who die/deaths per 1000 (people) per year	**1**
1(a)(ii)	Both the birth rate and the death rate have declined overall between 1960 and 2018; Natural population growth was lower in 2015 than it was in 2000 2 @ 1 mark	**2**
1(a)(iii)	20 – 5 (1) = 15 (1) 15 per 1000 (1) 3 @ 1 mark	**3**
1(a)(iv)	Ideas such as: Less births/reduction in birth rate; Use/access to/can afford contraception; People more educated about using contraception/family planning; People have career/more women will be educated; Children are expensive; Government policy to reduce birth rate; More deaths/increase in death rate; Obesity/heart disease; Drug cartels/murder; Alcohol related deaths; AIDS/HIV; War/civil war. Note: No reserve on BR/DR **Note:** No credit for reference to high death rate ideas such as lack of hospitals/sanitation/unclean water, etc. 4 @ 1 mark	**4**
1(b)(i)	Ideas such as: More economically active/working/15–64; More elderly/old (dependents)/65+; More young (dependents)/0–14/5–14/numbers in age bands up to 19 become more even, etc. 3 @ 1 mark	**3**
1(b)(ii)	Ideas such as: Children do not work/make money/economic burden on country/dependency rate increases; People cannot work as are caring for children; More food needed/has to be provided; More schools/childcare needed/expense of schools; More healthcare needed/expense of health care; Tax increases likely/don't pay taxes. Note: Can be phrased as impacts on parents rather than country. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
1(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which describe a population policy used to influence natural growth rate, e.g. one child policy. Level 2 (4–6 marks) More developed statements which describe how a population policy is used to influence natural growth rate NOT the impacts. **Note:** Credit different approaches within a policy, so for example, when marking a China One Child Policy answer, ideas will often cover the following: Incentives; Penalties; Exceptions; Enforcement. **Note:** Credit only 1 × L2 mark for each of these four ideas above, although credit should also be given for other ideas such as developing the idea such as increasing the age of marriage, Government providing free contraception which do not fit the four ideas above. Examples of developed statements e.g. one child policy and free education L2 (Incentive); one child policy and use of fines if more than one child L2 (Penalty); one child policy and parents not penalized if they have twins or a child is disabled L2 (Exception); one child policy and Granny police check if couples are conforming to law L2 (Enforcement). Note: If another country is given other ideas in the Content Guide will be relevant e.g. gender equality acts or educating women. The same stem can be used as in the China example. i.e. Have more children/x children per couple and state pays for/subsidises schooling Have more children/x children per couple and subsidised housing provided (Note: Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference which can be named parts of the chosen country, Population data, reference to a specific named policy/specific details about it, etc.	**7**

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Question	Answer	Marks
2(a)(i)	A built up area/town/city, etc.	**1**
2(a)(ii)	Completion of graph. 1 mark for dividing line (at 55/90 – 1% tolerance) 1 mark for correct shading in correct order. 2 @ 1 mark	**2**
2(a)(iii)	Ideas such as: Greater percentage/more from traffic in India/less from traffic in Japan; Greater percentage/more from industry in Japan/less from industry in India; Greater percentage/more from domestic source/homes in India/less from domestic source in Japan; Greater percentage/more from electricity in Japan/less from electricity in India; Traffic is the largest in India and industry/electricity is the largest in Japan; Industry is the least in India and domestic is the least in Japan. 3 @ 1 mark	**3**
2(a)(iv)	Ideas such as: Breathing difficulties/chest complaints/heart complaints; And brings specific diseases, e.g. asthma, lung cancer, bronchitis; Eye disease/damages eyes or example; Affects brain/educational performance; Causes smog/haze/affects visibility; Makes paintwork/windows/washing, etc. dirty; Weathers/corrodes stonework on buildings; Pollutes drinking water/water sources; Kills fish <u>which</u> people eat. 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Number of vehicles will increase/double; Population will increase; There will be more people working/more journeys to work/more rush hour journeys/traffic; Not enough/lack of investment in/neglected/poor public transport/railways, etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
2(b)(ii)	Ideas such as: Build new/upgrade railway lines/stations/systems; Underground railway/metro; More/bigger/double decker trains/buses/more bus routes; Bus only lanes; Reduce costs of public transport; Trams; Monorail; Build new roads/dual carriageways; Build ring roads/by passes; Widen roads; Flyovers; Underground road/tunnel; Tidal flow/barriers to alter flow of cars in lanes; Park and ride; Congestion charging; Car number plate scheme; Car pooling/sharing; Traffic lights/police controlling traffic/roundabouts; Pedestrianise/car free zones/ban diesel cars Cycle lanes/cycle hire. Use bikes/cars/trains etc.^ Encourage use of bikes/cars/trains.^ 5 @ 1 mark or development	**5**

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Question	Answer	Marks
2(c)	Levels marking **Note:** Urban area. Urban fringe/outer edges of city, such as housing on farmland is fine. If clearly rural = 0. **Note:** If no clear change identified at all, conflict can be credited to top of L1 only for generic reference to urban areas. <u>Level 1</u> (1–3 marks) Statements including limited detail which describe a change in land use and/or explain why it has caused conflict. E.g. build a supermarket = L1. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe a change in land use and/or explain why it has caused conflict. Note: Do not link change and conflict for a L2 statement. Note: Can gain credit for arguing <u>and</u> developing both sides of an argument for more than one L2. E.g. Knocked down houses and built a supermarket = L2 (so idea of landuse change) For conflict accept idea of problems E.g. Created lots of traffic and so people are late for work = L2 E.g. Loss of habitat and so animals die/people protest = L2 E.g. Expensive to build and money could have been spent on local schools. (**Note:** Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Uses named example. Comprehensive and accurate statements which describe a change in land use <u>and</u> explain why it has caused conflict, with some place specific reference. <u>Content Guide:</u> Content will depend on the change in land use selected and these are likely to be chosen from: Road/railway/metro building, Demolition/building of housing, Building of a new shop, school, clinic, hotel, etc. New industrial development, Building a new airport, Construction of buildings on parkland, etc. The list is not exhaustive and all examples used should be credited if valid changes in land use in an urban area. <u>Place specific reference is likely to consist of:</u> Locational details, Specific details of the urban area chosen/change in land use, etc.	**7**

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Question	Answer	Marks
3(a)(i)	Graph completion (no need to shade)	**1**
3(a)(ii)	Ideas such as: (Lack of) shelter; (Shortage of) food. 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: People need clean water supply/water to drink/to live/survive/prevent dehydration; Water/sewage pipes/water treatment stations will be cut off/damaged/broken; No running water; People cannot wash/bath/shower; No flush toilets; Sewage will spill out/contaminate (water supplies/area); Disease/germs from dirty/polluted water or people sick from dirty water/waterborne diseases/examples of such as cholera; **Note:** No reserve on clean water/sanitation. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as: Build deep/stronger/sturdier foundations/base; Reinforce/use concrete/bricks for buildings/walls/roofs; Use metal/steel/aluminium beams; Use diagonal bracing; Flexible building materials; Use dampers/shock absorbers in base of building; Computers controlled weights/counter balances on roof/weight on roof; Automatic window shutters; Shatter proof/strong/reinforced glass; Use fire resistant materials; Build low building/do not build high rise; Use automatic cutoff for gas pipes/electricity cables; 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: Clustered; Linear/lines; Close to plate boundaries; Around Pacific Ring of Fire; More in northern hemisphere/North of equator; E.g. South East/Southern Asia; Middle East; Southern Europe; Caribbean/Central America; Western South America; Mediterranean; MAX 1 mark for an appropriate country name. 3 @ 1 mark	**3**

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Question	Answer	Marks
3(b)(ii)	Ideas such as: Some areas have more/bigger/stronger/higher intensity earthquakes; Dependent on proximity to a plate boundary/only found on plate boundaries/less deaths away from plate boundaries/no deaths away from plate boundaries; Whether boundary is destructive/conservative/constructive (impacts numbers)/the type of movement taking place at the plate boundary; Some areas are more densely populated/higher population/more live there/higher density buildings; Some countries can invest in earthquake proofing/earthquake proof buildings or examples of – **no** development here; Lack of/quality of rescue services; Quality of health care; Earthquake planning/education about what to do in an earthquake/Earthquake Day or other examples; Monitoring/warning/evacuation planning/creating safe areas (to go to in the event of an earthquake ; Some cause tsunamis; Note: Explanation can refer to areas with high death rates or areas where there are few deaths, no need to be comparative if context is clear. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
3(c)	Levels marking <u>Level 1</u> (1–3 marks) Statements including limited detail which explain the causes of a volcanic eruption. E.g. converging/destructive = L1 plate boundary = L1 Therefore destructive plate boundary = 2 × L1. <u>Level 2</u> (4–6 marks) Uses named example. (**Note:** Max 5 if no named or inappropriate example) More developed statements which explain the causes of a volcanic eruption. Note: Names of plates is place specific but not L2. Examples Subduction due to heavier plate = L2 Magma rises due to pressure = L2. <u>Level 3</u> (7 marks) Comprehensive and accurate statements including place specific information. <u>Content Guide:</u> Answers are likely to refer to: Location on plate boundary; Plate movement; Destructive margin or constructive margin processes; Subduction; Pressure; Release of magma; Hot spots; etc. <u>Place specific reference is likely to consist of:</u> Locational details; Specific details of the areas affected/date; Plate names; etc.	**7**

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Question	Answer	Marks
4(a)(i)	Meander	**1**
4(a)(ii)	Ideas such as: It is flat/gently sloping; It is made from fine materials/ small stones/mud/sediment/soil; It is just above the level of the river, etc. 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Water flows quickly; Lateral erosion; Water erodes bank/wears away side; Hydraulic action/abrasion (or description); Undercutting; Collapse; Helicoidal/helical flow. 3 @ 1 mark	**3**
4(a)(iv)	Ideas such as: River could become more sinuous/winding/meandering/tighter/more pronounced; Outer bank retreats/moves outwards/goes out further; Slip off slope moves inwards/builds up; Neck of meander narrows/reduces in size/narrow neck will be formed; Cut across/river becomes shorter/straighter; Meander sealed (by deposition); Formation of oxbow lake; etc. 4 @ 1 mark	**4**
4(b)(i)	Characteristics such as: South/south east facing; Adjacent to/flows into/meets/next to/on the coast of South China Sea/Lingding Bay; Many distributaries/small rivers; Width approximately 70–120 km; Length approximately 100–150 km; Islands in channel; Birds foot type; Etc. 3 @ 1 mark	**3**

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Question	Answer	Marks
4(b)(ii)	Ideas such as: River carries large amount of load; River slows/loses strength/can't carry sediment; Flocculation; Deposition; Formation of distributaries/new channels/finds new routes; Build up of islands/new land; Colonization by vegetation, Lack of strong currents, etc. 5 @ 1 mark or development	**5**
4(c)	Levels marking **Note:** Must be people related. <u>Level 1</u> (1–3 marks) Statements including limited detail which describe the hazards/difficulties of living close to a river. <u>Level 2</u> (4–6 marks) Uses named example. More developed statements which describe the hazards/difficulties of living close to a river. (Note: Max 5 if no named or inappropriate example) <u>Level 3</u> (7 marks) Comprehensive and accurate statements which describe the hazards/difficulties of living close to a river including some place specific details. <u>Content Guide:</u> Answers are likely to refer to: River erosion Marsh land Mosquitoes Difficulty of crossing river Flooding and its issues such as: Transport problems Contaminated water Homes destroyed Deaths etc. <u>Place specific reference is likely to consist of:</u> Locational details, Named places alongside river, etc.	**7**

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Question	Answer	Marks
5(a)(i)	Producing/growing food/crops/produce/animals <u>for their</u> family/tribe/personal use **or** Producing/growing food/crops/produce/animals <u>that is</u> not for sale/profit **Note:** however allow idea of sale in the first idea if they are only selling the surplus. 1 mark	**1**
5(a)(ii)	Ideas such as: Crops/maize **or** ploughed/cultivated; Livestock/cattle/goats/sheep **or** grazing/grassland/pasture; Mixed farming (if no credit for first two lines above) Fruit trees/dates/coconuts/oil palms; Clearing/surrounded by trees; 2 @ 1 mark	**2**
5(a)(iii)	Inputs: seeds, water Processes: weeding, harvesting Outputs: milk, maize **Note:** 3 marks if all correct 2 marks if 4 or 5 correct 1 mark if 2 or 3 correct 3 @ 1 mark	**3**
5(a)(iv)	Ideas such as: Too poor to buy food/have large families so need lots of food; Do not have transport/can't get to market/live in remote/isolated areas/too far from markets; Small areas of land/can't afford large areas; Do not produce enough (surplus) to sell/do not produce a surplus/only produce enough for themselves; Tradition; Vicious circle of poverty; Lack of/can't afford machinery; Lack of/can't afford fertilisers/pesticides; Lack of/can't afford good quality seed/GM/or such as IR8; Lack of education about, e.g. use of pesticides' Etc. 4 @ 1 mark	**4**

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Question	Answer	Marks
5(b)(i)	Ideas such as: More wheat is produced than rice; Both have increased over the time period/both highest in 2013; There is more fluctuation/goes up and down/instability in the production of wheat than rice; **Supporting** statistics which must refer to 'million tonnes' somewhere in answer to illustrate any of the above (**MAX 1 Reserved**) Note: For first line this is one year and two statistics or a difference figure, for other lines this is two years and four statistics. 3 @ 1 mark Statistics: (millions of tonnes) 1980 2013 260/263 462/465 rice 425/430 657/660 wheat	**3**
5(b)(ii)	Ideas such as: Variation in rainfall amounts/drought/flood; Temperature differences/or example, e.g. late frost may damage crop one year; Variation in amounts of sunshine; Variation in seed quality/development of high yielding varieties; Use of fertilizer/pesticides/insecticides; Use of irrigation; Mechanisation or examples of; Market demand/price; Grants/quotas/subsidies; Crop disease/pests; War; Change in land use area or example, e.g. fell trees/fill ponds/urban growth/urbanisation; etc. 5 @ 1 mark or development	**5**

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Question	Answer	Marks
5(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe and/or explain the land use of a farm or agricultural area. E.g. rice = L1. Fertile soil = L1. Level 2 (4–6 marks) Uses named example. More developed statements which describe and/or explain the land use of a farm or agricultural area. **Note:** Don't combine a simple description and explanation to create a developed L2 statement. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, which describe and explain the land use of a farm or agricultural area including some place specific reference. Content Guide: Answers can describe any type of agricultural land use and are likely to refer to: Relief; Climate; Soil; Access to market; Capital; Demand/price; Personal preference, etc. Place specific reference is likely to consist of: Locational details/named areas close by (e.g. markets) Specific details of farm, e.g. soil type, Statistics, etc.	**7**

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Question	Answer	Marks
6(a)(i)	Oil	**1**
6(a)(ii)	Major urban area = Atyrau, Bautino River = Volga, Ural 2 @ 1 mark	**2**
6(a)(iii)	Impacts such as: Damage to wetlands/river delta/or examples such as kills species in wetlands/river deltas/impacts food chains in wetlands/river deltas; Seals/sturgeon/fish killed/numbers decrease/abnormalities; Sturgeon/fish unable to spawn/spawning grounds destroyed ; (Caspian)Seal habitat destroyed. 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as: There are many activities/things which create pollution **or** there are many industries/lots of/large oil and gas/oil and gas are very important; Large area to clean/large area has been polluted; Ongoing problem/industries still polluting; They are important to the economy/source of income/earn lots of money/economic asset (and so cannot be stopped); The sea is very large/only small parts can be protected; It is enclosed which prevents pollutants escaping; Rivers will add pollution to the sea/polluted rivers flow into the sea; There is more than one country which borders it/need to make international agreements; Floods/flood risk zone could pollute/continue to pollute; Abandoned wells/workings could still (continue) to pollute/have polluted. 4 @ 1 mark	**4**
6(b)(i)	Fig. 6B (Power station) gives off/emits/produces carbon dioxide; Fig. 6C (Grazing cattle) gives off/emits/produces methane; Fig. 6D (Deforestation) results in less carbon dioxide being absorbed/removed/ converted to oxygen **or** (vehicles) give off/emit/produces carbon dioxide/carbon monoxide/sulphur dioxide/nitrogen/nitrous oxides. 3 @ 1 mark	**3**
6(b)(ii)	Ideas such as: Greenhouse gases form a layer/blanket; Sun's rays pass through the atmosphere/enter; Short wave energy comes in; Rays/heat bounce off/radiate from the surface of the earth; Rays/heat trapped/can't escape; Long wave/infrared energy (doesn't leave); Temperatures increase/heat builds up. Greenhouse gases increase/build up^ 5 @ 1 mark or development	**5**

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Question	Answer	Marks
6(c)	Levels marking Level 1 (1–3 marks) Statements including limited detail which describe the threats caused by global warming. E.g. flooding = L1 Level 2 (4–6 marks) More developed statements which describe the threats caused by global warming. E.g. flooding of low lying/coastal land = L2 E.g. ice melts and sea level increases = L2 Note: MAX 5 if no place references, MAX 6 if one place reference Level 3 (7 marks) Comprehensive and accurate statements which describe the threats caused global warming, including some place references. Must refer to **two** place references Content Guide: Answers are likely to refer to: Changing rainfall patterns/drought/desertification; Difficulty producing food; Lack of water supplies; Melting of ice caps/glaciers; Impacts on species/biodiversity/food chains; Flooding of coastal lowlands; Spread of tropical diseases to other areas; Loss of habitat; Heat stroke; etc.	**7**

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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/21**

Paper 2 **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

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Question	Answer	Marks
1(a)(i)	marsh liable to flooding,	**1**
1(a)(ii)	arable,	**1**
1(a)(iii)	10 (metres),	**1**
1(a)(iv)	12 (metres),	**1**
1(a)(v)	electricity transmission line,	**1**
1(a)(vi)	wind generators,	**1**
1(b)(i)	1 narrower / 2 wider,	**1**
1(b)(ii)	1 more meandering / 2 more straight,	**1**
1(b)(iii)	1 to east / south east, 2 to south-south west (but allow to north-north east),	**2**
1(c)	P linear, Q dispersed, R nucleated,	**3**
1(d)	X arable, Y forest,	**2**
1(e)(i)	7300–7800 (metres),	**1**
1(e)(ii)	SSE,	**1**
1(e)(iii)	154–158°,	**1**
1(e)(iv)	495021 = 2, 496022 = 1,	**2**

Question	Answer	Marks
2(a)(i)	6.0–6.3 (million),	**1**
2(a)(ii)	0.5–0.7 (million),	**1**
2(b)(i)	Japan,	**1**
2(b)(ii)	Mozambique,	**1**
2(b)(iii)	USA,	**1**
2(b)(iv)	USA,	**1**
2(b)(v)	Japan,	**1**
2(b)(vi)	Mozambique,	**1**

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Question	Answer	Marks
3(a)	Small / single story, spaced/scattered/detached/separated/sparse etc., flat roofs, no / few windows, metal / corrugated sheets, silver/blue/red/grey, tyres on roofs, caravan/trailer, satellite dish, similar style.	**5**
3(b)	3.2 denser, (densely populated = 0 unless clearly referring to houses) 3.2 larger houses / more storeys, 3.2 better built / better materials / brick or concrete but B.1 metal, 3.2 more trees / vegetation, 3.2 more windows, 3.2 less uniform, 3.2 tarred roads 3.1 gravel roads, 3.2 street lights 3.1 no street lights, 3.2 air con 3.1 none, Or emphasis on 3.1. Must be comparative	**3**

Question	Answer	Marks
4(a)(i)	position of Arenal above rising magma, Label needed.	**1**
4(a)(ii)	two converging arrows (or one subducting),	**1**
4(a)(iii)	Caribbean,	**1**
4(a)(iv)	convergent,	**1**
4(b)	fertile soils, geothermal power / hot water, tourism, mineral wealth / deposits,	**2**
4(c)	ash falls / ash clouds / burial in ash, (specific comment needed) pyroclastic flows, lateral blasts, mudflows/lahars, poisonous gases / smoke, post eruption famine, lava <u>flow</u>, (specific comment needed) volcanic bombs, toxic lakes,	**2**

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Question	Answer	Marks
5(a)	X wave-cut platform, Y cliff, Z beach,	**3**
5(b)	bay, beach, sand/dunes, rocks/boulders, (not as formation point) headland/point/peninsula, surf / breaking waves / swash, curved wave fronts / refraction, grass/scrub, gentle slope,	**5**

Question	Answer	Marks
6(a)	nearby MEDCs, wealthy people can afford foreign holidays / spend more, (many) shared borders / neighbouring countries / surrounding countries / France between countries, (not just near) quantification of distance, (e.g. within 1000 km) travel by land / car / no air travel, coastal location for beach tourism / beaches,	**3**
6(b)	Development of any of the following: beaches, (e.g. swimming) mountains, (e.g. climbing / beautiful scenery) winter snow, (e.g. ski-ing) sunny climate, (e.g. all year / most days / sunbathing)	**3**
6(c)	loss of fauna / flora/ecosystems/habitats/deforestation, water pollution from sewage / litter/plastic etc., air pollution from motor vehicles etc., visual pollution from litter, buildings etc., erosion by walking,	**2**

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GEOGRAPHY **0460/22**

Paper 2 **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)(i)</td><td><u>public</u> road, (ignore width)</td><td>1</td></tr>
<tr><td>1(a)(ii)</td><td>church</td><td>1</td></tr>
<tr><td>1(a)(iii)</td><td>mast</td><td>1</td></tr>
<tr><td>1(a)(iv)</td><td>33 (m)</td><td>1</td></tr>
<tr><td>1(a)(v)</td><td>100 (m)</td><td>1</td></tr>
<tr><td>1(b)</td><td>
<table>
<tr><td>flat land</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>steep land</td><td></td><td></td><td></td><td>✓</td></tr>
<tr><td>gentle slopes</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>mostly forest</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>mostly arable land</td><td></td><td>✓</td><td></td><td></td></tr>
</table>
</td><td>5</td></tr>
<tr><td>1(c)(i)</td><td>public road 28–32 mm from left hand margin,
river 97–101 mm from left hand margin</td><td>2</td></tr>
<tr><td>1(c)(ii)</td><td>land continuously rising to the left hand margin,
highest point over 100 m but not more than 112 m</td><td>2</td></tr>
<tr><td>1(d)</td><td>bathing,
leisure/second homes,
camp site/camping,
roads give access to sea,
dunes,
cycle path(s)</td><td>2</td></tr>
<tr><td>1(e)(i)</td><td>ENE/NE</td><td>1</td></tr>
<tr><td>1(e)(ii)</td><td>63–67°</td><td>1</td></tr>
<tr><td>1(e)(iii)</td><td>438 855 = 2
43_85_ = (correct square) 1</td><td>2</td></tr>
</table>

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Question	Answer	Marks
2(a)(i)	settlements in order of population size and importance	**1**
2(a)(ii)	amenities provided in a settlement for the population, e.g. shops	**1**
2(b)(i)	along/on/near road, around/near/at junction/route focus/route centre	**2**
2(b)(ii)	along/on/near river/stream	**1**
2(b)(iii)	above/away from (main) river, above/away from flood plain/valley floor/above the lowest land	**1**
2(b)(iv)	avoids steep slope, on gentle slope, (not 'near'), avoids high(est) land/at foot of valley side, away from flood plain/flat land, on south facing/north side, on sunny slope, sheltered by hills	**2**

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Question	Answer	Marks
3(a)(i)	correct plot of 24°C and 250 mm	**1**
3(a)(ii)	27°C, hot/very warm/quite hot, small/low	**3**
3(b)(i)	8°C	**1**
3(b)(i)	12:00–18:00	**1**
3(c)	length of day and night constant/same all year, constant high angle of the sun/all year/direct sun all year, low pressure all year	**2**

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Question	Answer	Marks
4(a)(i)	C	**1**
4(a)(ii)	E	**1**
4(b)(i)	windows broken	**1**
4(b)(ii)	Kaikoura 7 and Wellington 6/Kaikoura greater intensity/strength/Wellington less intensity/strength, Kaikoura nearer epicentre(s)/Wellington further away, Note: Comparison needed for the above two points. Kaikoura people fall, Kaikoura <u>people run outside</u> and hit by glass/falling objects, etc.	**2**
4(c)(i)	14–16 (minutes),	**1**
4(c)(ii)	179–182 (km),	**1**
4(c)(iii)	11.3–13.0 (km per minute),	**1**

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Question	Answer	Marks
5(a)(i)	intensive, arable	**2**
5(a)(ii)	terraces/or description, (contour ploughing, ridges = 0) slow runoff/slow surface flow/increase infiltration, grass strips/strip farming/or description, catch/trap moving soil, trees stop wind/bind soil/hold soil/intercept rain/absorb water	**3**
5(b)(iii)	Emphasis on activities as follows: deforestation/remove vegetation, banks/ridges/bunds made/divide into plots/fields, irrigate/provide water for crops/water supplied/fields flooded, planting/sowing/crops grown/crops cultivated	**3**

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Question	Answer	Marks
6(a)(i)	decreased/decrease-constant-decrease	**1**
6(a)(ii)	increased	**1**
6(a)(iii)	increased/1980–2000 increase/peak in 2000, then decreased/2000–2015 decrease, overall decrease, fairly constant	**2**
6(b)(i)	Arab States/Africa	**1**
6(b)(ii)	communicate with friends/family/colleagues, international communication/communicate with MEDCs/awareness of MEDCs, education/learn new ideas/health education/training/research/hear news/gain knowledge, stimulates economic development/increase GDP, provide jobs/increase incomes/work from home, in remote/inaccessible areas/poor road transport, no/poor land lines, buy/sell/trade goods/services/allow payments, advertise goods/services, (in either direction), entertainment	**3**

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Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/23**

Paper 2 **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	turning place,	**1**
1(a)(ii)	other/open (land),	**1**
1(a)(iii)	deciduous forest,	**1**
1(a)(iv)	25 m,	**1**
1(a)(v)	(municipality) boundary,	**1**
1(b)(i)	5–7,	**1**
1(b)(ii)	radial/route centre/nodal point/focus on town/branch out from town,	**1**
1(c)(i)	2000–2200,	**1**
1(c)(ii)	SSE/SE,	**1**
1(d)	at least 6 m wide, flows east, braided/island/splits and re-joins, meanders, cut-off/oxbow, (4025) straightened, (3826) gentle gradient, two/few/small tributary/ies, dam,	**4**
1(e)(i)	in valley(s) near river(s), on low(er) land/land below 25 m (any figure below)/avoids high(er) land, on gentle(r) slopes/on flat(ter)/avoids steep(er) slopes,	**2**
1(e)(ii)	steep(er) slopes, high(er) land/hills/any figure between 25 m and 74 m, (more) in the west/south/less in the east/north,	**1**
1(f)(i)	marsh (liable to flooding),	**1**
1(f)(ii)	nature reserve,	**1**
1(g)(i)	railway/R 76–80 mm from the western edge,	**1**
1(g)(ii)	river Kälan/K 24–27 mm from the western edge,	**1**

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Question	Answer	Marks
2(a)(i)	40–99.9,	**1**
2(a)(ii)	centre,	**1**
2(a)(iii)	desert/dry/rainfall shortage, hot, mountains/highland, (2 marks maximum) steep slopes in east/mountains, cold on mountains, wet on mountains, little/less oxygen at high altitude, danger from active volcano, high evaporation rates, agriculture difficult in mountains/desert, transport/building difficult in mountains,	**3**
2(a)(iv)	cold temperatures, therefore farming is impossible/difficult, remote/isolated/far away, many islands so difficult transport/accessibility,	**2**
2(b)	central so as close to rest of country as possible/accessible from other regions, connects north and south, near the (regions with the) highest population densities,	**1**

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Question	Answer	Marks
3(a)(i)	shingle/pebbles/gravel/stones/different coloured stones/small rocks/cobbles,	**1**
3(a)(ii)	beach material has built up on one side of it, the extent the sea reaches up the beach differs on one side of the groyne from the other,	**1**
3(b)(i)	F – gabion/boulders in wire cases, G – rip-rap/boulder barrier/rock armour/pile of boulders/large rocks,	**2**
3(b)(ii)	absorbs/dissipates/reduces wave energy/power, prevents coastal erosion/prevents waves attacking (foot of) cliff/coast,	**2**
3(b)(iii)	expensive/not cost effective, coast not worth protecting, ugly, dangerous/prevents access to the beach/makes access to the beach difficult, impact further along the coast, loss of beach area/habitats,	**2**

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Question	Answer	Marks
4(a)	Fig. 4.1 globular/cauliflower shaped/dome shaped/curved/irregular top/cotton wool, (allow fluffy or puffy) flat base, white/light/pale/grey, cumulus, Fig. 4.2 layer/sheet, (allow blanket) horizontal, (allow flat) uniform, grey/bluey-grey/light blue, stratus, Reserve one mark for each photograph	**5**
4(b)	7/8 oktas,	**1**
4(c)(i)	stratus is lower/cirrostratus is higher,	**1**
4(c)(ii)	cumulonimbus is deeper/taller/bigger/greater vertical extent, cumulonimbus can have a flat top, Or emphasis on cumulus	**1**

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Question	Answer	Marks
5(a)(i)	5,	**1**
5(a)(ii)	waste/red mud,	**1**
5(a)(iii)	caustic soda/lime,	**1**
5(a)(iv)	alumina,	**1**
5(b)(i)	India,	**1**
5(b)(ii)	19.0–19.3 million tonnes,	**1**
5(b)(iii)	lacks (cheap) electricity, lacks capital/expensive process, shortage of technology, shortage of skilled workforce,	**1**
5(c)	less tonnage needed so it is cheaper to import/transport alumina,	**1**

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Question	Answer	Marks
6(a)(i)	82–85 (%),	**1**
6(a)(ii)	(some is) saline, (pollution = 0) it is deep, it will run-out/insufficient rainfall to renew it/finite/not sustainable, it has to be extracted from beneath the surface/is not readily accessible, supplies a small amount of water,	**2**
6(a)(iii)	wells/boreholes/pumping up from depth/drilling,	**1**
6(a)(iv)	sea/ocean/Mediterranean/Red Sea,	**1**
6(a)(v)	expensive to desalinate, poor/unpleasant taste, disposal of the (residue) salt,	**1**
6(b)	it could reduce the water that flows in the river/Nile in Egypt, it could lead to a shortage of water for irrigation/HEP/industry/domestic use it could reduce the store of water in the Aswan Dam,	**2**

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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)(i)	410 / 418 194 / 195 / 198 2 @ 1	**2**
1(a)(ii)	183	**1**
1(a)(iii)	Open landscape / rural / open space Lake / river Grassland / green areas Trees / woodland Modern / new building / office Lot of glass / windows **Three** storeys high Grey building 3 @ 1	**3**
1(b)(i)	Distributed throughout the industrial area / scattered / dispersed / spread out / in all parts of industrial area Uneven On edge / perimeter / outskirts/ border	**2**
1(b)(ii)	Share information / ideas / opinions Share research facilities / laboratories / materials / products / inputs for others Possible location near to universities (Have the same requirements) – green site / transport links / cheap land / open land/ space for parking / accessibility Can 'headhunt' staff from other companies more easily	**3**
1(b)(iii)	Completion of pie graph – technical consulting (8%) & others (10%) 1 mark for dividing line at 90% & 1 mark for shading	**2**
1(c)(i)	Plotting change for bio-medical (-7) and computer / telecommunications (+10) sectors 2 @ 1	**2**
1(c)(ii)	Hypothesis is **true** / correct - 1 mark reserve (✓HA) Evidence such as: Most / almost all (sectors / industries) **/** 5 out of 8 decreased Decrease in bio-medical / energy / environmental / technical consulting / other industries Increase in computer telecommunications / financial business 1 mark reserve for paired statistics to show change e.g. computer / telecommunications increased from 7 to 17 / by 10 Hypothesis is incorrect / partially correct should not be credited If no hypothesis conclusion do credit evidence	**4**

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Question	Answer	Marks
1(c)(iii)	(General factors such as) cheap land / space for parking / transport links / green site / accessibility Customers / income from nearby companies 1 mark max for any of the following: Workers use (health club / gym) **for** exercise / before or after work / in free time OR Workers use (nursery) **for** children during the day OR Workers use (restaurant) **for** meals 2 @ 1	**2**
1(d)(i)	Completion of divided bar graph – university degree (23) & higher university degree (19) 1 mark for dividing line at 31 & 1 mark for shading	**2**
1(d)(ii)	Most / majority employees / 42 out of 50 / 84% had a degree OR 23 out of 50 / 46% had a university degree OR 19 out of 50 / 38% had a higher university degree Most / majority / 90% of employees / 45 out of 50 think that they are highly skilled Most / majority / 34 out of 50 / 68% are able to give advice (accept any quote from reasons with number of answers) / the main reason is they receive a lot of training. 3 @ 1	**3**
1(d)(iii)	**High** salary / job is **well-paid** Good working conditions / modern workplace Mixing with skilled / academic colleagues Pleasant environment in which to work Job satisfaction / status / respect / recognition Learn new skills Fringe / company benefits or e.g. such as healthcare 2 @ 1	**2**
1(e)	Links to universities in the local area Road, rail and air transport links make the area accessible 2 @ 1	**2**

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Question	Answer	Marks
2(a)(i)	Quick / saves time / easy to read / instant measurement Gives exact / precise reading / accurate / reliable Less / no chance of human error No need to take measurements manually during night / don't have to be there all the time 2 @	**2**
2(a)(ii)	Atmospheric pressure = barometer Temperature = thermometer Wind direction = Wind vane 3 correct = 2 marks, 1 or 2 correct = 1 mark	**2**
2(a)(iii)	Diagram of traditional rain gauge: 1 mark maximum for diagram which includes funnel & collecting jar 2 marks maximum for labels: Measuring jar / container / cylinder / collecting jar Funnel Outer casing Scale / measurement / mm Put in / partially in ground No credit if diagram is a 'home-made' gauge or pluviometer	**3**
2(a)(iv)	Away from people / animals (D); so that rain gauge is not interfered with (E) Away from trees / clear of buildings / away from shelter / on open ground (D) so that there is no interception of rainfall / so trees / buildings don't block rain / to avoid drips from leaves (E) On grass / above ground level (D); so that rain doesn't splash into funnel (E) Accessible location (D) ; so measurements can be obtained (E) On flat / level ground (D) so won't fall over (E) 2 marks for description & 2 marks for explanation	**4**
2(a)(v)	Wind pushes the arrow or pointer / wind makes arrow or pointer spin / rotate / turn Arrow points to / shows the direction the wind is coming **from** N, E, S, W points allow direction to be worked out / show compass direction / compass points are fixed / don't move	**2**
2(b)(i)	Plotting rainfall bar 2.8 mm at 07.00 on day 2	**1**
2(b)(ii)	Highest pressure = 1017 Lowest pressure = 997 Need both for 1 mark	**1**

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Question	Answer	Marks
2(b)(iii)	No / hypothesis is **incorrect** – 1 mark reserve (✓HA) Rainfall decreases when atmospheric pressure rises / rainfall increases when AP falls Most rainfall recorded when AP below 1000 / 1001mb No rainfall when AP is 1010mb or higher Credit 1 mark for supporting data to show pattern e.g. 4.6 mm of rain = 997mb & 0.2 mm of rain = 1007 (need 4 figures) No credit for Hypothesis is correct / partially correct If no hypothesis conclusion then credit evidence	**4**
2(c)(i)	Completion of ESE temperature graph 12° (measurement 4) & 10° (measurement 5) 2 @ 1	**2**
2(c)(ii)	North north west / NNW	**1**
2(c)(iii)	Temperatures are high / higher when wind blows (from) south / south east / SSE / ESE Temperatures are low / lower when wind blows (from) north west / NNW / N Temperatures 9° or more / 9 – 13° when winds from SE sector etc & 10° or below / 3 – 10° when winds from north west sector etc Credit paired data to 1 marks maximum e.g. 11° / 13° when wind from SE & 7° when wind from NW (need 2 stats & 2 directions from different sectors) Temperatures are higher when winds are from south **than** when winds are from the north = 2 marks No hypothesis mark	**3**
2(d)(i)	Sunshine / wind **speed** / relative humidity / cloud **cover / type**	**1**

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Question	Answer	Marks
2(d)(ii)	Use a sunshine recorder / Campbell-Stokes recorder Sunshine recorder is placed south facing in northern hemisphere Put sunshine recorder in open space / not affected by shade / exposed to sun's rays / top of building / on a pedestal or stand Insert / replace card (paper) / put card (paper) into sunshine recorder Measure / record / see length of burn line Leave for / check after 24 hours / set period of time Use an anemometer Put anemometer in an open area / roof / top of building Read dial / meter Repeat / check reading regularly Record wind speed results in table / diary / chart / km or miles per hour Use a wet and dry (bulb) thermometer / hygrometer Put in Stevenson Screen Measure air temperature with a dry bulb thermometer Measure temperature shown by wet bulb thermometer OR Read the **temperatures** Calculate the temperature of the wet bulb minus the temperature of the dry bulb (depression of the wet bulb) Use relative humidity table to work out the relative humidity Record humidity results in table / diary / chart / percentage Digital hygrometer Read figures from screen Reset the instrument Record the results in table / diary / chart / percentage Choose the same time / examples of times Look up at the sky Identify cloud types using an identification chart / looking at shape / height of clouds Estimate the amount of cloud cover / use a home-made quadrat Measure / record cover in oktas / eighths Record names of cloud types / oktas **in** diary / table / chart If description does not match named weather element, credit description if appropriate	**4**

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

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Question	Answer	Marks
1(a)	Central Business District	**1**
1(b)(i)	Recording sheet should include: Street name / location / place / sample point / site / space for lots of points (1) Tally of pedestrians / space to do tally / amount / count (1) Total number / result of tally (1)	**3**
1(b)(ii)	Credit 1 mark for each idea; can be all planning or all carrying out. <u>Examples</u> <u>Planning</u> When to do count (1) Where to do count / location of counting points (1) How long to do each count for (1) How many different counting points to have (1) Number of students per group (1) How many times to do count per day (1) Whether to do count on more than one day (1) <u>Carrying out</u> Tally method / 'clicker' (1) Timing of count / watch (1) Jobs of student in each group, e.g. two students do each count / count people going in different directions (1) Credit either planning or carrying out – no reserve	**4**
1(b)(iii)	Completion of isoline in two places. Line between 182 and 209 (1) Line between 156 and 270 (1)	**2**
1(c)	<u>Advantage</u> Easy / quick to count number of storey (than measure height) (1) Difficult to measure actual height of tall buildings (1) Each storey is approximately same height so more storeys the higher the building will be (1) <u>Disadvantage</u> Difficult to count number of storeys on high buildings (1) Storeys may be different heights (1) Note: *no double credit with advantage* Students select buildings / no systematic sampling method (1)	**2**

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Question	Answer	Marks
1(d)	Examples Bus lanes (1) One way streets (1) Parking restrictions / yellow lines / tow-away zones / no parking (1) Cycleways (1) No heavy vehicle access (1) Access for delivery vehicle / authorised vehicle / taxi / buses only (rising bollards idea) (1) Tidal flow scheme (1) Number plate permits (1) Congestion charge (1)	**3**
1(e)	Building height area is bigger than more than 300 pedestrians area (1) Building height area is bigger than traffic restrictions area (1)	**2**
1(f)	Examples Mark on base map what each building is used for (1) Classify / use a key to show different shops and services / use of buildings (1) Shade in map using classification / key (1) Decide what land uses should be included in CBD (1)	**3**
1(g)(i)	Drawing bar on map (site 12 = 17). Ignore shading.	**1**
1(g)(ii)	Hypothesis is **true** / correct – 1 mark reserve Evidence such as Score increases towards centre of CBD (1) Score is higher in pedestrianised areas (1) 1 mark reserve and max. for paired statistics to show variation, e.g. Site 2 away from CBD 13 but site 8 in centre of CBD 30 (1) No credit for Hypothesis is incorrect / partially correct If no hypothesis conclusion then credit evidence	**4**
1(g)(iii)	Examples Survey more shops (1) Survey greater spread of shops, not just along main street (1) More students do the survey and compare results / get average (1) Discuss each score within the group of students (1)	**2**

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Question	Answer	Marks
1(h)	Examples Redevelopment of old buildings / regeneration (1) Demolition of old buildings (1) Clearance of unofficial / illegal buildings (1) Construction of new shopping centre (1) Construction of new office blocks (1) Development of new bus station / train station / metro / tram system (1) CBD will expand / shrink / change shape / change location / donut (1) Building height will increase / more high rise buildings (1) No vehicle / pedestrian zone will be enlarged / any change in traffic restriction (1) Change in land use of building or example / business moves out (1) Presence of anti-terrorism structures (1)	**3**

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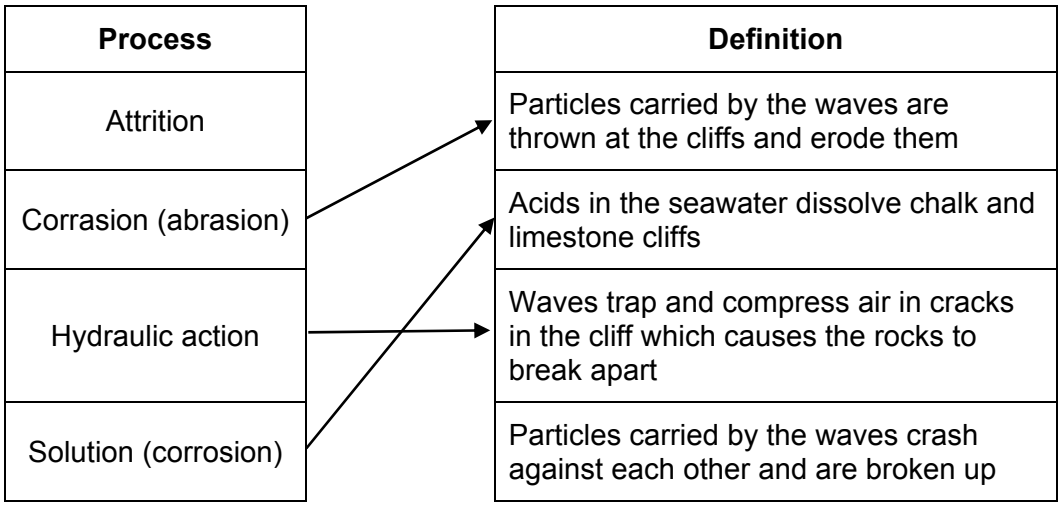
Question	Answer	Marks
2(a)(i)	Hypothermia (from getting cold and wet)	**1**
2(a)(ii)	Credit 1 mark max in each category Examples Cliff collapse Stay away from the base / top of the cliffs / wear a hard hat (1) Hypothermia from getting cold and wet Wear warm / waterproof clothes / layers of clothes (1) Getting lost or isolated Stay in groups / carry a cell (mobile) phone (1)	**3**
2(b)(i)	 3 correct = 2 marks, 1 or 2 correct = 1 mark	**2**
2(b)(ii)	Examples Y is protected by beach / X is exposed to the waves (1) Groynes help to protect cliffs through build-up of beach deposits / Y is protected by sea wall (1) Wave-cut platform do not stop waves reaching the cliff (1)	**3**

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Question	Answer	Marks
2(c)(i)	Examples Equipment mark from photograph: Ranging pole / clinometer (1 mark maximum / reserve) for stating one of these. Measuring the profile Lay tape measure on beach to create a transect (1) Poles put at break of slope / at equal distances apart (1) Poles must be vertical (1) Poles rest on surface / to equal depth in sand (1) Angle is read from lower pole (nearer to sea) to upper pole (further from sea) (1) Student holds clinometer at top / at marked height on ranging pole (1) Allow clinometer to adjust to angle (1) Read / measure angle / degrees (1) Credit description even if it is not shown on Fig. 2.2	**4**
2(c)(ii)	Hypothesis is **true** – 1 mark reserve Evidence must be based on data Beach increases 2 – 2.2 m / just over 2 m in 19 m (1) Wave-cut platform increases 0.9 / just less than 1 m in 24 m (1) No credit for Hypothesis is incorrect / partially correct If no hypothesis conclusion then credit evidence	**3**
2(d)(i)	Plotting above 3 results on Beach graph (58 and 85 mm)	**2**
2(d)(ii)	*Hypothesis 2 is **correct*** (1)	**1**
2(d)(iii)	Examples Water level decreases more quickly on beach (1) Comparison of paired data, e.g. decreases by max amount of 120 mm on beach and only 12 mm max on wave-cut platform (1)	**2**
2(d)(iv)	*Groynes prevent longshore drift so sand and shingle build up a beach which water infiltrates through quickly.* / *The wave-cut platform made of clay is at the surface due to the removal of beach material, and water infiltrates slowly.*	**1**
2(e)(i)	Completion of divided bar graph (rip rap = 13%, sea wall = 29%) Dividing line = 1 mark, shading = 1 mark	**2**
2(e)(ii)	Completion of pie graph (residents = 11%, visitors = 19%) Dividing line at 71% from left = 1 mark Shading in correct order / style using key = 1 mark	**2**

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Question	Answer	Marks
2(e)(iii)	Looking for 4 conclusions from 5 questions. No credit for use of data. Results show: Most / majority of people are aware that the cliffs are being eroded (1) Most / majority of people think the cliffs should be protected (1) Most / majority of people are in favour of spending the money (1) Groynes are the most popular protection method (1) NOT majority. Most / majority of people think that the national government should pay for the protection work (1)	**4**

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GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2019**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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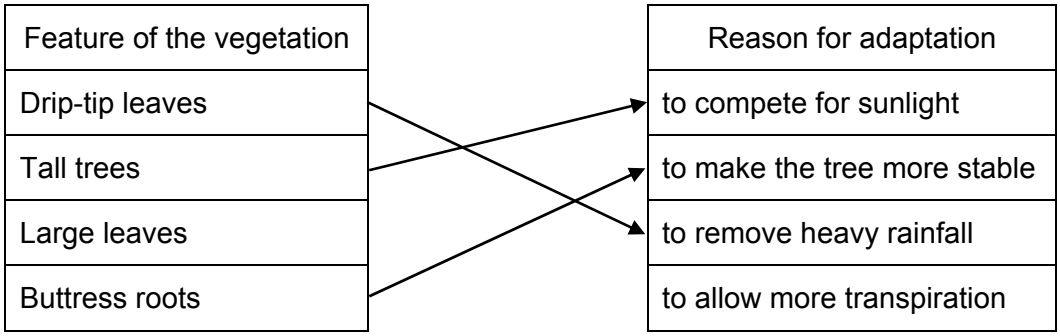
Question	Answer	Marks
1(a)	 3 correct = 2 marks, 1 or 2 correct = 1 mark	**2**
1(b)(i)	Could work out an average Remove / show an anomaly / make anomaly less significant Repeat test if there is a measuring error or mistake / reduces effect of error / less chance of an error	**2**
1(b)(ii)	Quadrat	**1**
1(b)(iii)	Change of colour is subjective so result of timing may vary between students / tests Hard to get the exact time Rain turns it pink / alters time needed to change	**1**
1(b)(iv)	Push tube / bottomless measuring cylinder **into / in** ground Use a mallet to knock into ground Measured / fixed amount of water poured into tube / cylinder / poured onto ground Time how long it takes water to infiltrates / sinks into ground / disappear Repeat **and** take average	**4**
1(c)(i)	Site C	**1**
1(c)(ii)	Site C, measurement number 2 (need both)	**1**
1(c)(iii)	25 + 35 + 21 + 48 + 52 = 181 181 / 5 = 36.2 (seconds) $\frac{25 + 35 + 21 + 48 + 52}{5}$	**2**
1(d)(i)	Plot 80% vegetation cover and 20% bare ground (dividing line at 20) Plot 125 seconds Plot 30 seconds 3 @ 1	**3**

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Question	Answer	Marks
1(d)(ii)	Hypothesis is **false** / incorrect – 1 mark reserve Humidity is greatest / greater where vegetation cover is least / lower OR Humidity is least / less where vegetation cover is greatest / greater e.g. at site A highest humidity but lowest vegetation cover Credit 1 mark for paired data **A – B** or **A – C** to support statements Site A vegetation cover = 24.2% and humidity measurement = 52.6 secs site B vegetation cover = 44.2% and humidity measurement = 132.8 secs Site C vegetation cover = 68.4% and humidity measurement = 97.6 secs (need 2 % stats and 2 time stats – only average) No credit for Hypothesis is correct / partially correct If no hypothesis conclusion then credit evidence	**4**
1(d)(iii)	Short(est) infiltration time / quick(est) infiltration **at site C** where high(est) percentage of vegetation cover Long(est) infiltration time / slow(est) infiltration **at site A** where low(est) percentage of vegetation cover Credit use of paired data for **any 2 sites** for 1 mark Site C = 68.4 % vegetation cover and 25 secs infiltration Site A = 24.2% vegetation cover and 47.6 secs infiltration Site B = 44.2% vegetation cover and 36.2 secs infiltration (need 2 % and 2 time stats – only credit average data)	**3**
1(e)	Site A Tourist development / tourists go there / e.g. car park or footpath Tourists compact the ground surface / tourists make ground less permeable Tourism removes forest vegetation Site C: Less people so less forest removal / more vegetation cover Little human impact so soil is less compact / makes ground more permeable Allow the following as **development** of statements above but not standalone Water cannot soak into ground as quickly / longer infiltration time at site A OR water can soak in more quickly / shorter infiltration time at site C	**3**
1(f)(i)	Bar graph	**1**
1(f)(ii)	Species have been removed for **tourist / development** **Tourists** destroys vegetation species Vegetation removed for coffee plantation Climate differences or e.g. such as humidity Soil differences or e.g. Relief / slope differences or e.g. Altitude differences or 2 figures from sites 2 @ 1	**2**

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Question	Answer	Marks
2(a)(i)	760 000	**1**
2(a)(ii)	2008 and 2009 2007 and 2009	**1**
2(a)(iii)	More flights / development of airports / cheaper flights / budget airlines Advertising Development of / more tourist facilities in LEDCs / e.g. hotels / more investment in tourism Increased incomes / more disposable income More **paid** holidays / more leisure time Healthier / more active retirees / older people People can book / research holidays on internet Wish to visit new / unspoilt destinations 4 @ 1	**4**
2(b)(i)	To find out if person is a tourist or resident Students only want to ask tourists / questionnaire is for tourists Don't want to ask locals Not waste people's time / own time Residents' answers would be irrelevant / make survey unreliable	**2**
2(b)(ii)	Most / over half / majority / highest number / more tourists come from Europe More come from Europe / Asia / Africa than N America (maximum 1 mark for comparing two continents) Few / fewest / least come from Australasia / S America Number from Asia = number from Africa, Australia and S America 2 @ 1	**2**
2(b)(iii)	Bar graph completion Casela bird park = 34, Grand Bassin temples = 45 2 @ 1	**2**
2(b)(iv)	Pie chart completion 1 mark for dividing line at 58%, 1 mark for shading in chart and key	**2**
2(b)(v)	Hypothesis is **true** – 1 mark reserve More **visits** are made to physical attractions / more tourists attracted by physical attractions Three most visited attractions are physical Four out of the five least visited attractions are human 2 marks maximum, 1 reserve for stats 290 **visits** to physical attractions and 204 **visits** to human attractions / 86 more Highest physical attraction is 67 visits **and** highest human attraction is 45 visits 58% of tourists prefer physical **compared with** 42% prefer human / 16% more No credit for Hypothesis is incorrect / partially correct If no hypothesis conclusion then credit evidence	**4**

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Question	Answer	Marks
2(c)	Stratified: Gender / age balance / different age groups / different genders Appropriate to population of island / socio-economic status / reflects total population Systematic: Regular intervals / regular pattern Every tenth person Random: Ask anybody / next person / no pattern Use random number tables / pick numbers out of a hat to generate order to ask people, e.g. if number 6 selected ask the 6th person 1 mark for name, 2 marks for description If no name / incorrect name of method, credit appropriate description	**3**
2(d)(i)	Plotting improved transport (70) and air pollution (122) scores on graph 2 @ 1	**2**
2(d)(ii)	Overall people think the benefits of tourism are greater than the disadvantages.	**1**
2(e)(i)	More cars / buses / coaches / taxi / vehicles / people travelling on island Seasonal increase in traffic / more visitors in one part of year than another Roads not designed to cope with vehicle numbers More movement of goods / lorries Tourists take time to sort out the route / stop to admire scenery	**2**

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Question	Answer	Marks
2(e)(ii)	Do a traffic survey / count – 1 mark Credit details such as: Which locations to do the count / do it on main roads When to do count / start and finish time / start at same time / do between 10 and 11 How long to do each count / same time period / do it for 30 mins How many times in a day / weekday and weekend Classify vehicles / put vehicles in to groups One traffic count in tourist season and one out of season Method of counting, e.g. tally / clicker / counter Organisation of groups / get into groups / pairs Organisation of tasks at counting sites, e.g. two students do each count , one to count and one to record Questionnaire / interview – 1 mark Ask drivers / pedestrians / local officials / **local** people – 1 mark Credit questions to 2 maximum such as: Where is traffic congestion worst? When is traffic congestion worst? Is your journey to work / school delayed? How has traffic congestion affected you? How long do you spend in traffic each day? Can credit more than one method No credit for sampling technique / table of results / averages / graphs / safety issues	**4**

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Cambridge IGCSE

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CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

3804102977

GEOGRAPHY **0460/11**

Paper 1 **October/November 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Calculator

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Figs. 2.1 and 2.2 for Question 2, Figs. 3.2, 3.3 and 3.4 for Question 3, and Figs. 6.1 and 6.2 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about population change in Norway between January 1 and 30 April 2013.

births	14 168
deaths	11 363
immigration	18 948
emigration	9319

Fig. 1.1

(i) The total population of Norway on 1 January 2013 was 5 051 275.
Which of the following describes what happened to the total population by 30 April 2013?
Tick **one** answer in the table below:

	Tick (✓)
decreased	
increased	
stayed the same	

[1]

(ii) Calculate the net migration for Norway between 1 January and 30 April 2013.
You should show your calculations.

.....

[2]

(iii) Suggest **three** reasons why many MEDCs in Europe have positive net migration.

1 .....

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2 .....

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3 .....

..... [3]

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(iv) Describe the difficulties faced by international migrants moving to and living in a new country.

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(b) Study Fig 1.2, which shows information about the population of China and Nigeria between 1950 and 2100 (estimated).

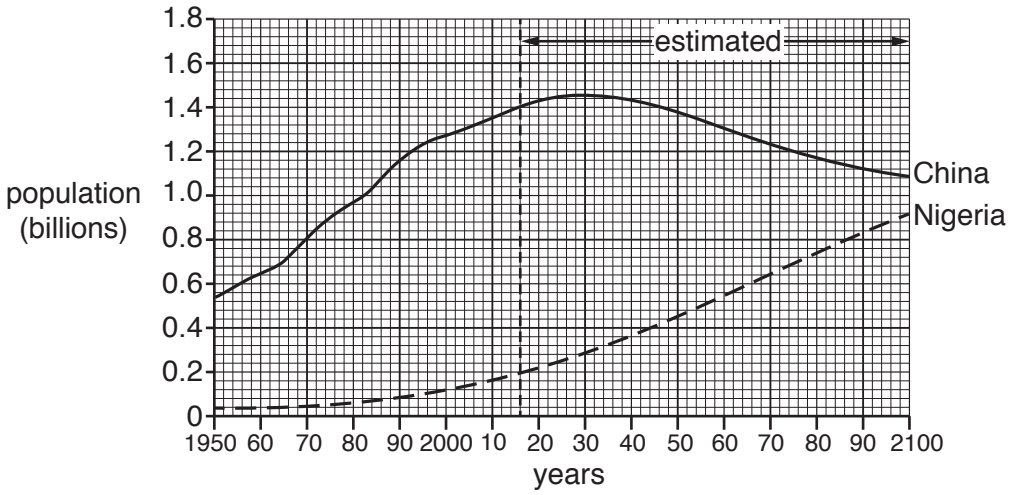

Fig. 1.2

(i) Compare the populations of China and Nigeria between 1950 and 2100 (estimated). You should refer to years and use statistics in your answer.

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(ii) Explain why birth rates are high in LEDCs such as Nigeria.

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(c) For an example of international migration you have studied, describe the positive and negative impacts on the destination country.

Name of destination country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1 (Insert), which is a photograph of an area in southern Africa.

(i) Which of the following best describes the type of area shown in Fig. 2.1?
Tick **one** answer in the table below:

	Tick (✓)
rural	
suburban	
urban	

[1]

(ii) Using evidence from Fig. 2.1 **only**, describe **two** features of the settlement in the area.

1 .....

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2 .....

..... [2]

(iii) Describe the likely service provision in areas such as that shown in Fig. 2.1.

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..... [3]

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(iv) In any country there is a hierarchy of settlements and services.
Explain the meaning of this statement. You may use a diagram or diagrams.

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[4]

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(b) Study Fig. 2.2 (Insert), which is a photograph showing an area in Almeria, Spain (an MEDC).

(i) Describe the main features of the settlement shown in Fig. 2.2.

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..... [3]

(ii) Suggest reasons for the location of the settlement shown in Fig. 2.2.

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(c) For a named settlement you have studied, explain why the population size has changed.

Name of settlement .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1, which shows different parts of a river and its valley.

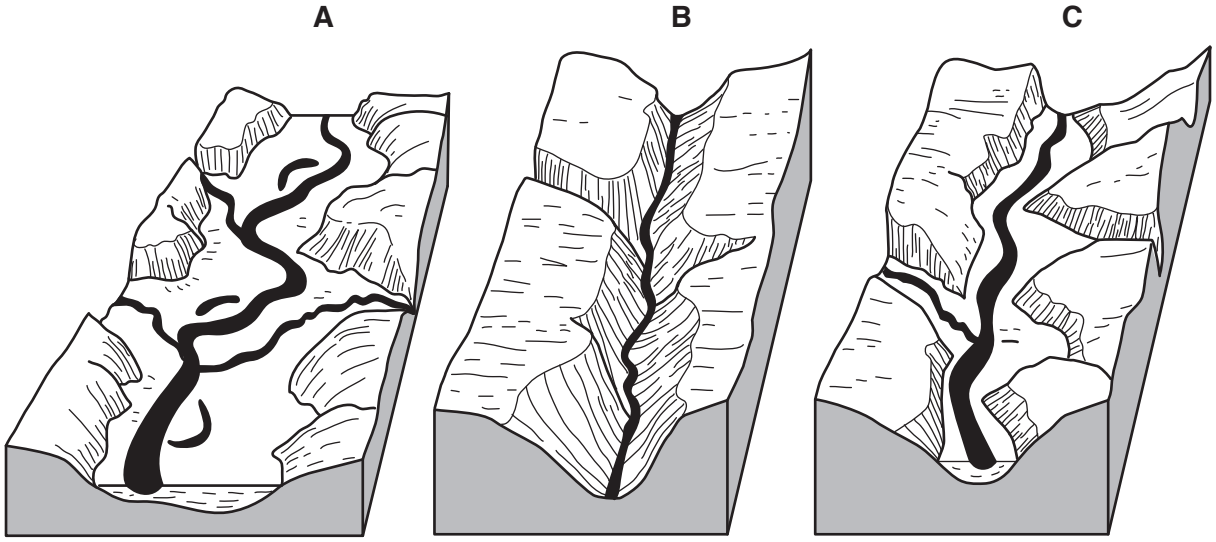

Fig. 3.1

(i) In which diagram, **A**, **B** or **C**, does the river valley have the steepest sides and narrowest valley floor?

..... [1]

(ii) Which diagram is closest to the mouth of the river?
Give a reason for your answer.

Diagram chosen .....

Reason for choice .....

..... [2]

(iii) Explain how erosion will take place along the river shown in Fig. 3.1.

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..... [3]

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(iv) Explain why deposition is likely to take place in the area shown in **A** in Fig. 3.1.

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..... [4]

(b) Study Figs. 3.2, 3.3 and 3.4 (Insert), which are photographs of three different rivers.

(i) Using evidence from Figs. 3.2, 3.3 and 3.4 **only**, describe **three** different benefits of living near a river.

1 .....

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2 .....

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3 .....

..... [3]

(ii) Explain why living on a delta or near a river may be hazardous for people.

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(c) Explain how a delta is formed. Include a fully labelled diagram or diagrams.

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[7]

[Total: 25]

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4 **(a)** Study Fig. 4.1, which is a diagram showing information about a tropical rainforest ecosystem in an area of equatorial climate.

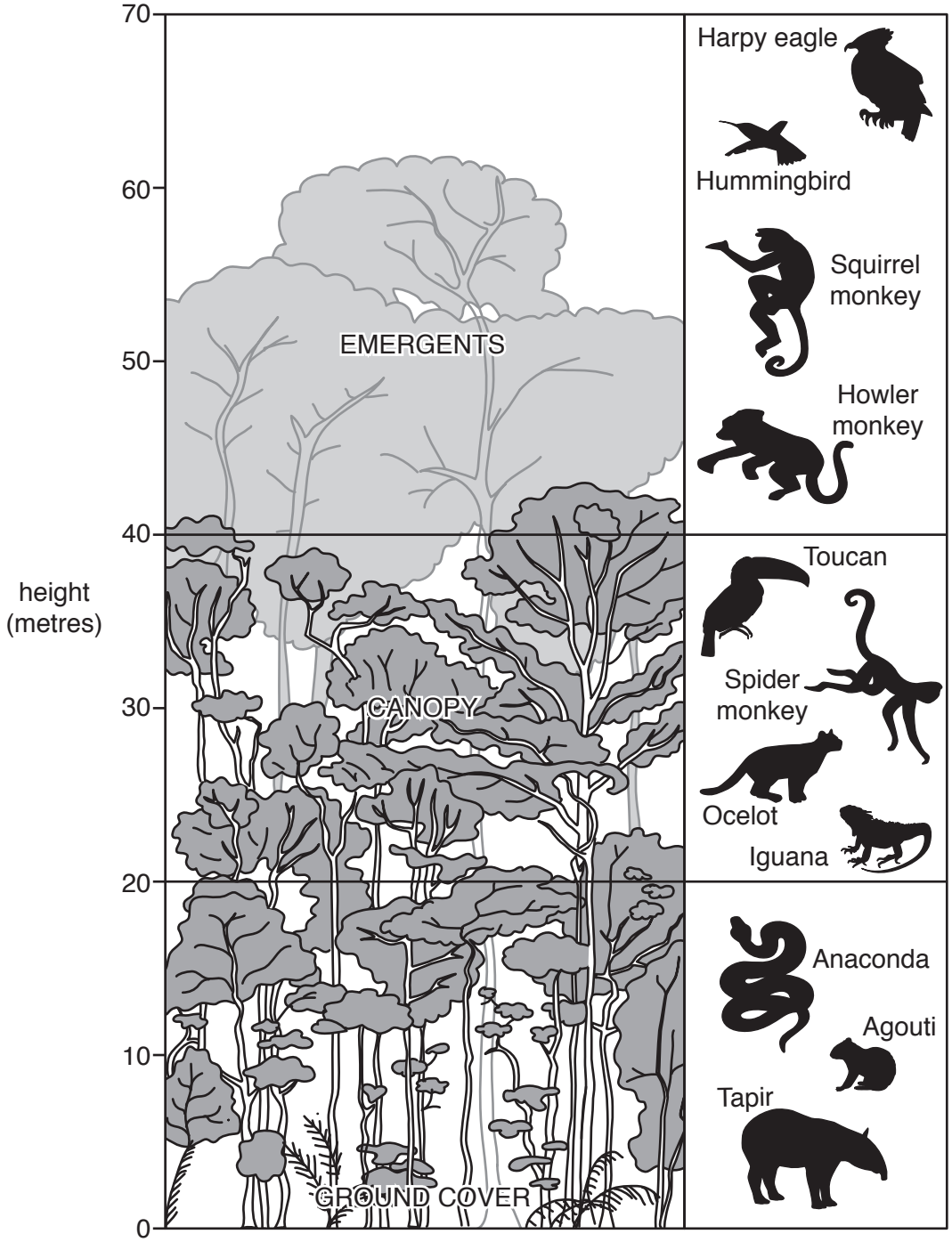

Fig. 4.1

(i) State the maximum height of the emergents shown in Fig. 4.1.

..... metres [1]

(ii) Identify from Fig. 4.1, **one** example of:

– wildlife which lives in the canopy .....

– wildlife which lives in the ground cover. ..... [2]

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(iii) Suggest reasons why some animals live in the canopy but others live in the ground cover in a tropical rainforest.

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..... [3]

(iv) Explain why the equatorial climate is hot and wet.

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(b) Study Fig. 4.2, a map of the Amazon Basin, an area of tropical rainforest.

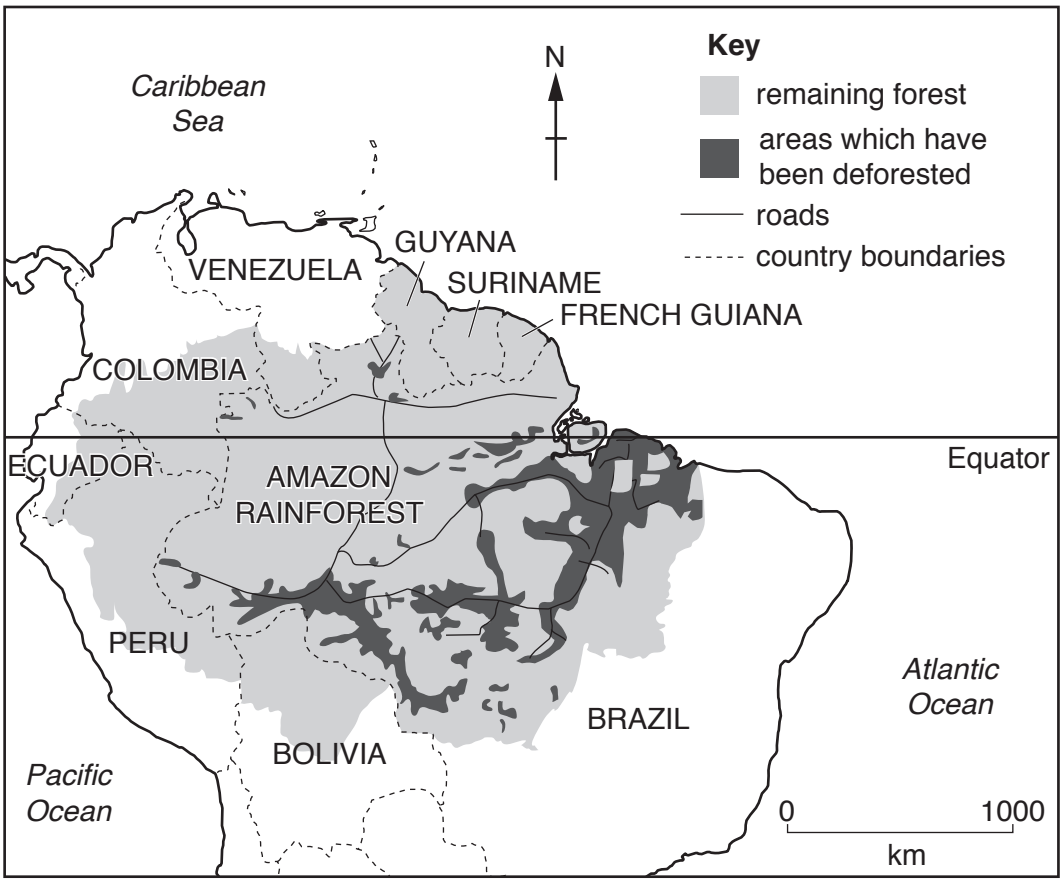

Fig. 4.2

(i) Using Fig. 4.2 **only**, describe the distribution of the areas where deforestation has taken place in the Amazon Basin.

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..... [3]

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(ii) Explain why deforestation of tropical rainforests has taken place.

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(c) For a named area of tropical rainforest you have studied, describe the impacts of deforestation on the local people and local natural environment.

Name of area of tropical rainforest .....

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which shows information about the employment structure of Cameroon, Italy and Japan.

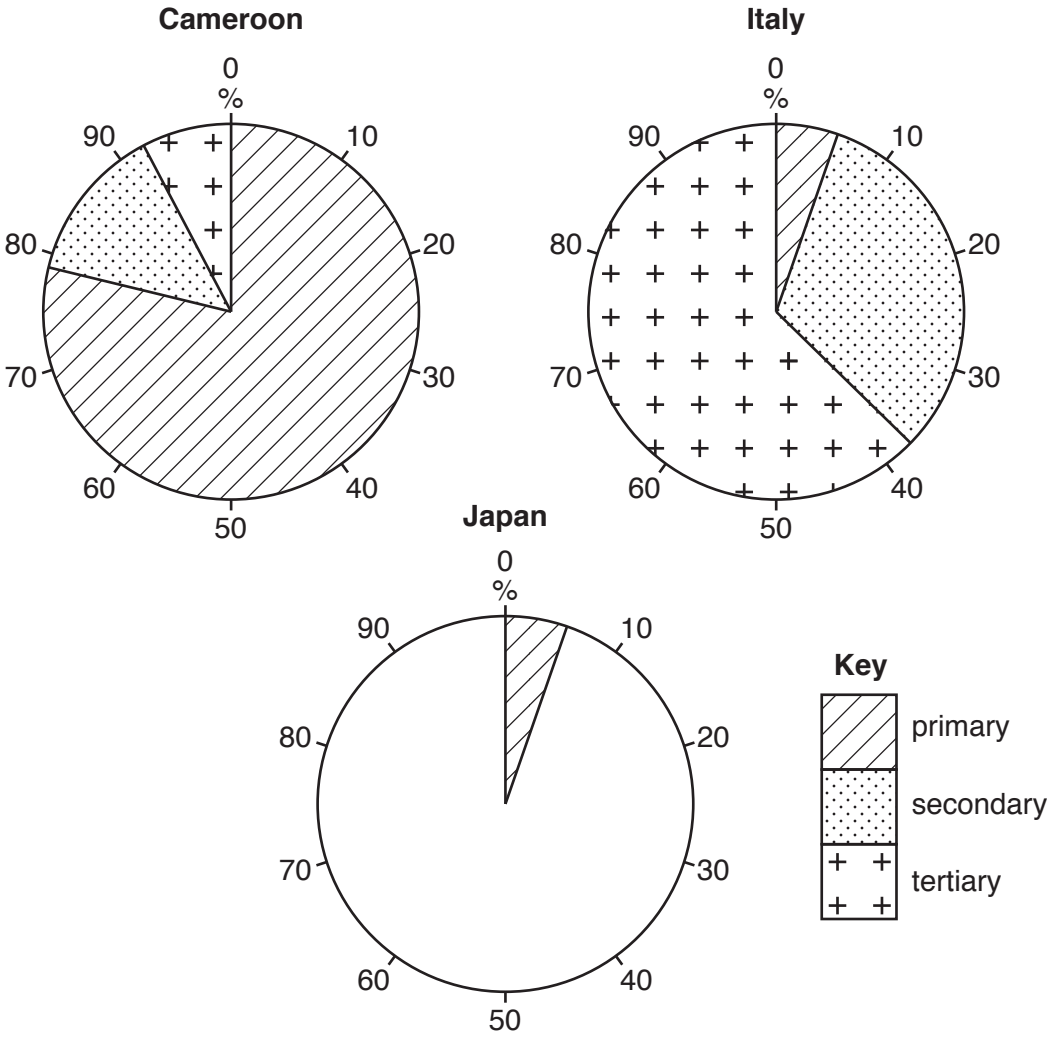

Fig. 5.1

(i) Give **one** example of a worker in the tertiary sector.

..... [1]

(ii) **Complete the pie graph** in Fig. 5.1 to show the following information for Japan:

Secondary employment = 25%

Tertiary employment = 70% [2]

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(iii) Describe **three** differences between the employment structure of Cameroon and Italy.

1 .....

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2 .....

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3 .....

..... [3]

(iv) Explain why the percentage of the population employed in the primary sector reduces as a country develops.

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(b) Study Fig. 5.2, which is a table showing information about GDP per person, access to improved water sources and life expectancy in five LEDCs.

GDP per person is a measure of wealth.

	GDP per person (US $)	access to improved water sources (%)	life expectancy (years)
Mexico	18 900	96	76
Paraguay	9400	98	77
Philippines	7700	92	69
Thailand	16 800	98	75
Venezuela	15 100	93	76

Fig. 5.2

(i) Which country, listed in Fig. 5.2, has the lowest level of development? Justify your answer.

Country .....

Justification .....

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..... [3]

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(ii) Explain why there is a relationship between GDP per person and life expectancy.

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..... [5]

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(c) For a named country or area you have studied, describe and explain the importance of different sources of energy.

Name of country or area .....

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[Total: 25]

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6 **(a)** Study Figs. 6.1 and 6.2 (Insert), which are photographs of a commercial farm.

(i) What is meant by a *commercial* farm?

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..... [1]

(ii) What evidence in Figs. 6.1 and 6.2 suggests that the farm shown is a mixed farm?

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..... [2]

(iii) Insert the following words into the table below to show examples of inputs, processes and outputs of the farm shown in Figs. 6.1 and 6.2.

Choose from the words below.

milk	wheat	harvesting
ploughing	water	pesticides

inputs	processes	outputs

[3]

(iv) Explain **two** factors which are likely to affect the way in which the farmer uses the land on the farm shown in Figs. 6.1 and 6.2.

1 .....

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2 .....

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..... [4]

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(b) Study Fig. 6.3, which shows information about grain production in Brazil between 1990 and 2014.

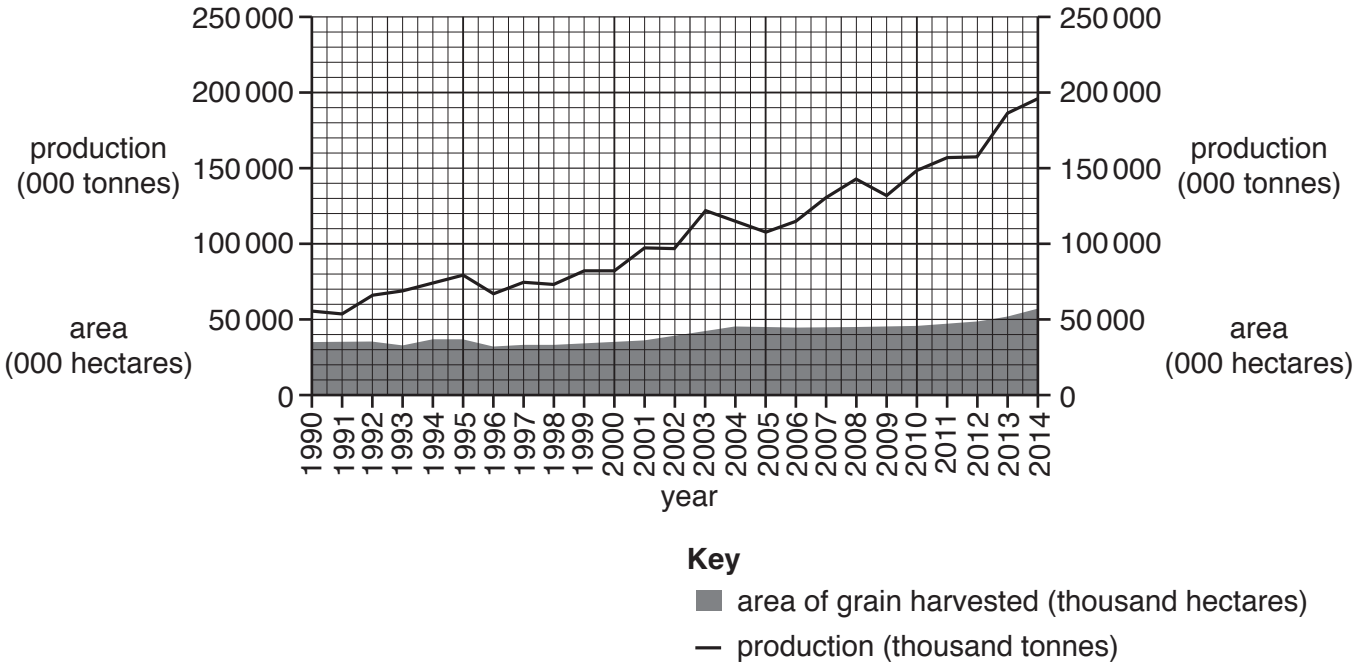

Fig. 6.3

(i) Compare the change in grain production in Brazil with the change in the area of land planted with grain and harvested between 1990 and 2014.
You should refer to years and use statistics in your answer.

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..... [3]

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(ii) Suggest how farmers were able to increase the production of grain in Brazil between 1990 and 2014.

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..... [5]

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[Turn over

(c) For a named country or region you have studied, explain why there are food shortages.

Name of country or region .....

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[Total: 25]

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CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

0125536721

GEOGRAPHY **0460/12**

Paper 1 **October/November 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Calculator

READ THESE INSTRUCTIONS FIRST

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You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Figs. 2.1, 2.2 and 2.3 for Question 2, and Figs. 3.1 and 3.2 for Question 3.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about international and internal migration in Bolivia (an LEDC) in South America.

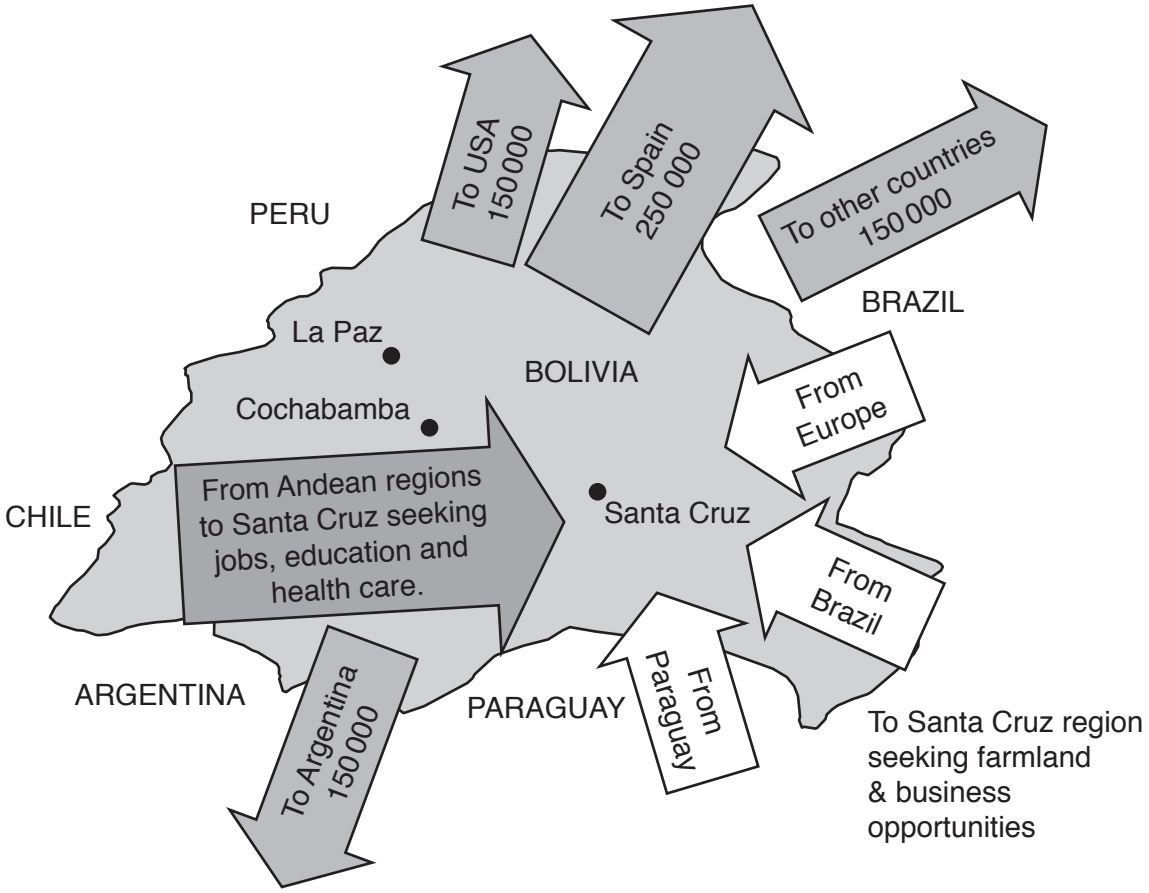

Fig. 1.1

(i) Explain the difference between international and internal migration.

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..... [1]

(ii) Name from Fig. 1.1:

- an example of international migration

  ..... to .....

- an example of internal migration.

  ..... to ..... [2]

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(iii) Identify from Fig. 1.1 **three** different reasons why there are large amounts of migration to Santa Cruz.

1 .....

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2 .....

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3 .....

..... [3]

(iv) Describe the problems which may be faced by migrants when they arrive in Santa Cruz.

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(b) Study Fig. 1.2, which shows information about Arlington County, an area in the USA.

Arlington County is home to the USA's largest Bolivian community. In Arlington there are apartment buildings filled with people who have migrated from towns in the Cochabamba Valley in Bolivia, hence the nickname 'Arlibamba'. There are many Bolivian restaurants and food shops, such as Pike Pizza, a converted pizza restaurant that now sells traditional Bolivian food. This is one of many meeting places for the Bolivian community. They are also places to watch the Bolivian national soccer team play games on TV.

Bolivians have formed several football leagues in the Arlington region. Over 2000 players and fans come out each Sunday to participate. Many of the teams are named after towns in Bolivia like Real Santa Cruz.

An aim of one of the Arlington football leagues is to improve life in the small villages in the Esteban Arce province of Bolivia. Most people there live off basic agriculture and remittances from abroad. Teams send their winnings back home to fund schools, infrastructure and churches. It has been estimated that villages in Bolivia received over US $20 000 a year from donations from the league.

Fig. 1.2

(i) Identify **three** different types of amenity in Arlington County which have been established for Bolivian migrants.

1 .....

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2 .....

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(ii) Explain how migration to the USA is likely to have affected small villages in Bolivia and the people who still live there.

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(c) For an example of a country you have studied, explain why **natural** population growth rates are high.

Name of country .....

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[Total: 25]

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2 **(a)** Study Figs. 2.1, 2.2 and 2.3 (Insert), which are photographs of three different services.

(i) Which of the photographs shows a low-order service?
Circle **one** of the answers below.

Fig. 2.1 Fig. 2.2 Fig. 2.3 [1]

(ii) Put the three services shown in Figs. 2.1, 2.2 and 2.3 in rank order according to the size of their spheres of influence.

1st ..... largest

2nd .....

3rd ..... smallest [2]

(iii) State the smallest **type** of settlement where the services shown in each of Figs. 2.1, 2.2 and 2.3 would be located.

Fig. 2.1 .....

Fig. 2.2 .....

Fig. 2.3 ..... [3]

(iv) Explain why people will only travel a short distance for some services.

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(b) Study Fig. 2.4, which shows information about the relationship between settlement size and the number of services in them.

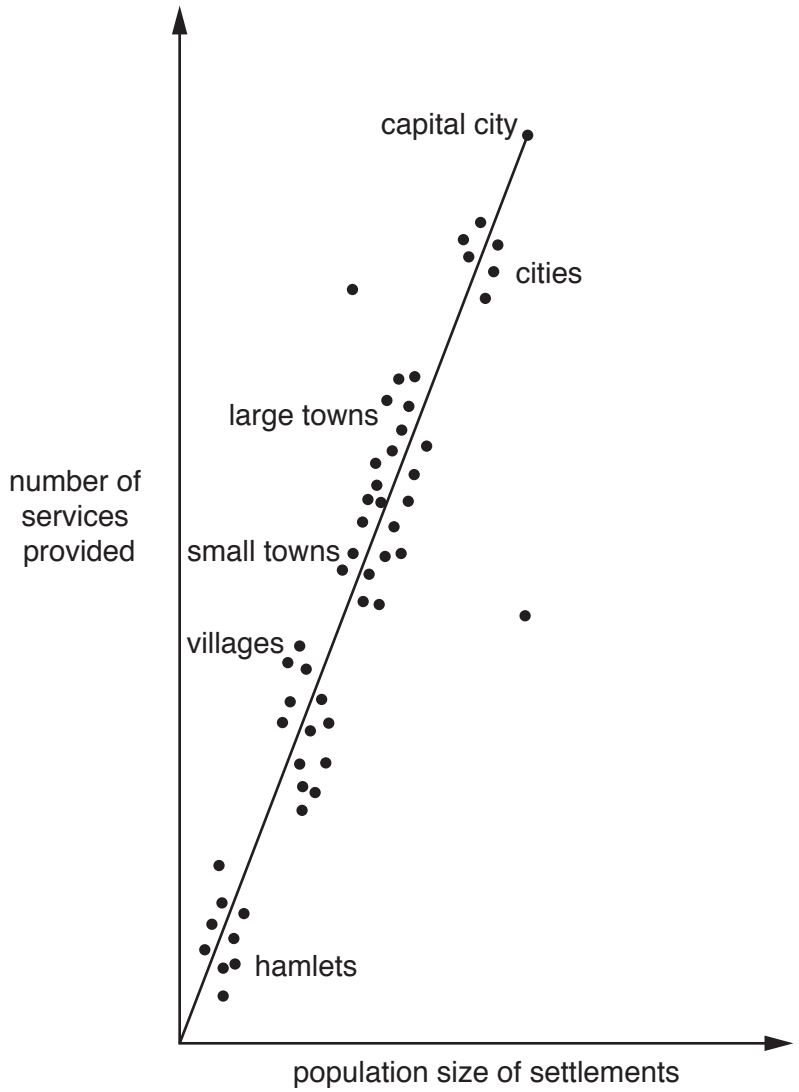

Fig. 2.4

(i) Describe the relationship shown by Fig. 2.4. Refer to different types of settlement in your answer.

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(ii) Explain why there is a relationship between settlement size and the number of services provided.

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(c) For a named urban area, describe the causes of a problem faced by the residents and explain how the authorities in that urban area are attempting to solve it.

Name of urban area .....

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1 (Insert), which is a photograph of a Stevenson screen.

(i) Which of the following weather instruments is kept in a Stevenson screen?
Circle **one** of the answers below.

anemometer barometer rain gauge wind vane [1]

(ii) Some instruments kept in a Stevenson screen are digital. Give **two** advantages of using digital weather instruments rather than traditional ones.

1 .....

.....

2 .....

..... [2]

(iii) Describe **three** features of a Stevenson screen which ensure that the information collected is reliable.

1 .....

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2 .....

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3 .....

..... [3]

(iv) State **two** factors which should be considered when deciding on the site of a Stevenson screen. For each factor explain why it is important.

1 .....

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2 .....

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(b) Study Fig. 3.2 (Insert), which is a photograph of an instrument used in a weather station.

(i) Name the instrument shown in Fig. 3.2 and explain how it is used to collect weather data.

Name of instrument .....

How it is used .....

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(ii) Explain how a student could observe and record **cloud types and amounts** at his school over a period of one week.

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(c) For a named coastal area you have studied, describe the impacts of a tropical storm.

Name of coastal area .....

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4 **(a)** Study Fig. 4.1, which is information about flooding which was predicted for the area around the Mississippi River, USA, in December 2015.

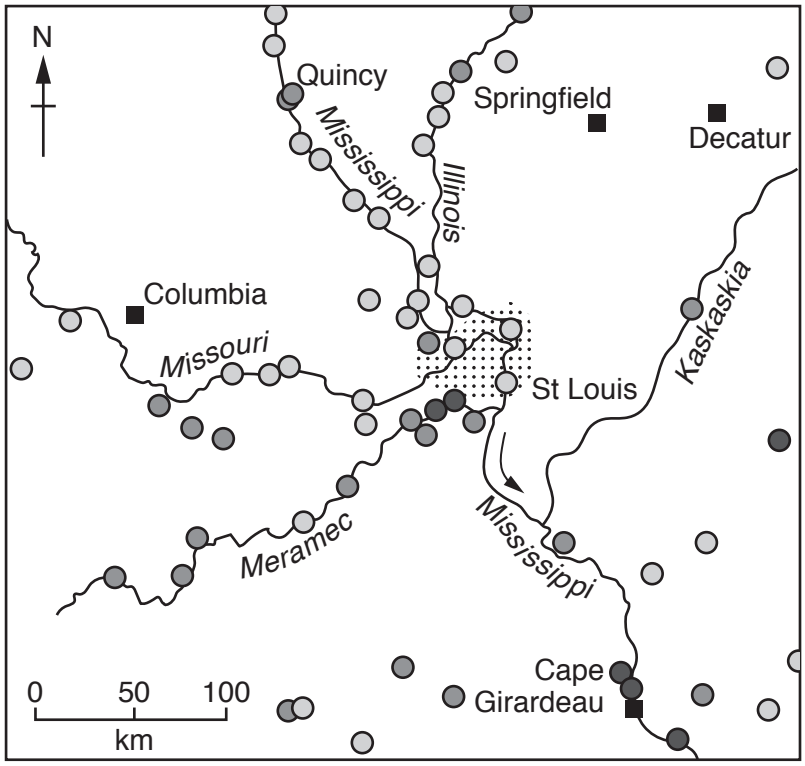

Fig. 4.1

(i) Which of the following statements is true about the area shown in Fig. 4.1?
Tick **one** answer in the table below:

Quincy is at the source of the Mississippi	
St Louis is at the confluence of the Mississippi and the Missouri	
The Mississippi is a tributary of the Meramec	
The mouth of the Kaskaskia river is at Cape Girardeau	

[1]

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(ii) Suggest **two** reasons why most of the major flooding predicted was at Cape Girardeau.

1 .....

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2 .....

..... [2]

(iii) Describe **three** likely impacts of flooding in the rural areas between St Louis and Cape Girardeau.

1 .....

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2 .....

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3 .....

..... [3]

(iv) Suggest how the urban area of St Louis could be protected from flooding.

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(b) Study Fig. 4.2, a map of Lake Mary, an oxbow lake next to the Mississippi River.

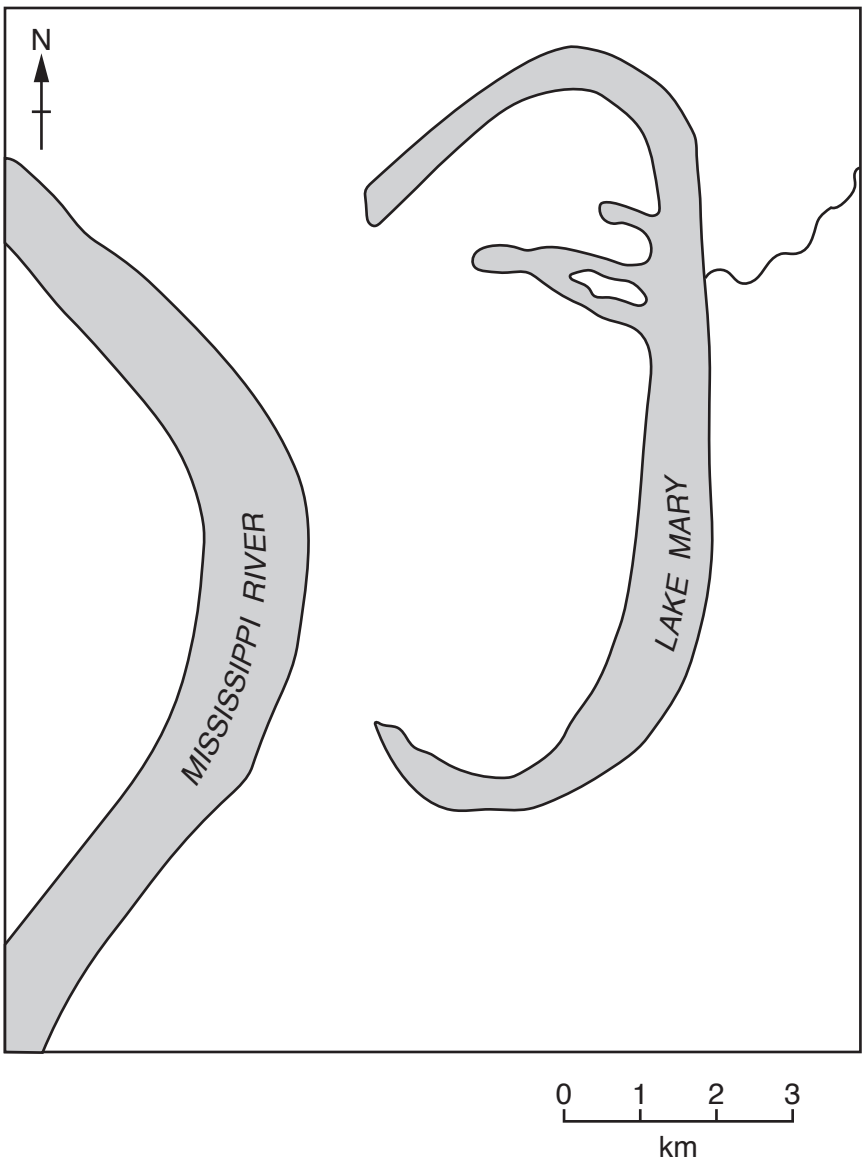

Fig. 4.2

(i) Using Fig. 4.2 **only**, describe the characteristics of Lake Mary.

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..... [3]

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(ii) Explain how an oxbow lake is formed. You may include a labelled diagram or diagrams.

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[5]

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[Turn over

(c) For a named river you have studied, describe the benefits of living on or close to its flood plain or delta.

Name of river .....

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1, which is information about the changes in the employment structure of Australia (an MEDC) between 1950 and 2015.

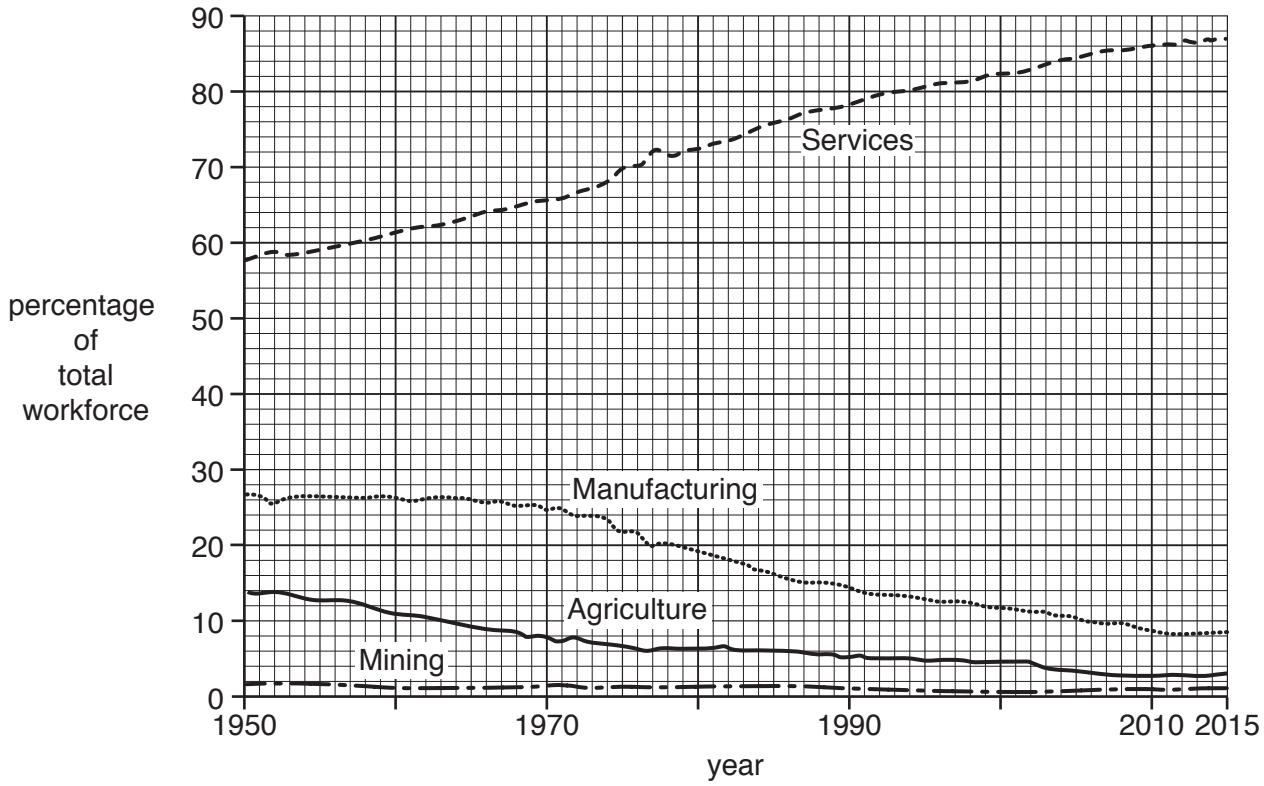

Fig. 5.1

(i) What is meant by the term *employment structure*?

.....

..... [1]

(ii) Give **one** example of each of the following:

- a manufacturing industry .....
- a job in the service sector ..... [2]

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(iii) Describe the main changes which have taken place in Australia's employment structure between 1950 and 2015.

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..... [3]

(iv) Suggest reasons for the changes which have taken place in Australia's employment structure between 1950 and 2015.

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(b) Study Fig. 5.2, which is a map showing information about the percentage of the population in each country with access to clean drinking water.

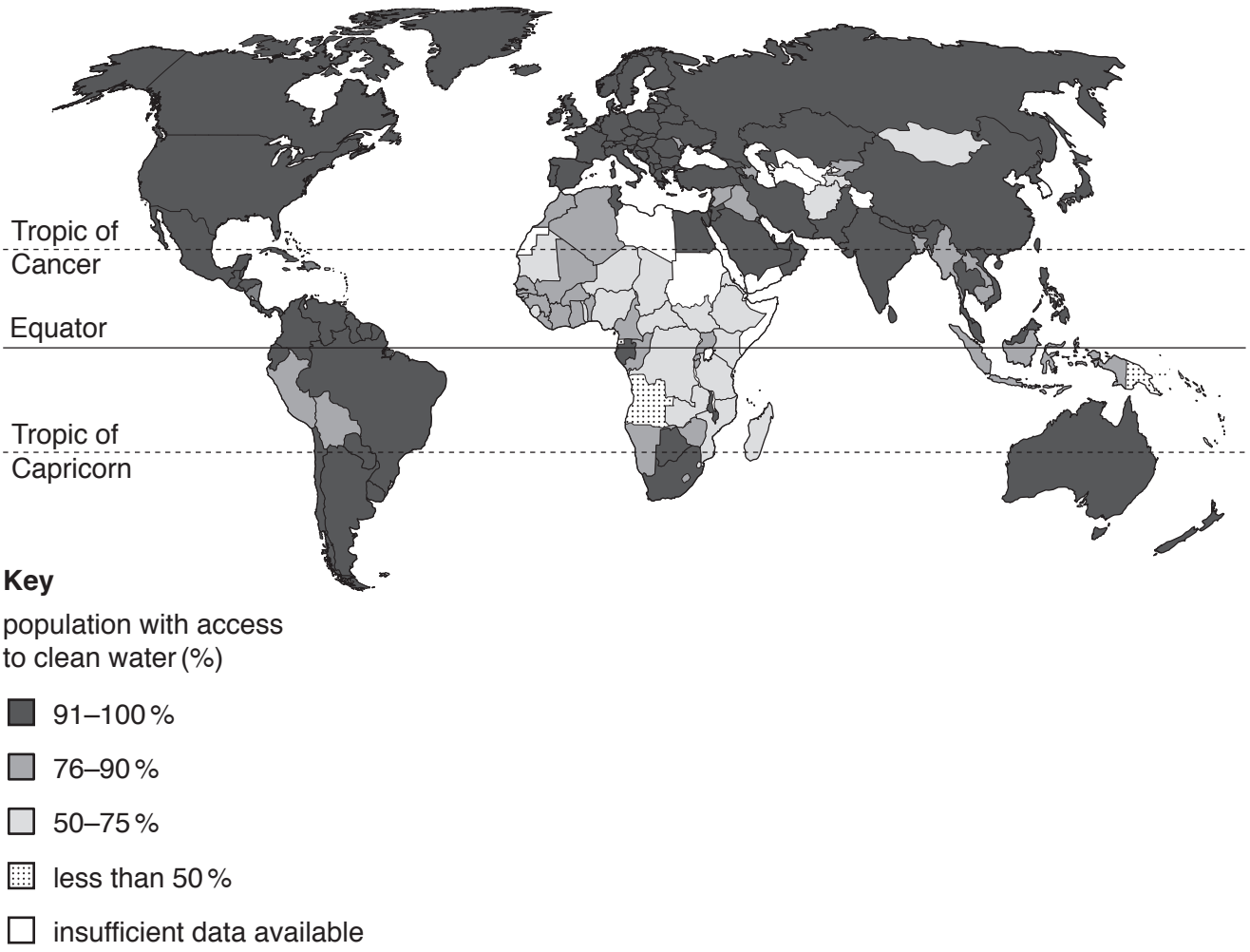

Fig. 5.2

(i) Describe the distribution of countries where 75% or less of the population have access to clean drinking water.

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..... [3]

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(ii) Explain how poor water supply may affect the development of a country.

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(c) Energy is another important resource.
For a named country or area you have studied, describe and explain the importance of different sources of **energy**.

Name of country or area .....

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6 **(a)** Study Fig. 6.1, which shows information about desertification.

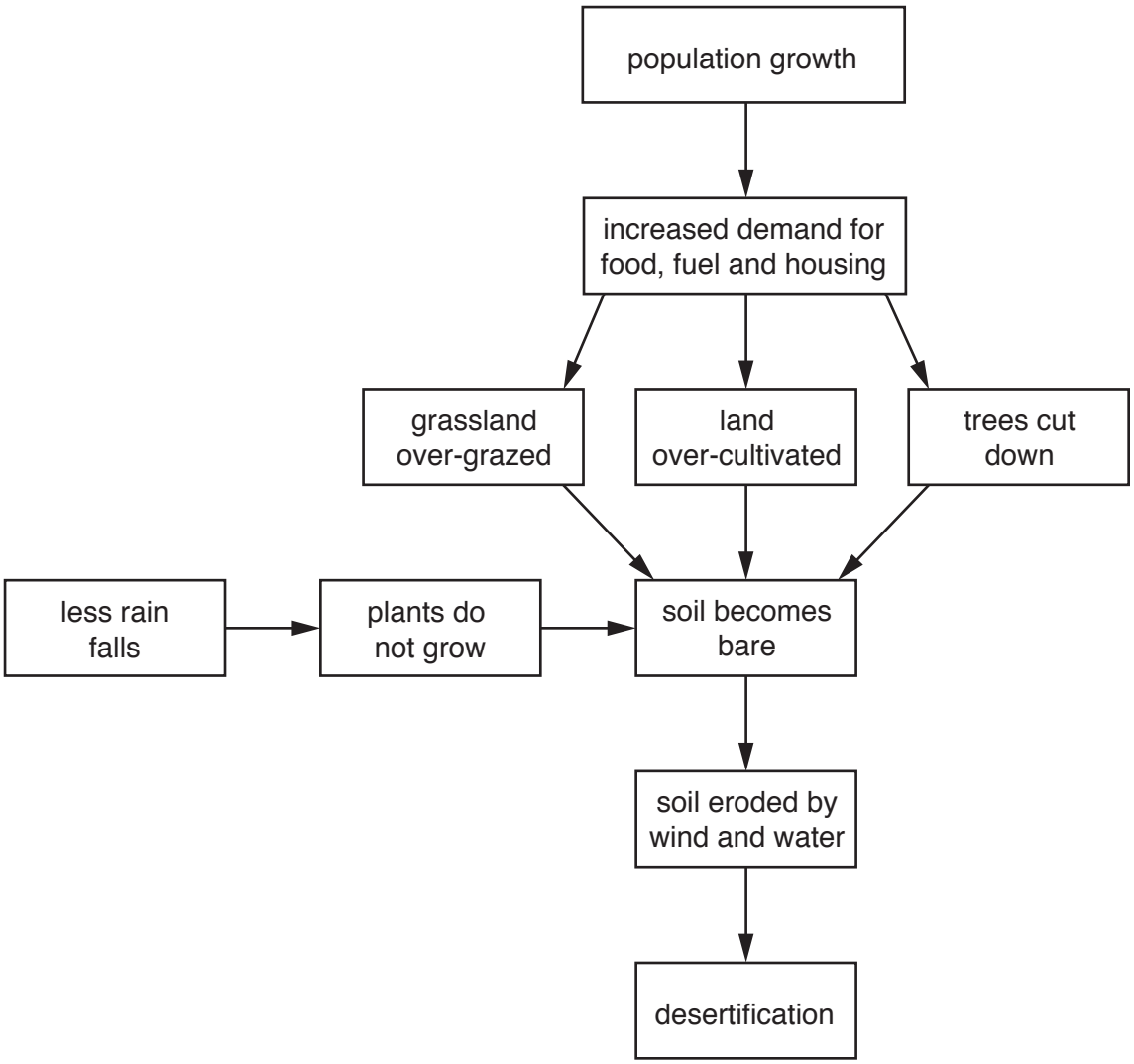

Fig. 6.1

(i) What is meant by *desertification*?

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..... [1]

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(ii) Using information from Fig. 6.1 **only**, explain how the following can cause desertification.

A Climate change .....

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..... [2]

B Population growth .....

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..... [3]

(iii) State **two** methods which people in rural areas of LEDCs could use to reduce desertification.
For each of your chosen methods, explain why you think it will be successful.

1 .....

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2 .....

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(b) Study Fig. 6.2, which shows information about human influence on the greenhouse effect.

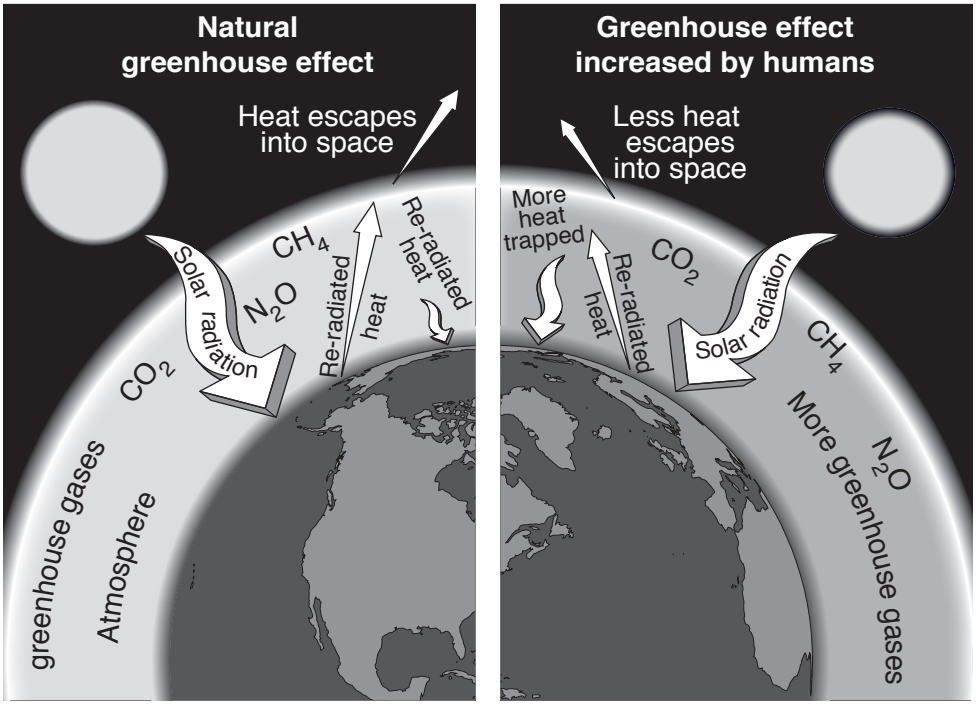

Fig. 6.2

(i) Using Fig. 6.2 **only**, explain how humans are influencing the natural greenhouse effect.

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(ii) Explain why greenhouse gases are building up in the atmosphere.

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[Turn over

(c) Describe the problems caused by the increase in the greenhouse effect (global warming). You should refer to named areas affected.

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CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

8610673109

GEOGRAPHY **0460/13**

Paper 1 **October/November 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor
Calculator

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You may use an HB pencil for any diagrams or graphs.
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Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **three** questions, **one** from each section.

The Insert contains Fig. 4.1 for Question 4, Fig. 5.1 for Question 5, and Figs. 6.1, 6.2, 6.3 and 6.4 for Question 6.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about birth rates and death rates in Mexico (an LEDC) between 1900 and 2060 (estimated).

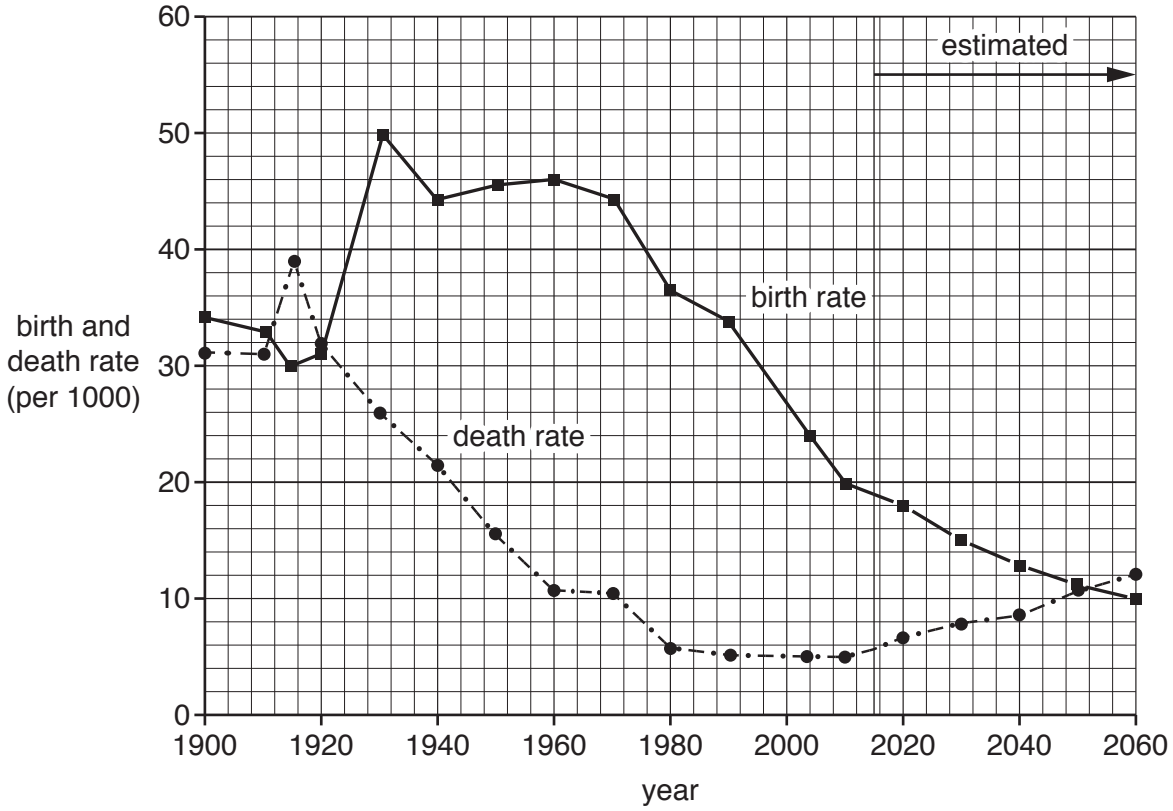

Fig. 1.1

(i) What is meant by *death rate*?

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..... [1]

(ii) Which of the following statements is true about birth and death rates in Mexico? Tick **two** answers in the table below:

	Tick (✓)
The birth rate declined every year between 1900 and 2015.	
The birth rate was always higher than the death rate between 1900 and 2015.	
Both the birth rate and the death rate declined overall between 1960 and 2015.	
Natural population growth was lower in 2015 than it was in 1980.	
Natural population growth was high between 1900 and 1920.	

[2]

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(iii) Calculate the natural population growth rate of Mexico in 2010.
You should show your calculations.

.....

[3]

(iv) Suggest reasons to explain why the natural population growth rate in Mexico is likely to decrease between 2015 and 2050.

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(b) Study Fig 1.2, which shows population pyramids of the structure of Mexico's population in 1980 and 2010.

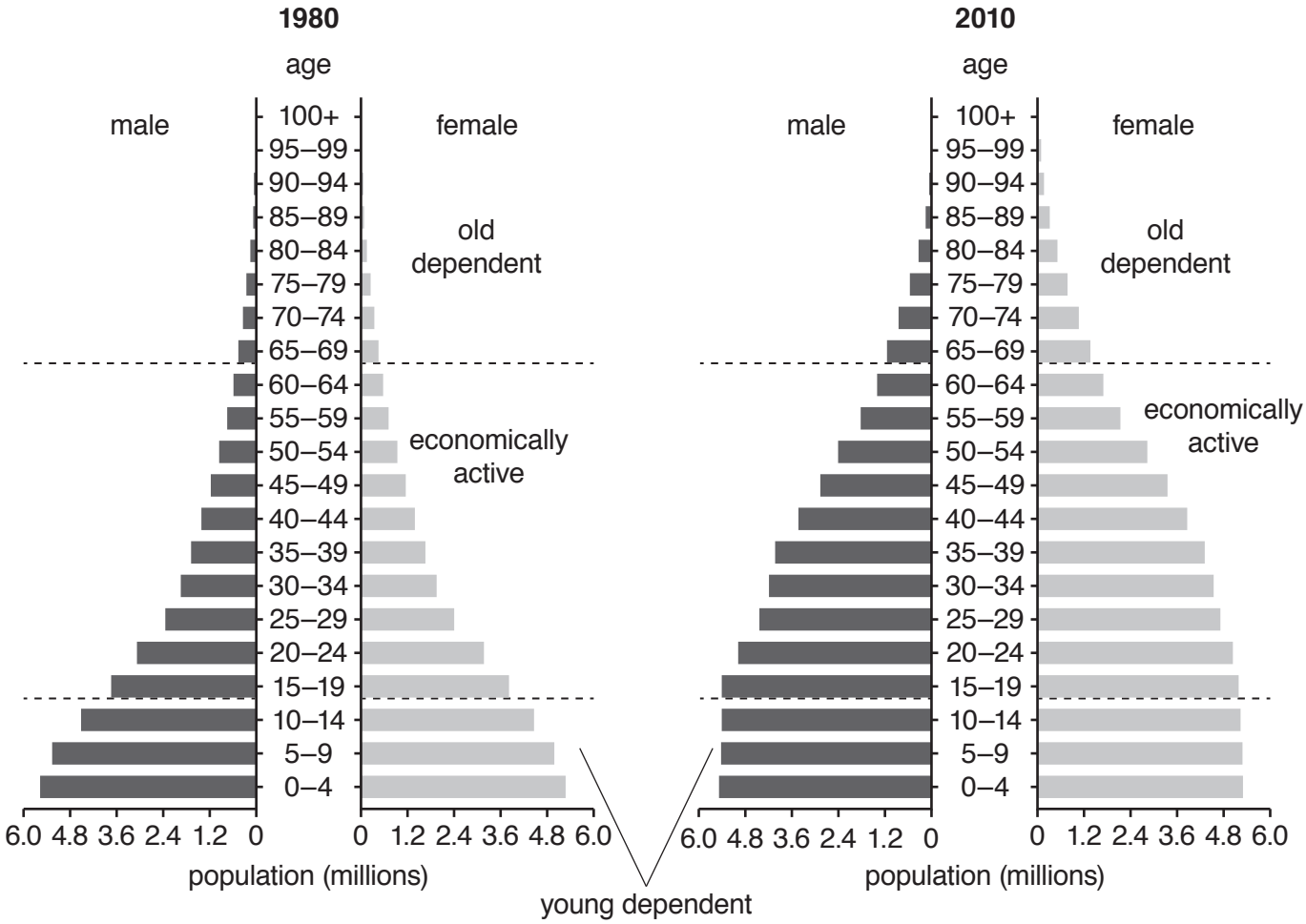

Fig. 1.2

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(i) Describe the changes in Mexico's population structure between 1980 and 2010.

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(ii) Suggest ways in which a large **young** dependent population is likely to cause problems for a country.

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(c) For a named country you have studied, describe a policy which is used to influence natural population growth rates.

Name of country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1, which shows information about the sources of air pollution in urban areas in Japan, India and South Korea.

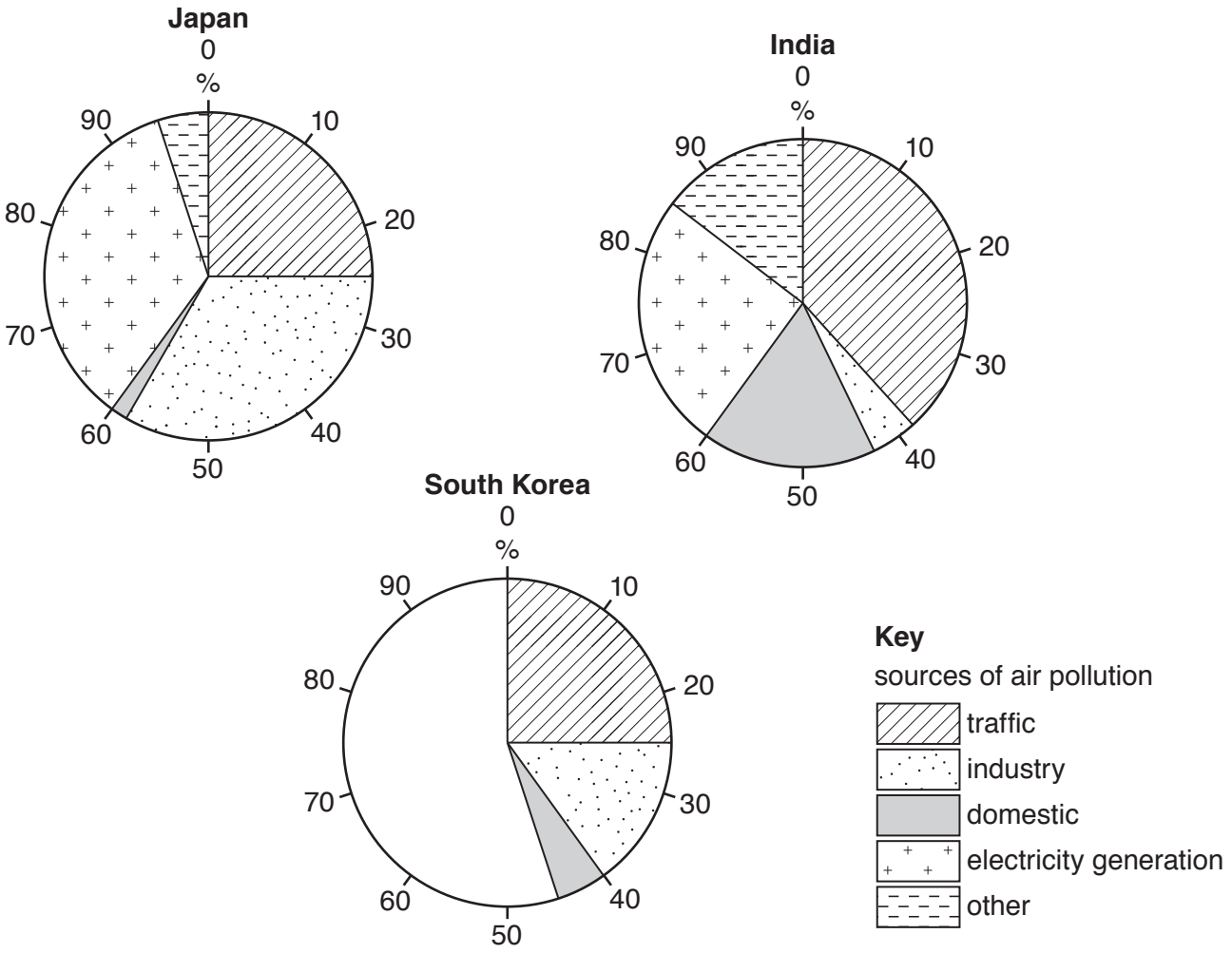

Fig. 2.1

(i) What is an *urban* area?

.....

..... [1]

(ii) **Complete the graph for South Korea** by plotting the following information:

- electricity generation = 45 %
- other = 10 % [2]

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(iii) Identify the main differences between the sources of air pollution in India and Japan.

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(iv) Explain how air pollution causes problems for people who live in urban areas.

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(b) Study Fig. 2.2, which is information about traffic congestion in Gauteng, a province in South Africa.

> According to Ismail Vadi, a member of the Executive Council for Roads and Transport in Gauteng, traffic congestion is likely to increase in the next 25 years. The number of vehicles is expected to double and cause average speed in urban areas during peak hours to drop from the current 48 km/h to 10 km/h.
> He recently released the Integrated Transport Master Plan (ITMP25), which shows that the province's population will increase from 12.4 million to 18.7 million and its working population will grow to 8.6 million, increasing rush hour passenger journeys to 25 million a day. ITMP25 plans to prioritise the use of public transport, particularly the rail network, which has lacked investment in the last 20 years. If nothing is done there will be a severe impact on the built and natural environment and the quality of lives of residents will deteriorate.

Fig. 2.2

(i) Using Fig. 2.2 **only**, give **three** reasons why urban areas in Gauteng will experience increased traffic congestion.

1 .....

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2 .....

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3 .....

..... [3]

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(ii) Using Fig. 2.2 and your own knowledge, suggest how traffic problems could be reduced in urban areas in Gauteng.

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(c) For a named urban area you have studied, describe a change in land use and explain why it has caused conflict.

Name of urban area .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Fig. 3.1, which shows information about the problems faced by households after an earthquake in Port-au-Prince, Haiti.

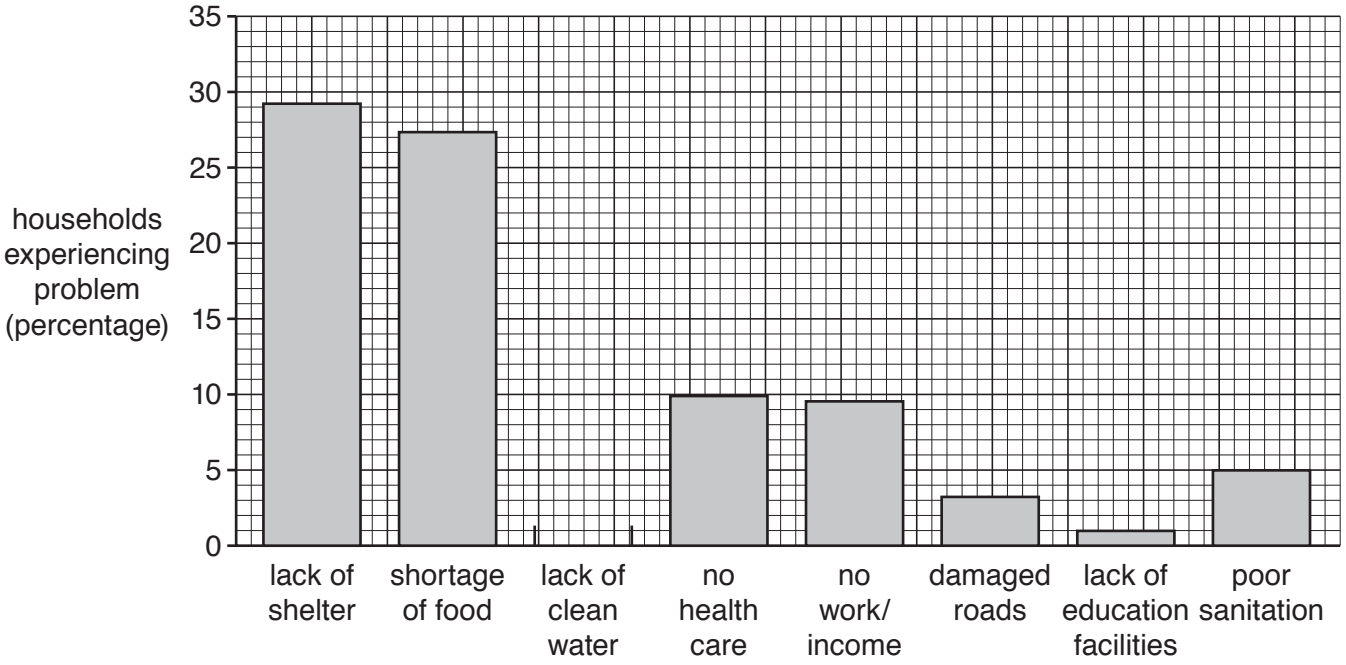

Fig. 3.1

(i) **Complete Fig. 3.1** by plotting the following information:

13% of households were affected by lack of clean water after the earthquake. [1]

(ii) Identify the **two** main problems caused by the earthquake in Haiti.

1 .....

2 ..... [2]

(iii) Explain why it is necessary to provide clean water and sanitation after an earthquake.

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..... [3]

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(iv) Explain how new buildings can be earthquake-proofed, so that they are less likely to be damaged in an earthquake.

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..... [4]

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(b) Study Fig. 3.2, which is a map showing information about earthquakes which caused more than 10 000 deaths in different parts of the world (1900-2011).

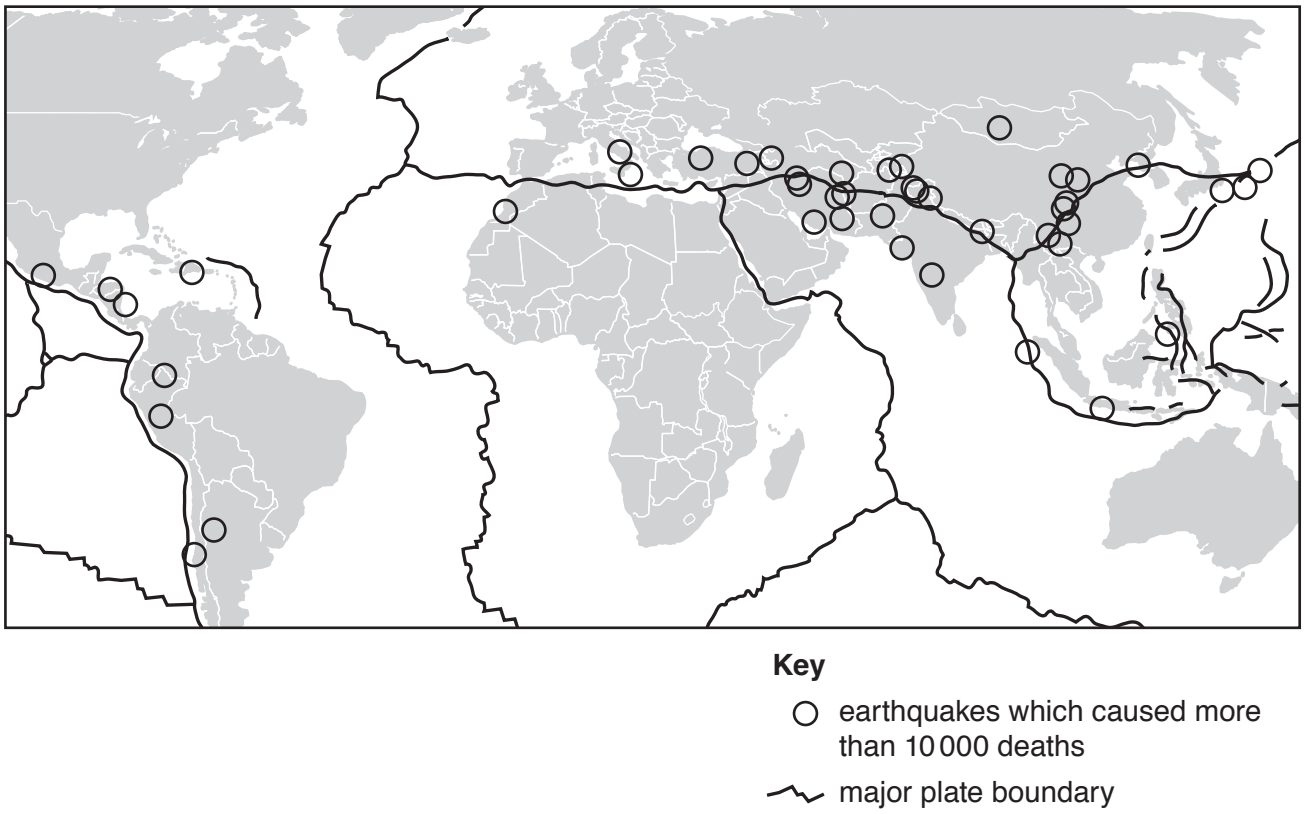

Fig. 3.2

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(i) The distribution of earthquakes is uneven. Describe the distribution of the areas where earthquakes caused more than 10 000 deaths between 1900 and 2011.

.....

.....

.....

.....

.....

..... [3]

(ii) Explain why the distribution of the areas where large numbers of deaths have been caused by earthquakes is uneven.

.....

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..... [5]

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(c) Volcanic eruptions are another tectonic hazard.
For a named volcano you have studied, explain the causes of a **volcanic eruption**.

Name of volcano .....

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..... [7]

[Total: 25]

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4 **(a)** Study Fig. 4.1 (Insert), which is a photograph of part of a river.

(i) What river feature is shown in Fig. 4.1?

Underline **one** answer in the list below:

confluence meander potholes source [1]

(ii) Describe **two** characteristics of the feature labelled **X** on Fig. 4.1.

1 .....

.....

2 .....

..... [2]

(iii) Explain how the feature labelled **Y** on Fig. 4.1 was formed.

.....

.....

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.....

.....

..... [3]

(iv) Suggest how the course of the river shown in Fig. 4.1 may change in the future as a result of natural processes.

.....

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..... [4]

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(b) Study Fig. 4.2, which is a map of the delta of the Pearl River in China.

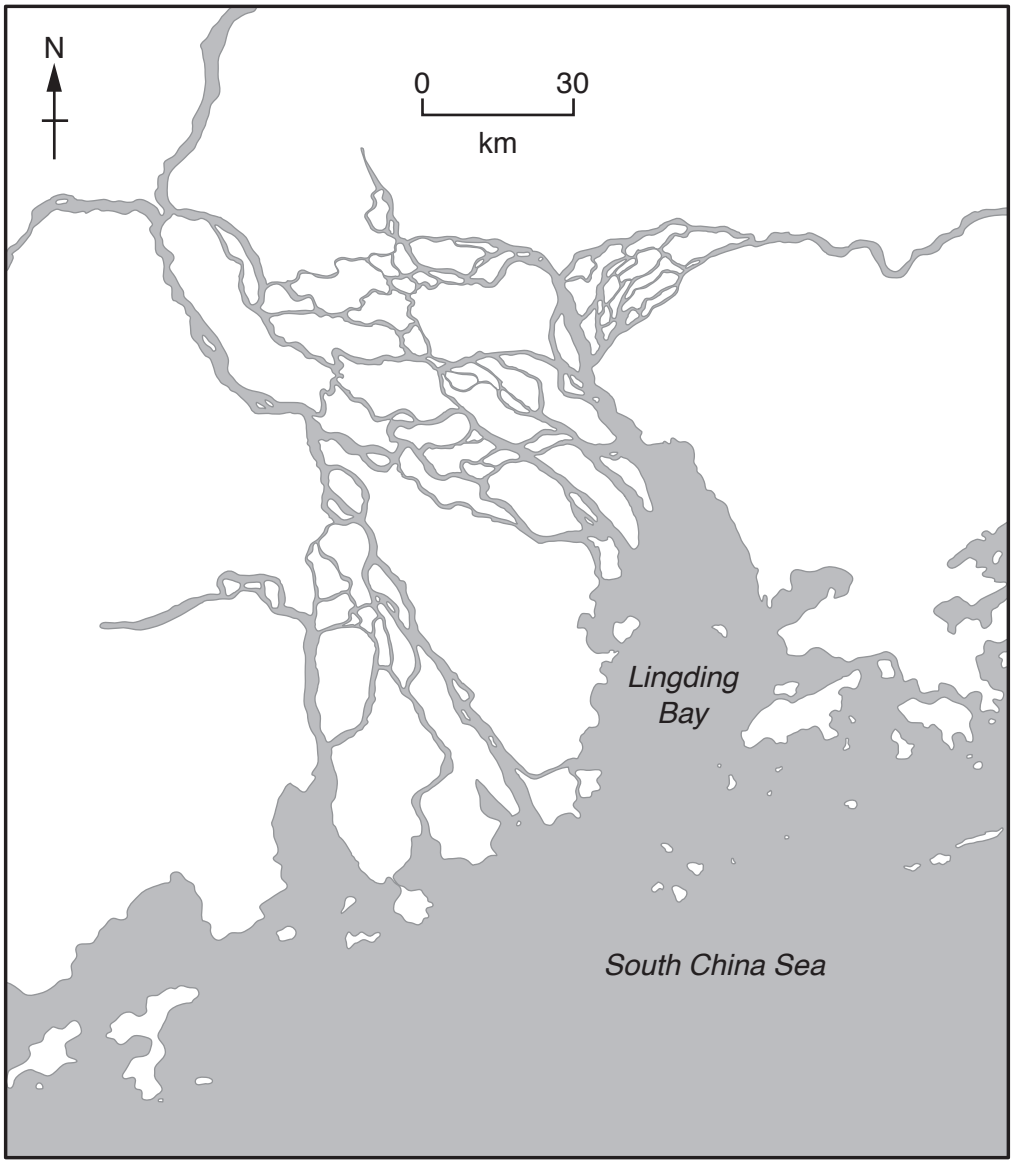

Fig. 4.2

(i) Using Fig. 4.2 **only**, describe the characteristics of the Pearl River delta.

.....

.....

.....

.....

.....

..... [3]

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(ii) Explain how a delta is formed. You may include a labelled diagram.

.....

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[5]

(c) For a named river you have studied, describe the hazards and difficulties of living close to it.

Name of river .....

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..... [7]

[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1 (Insert), which is a photograph of an area where subsistence farming takes place.

(i) What is meant by *subsistence farming*?

.....

..... [1]

(ii) Using evidence from Fig. 5.1 **only**, describe **two** features of farming in the area shown.

1 .....

.....

2 .....

..... [2]

(iii) Insert the following words into the table below to show examples of inputs, processes and outputs of the subsistence farmers who work in the area shown in Fig. 5.1.

Choose from the words below.

harvesting	milk	water
maize	seeds	weeding

Inputs	Processes	Outputs

[3]

(iv) Explain why many farmers in LEDCs are subsistence farmers.

.....

.....

.....

.....

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..... [4]

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(b) Study Fig. 5.2, which is a graph showing information about the world production of wheat and rice between 1980 and 2013.

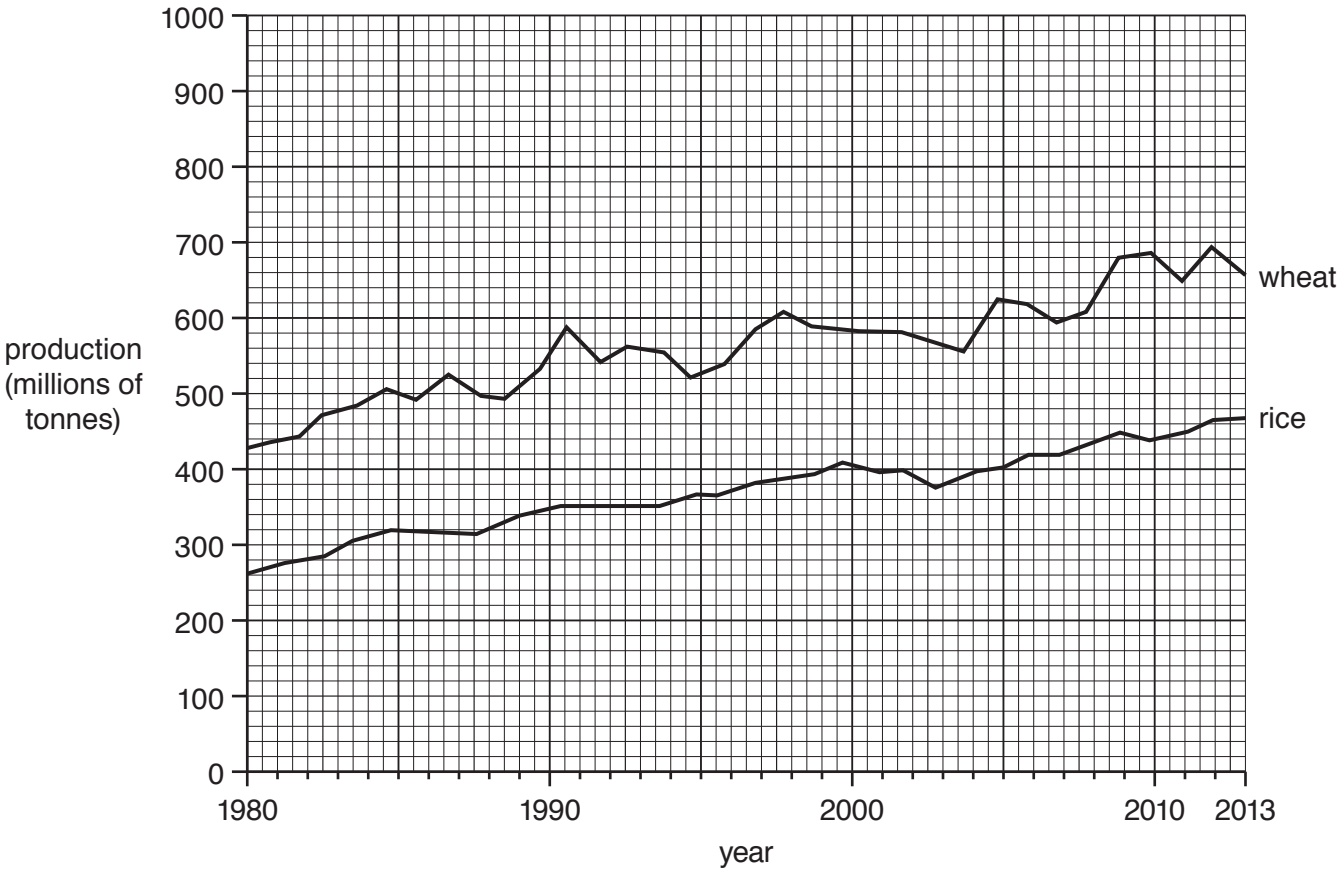

Fig. 5.2

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(i) Compare the world production of wheat and rice between 1980 and 2013.
You should use statistics in your answer.

.....

.....

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.....

.....

..... [3]

(ii) Explain why the amount of crops produced on a farm, (e.g. wheat and rice), varies from year to year.

.....

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..... [5]

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(c) For an example you have studied, describe and explain the land use of a farm or agricultural area.

Name of farm or agricultural area .....

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..... [7]

[Total: 25]

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6 **(a)** Study Fig. 6.1 (Insert), which shows information about threats to the natural environment in the Caspian Sea.

(i) Identify the main source of pollution in the Caspian Sea.

..... [1]

(ii) Using information from Fig. 6.1 **only**, name:

– a major urban area within 50 km of the Caspian Sea

.....

– a river which flows into the Caspian Sea.

..... [2]

(iii) Using evidence from Fig. 6.1 **only**, suggest **three** likely impacts on the natural environment of pollution in the Caspian Sea.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(iv) Suggest why it is difficult to reduce water pollution in the Caspian Sea.

.....

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.....

.....

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..... [4]

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(b) Study Figs. 6.2, 6.3 and 6.4 (Insert), which are photographs of economic activities which increase greenhouse gases in the atmosphere.

(i) Explain how each of the economic activities shown in Figs. 6.2, 6.3 and 6.4 increase greenhouse gases in the atmosphere.

Fig. 6.2 .....

.....

Fig. 6.3 .....

.....

Fig. 6.4 .....

..... [3]

(ii) Explain how an increase in greenhouse gases in the atmosphere is causing global warming.

.....

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..... [5]

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(c) Describe the threats caused by global warming. You should refer to named areas affected.

.....

.....

.....

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CENTRE NUMBER

CANDIDATE NUMBER

7772558538

GEOGRAPHY **0460/21**

Paper 2 **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Protractor
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 3.1 and 3.2 for Question 3, and Figs. 5.1 and 5.2 for Question 5.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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1 Study the map extract for Hammarsjön, Sweden. The scale is 1:50 000.

(a) Fig. 1.1 shows some features in the north of the map extract.

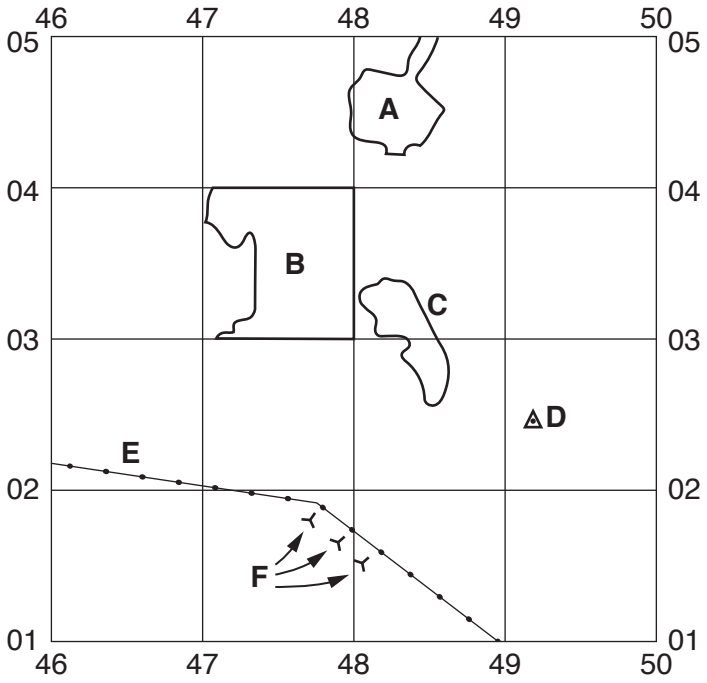

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) the type of land in area **A**

..... [1]

(ii) the land use in area **B**

..... [1]

(iii) the height above sea level of contour **C**

.....metres [1]

(iv) the height above sea level at triangulation point **D**

.....metres [1]

(v) feature **E**

..... [1]

(vi) features **F**.

..... [1]

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(b) Look at the two main rivers on the map extract:

River 1 the Vramsån river
River 2 the Helge å river.

Using the following headings, compare the features of the two rivers.

(i) width

.....

..... [1]

(ii) shape of the river

.....

..... [1]

(iii) direction of flow

.....

.....

.....

..... [2]

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(c) Fig. 1.2 shows three areas of the map extract, **P**, **Q** and **R**.

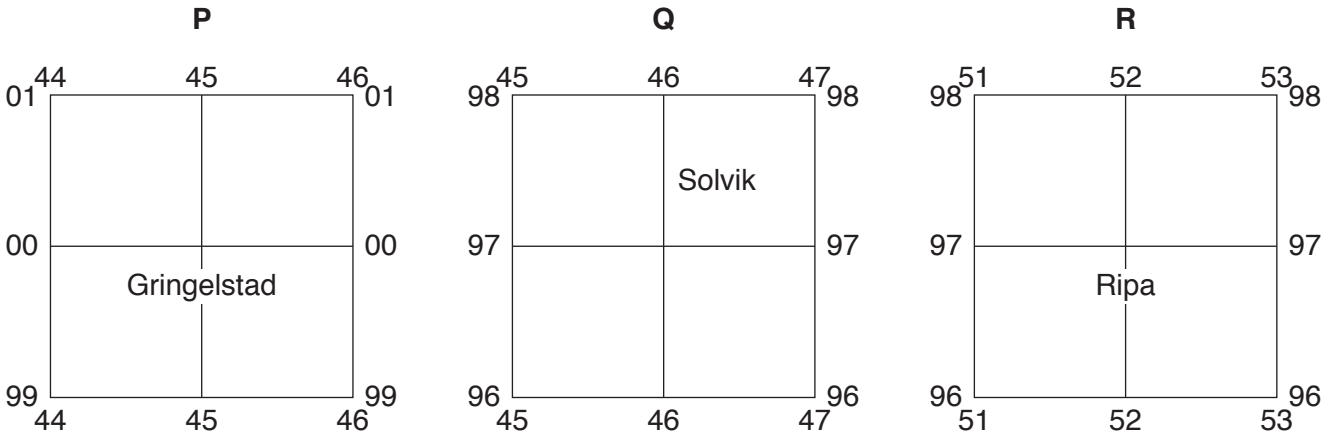

Fig. 1.2

For each of the three areas, identify the settlement pattern.

area	settlement pattern
P	.....
Q	.....
R	.....

[3]

(d) Fig. 1.3 is a cross section along northing 99 from 430990 to 480990.

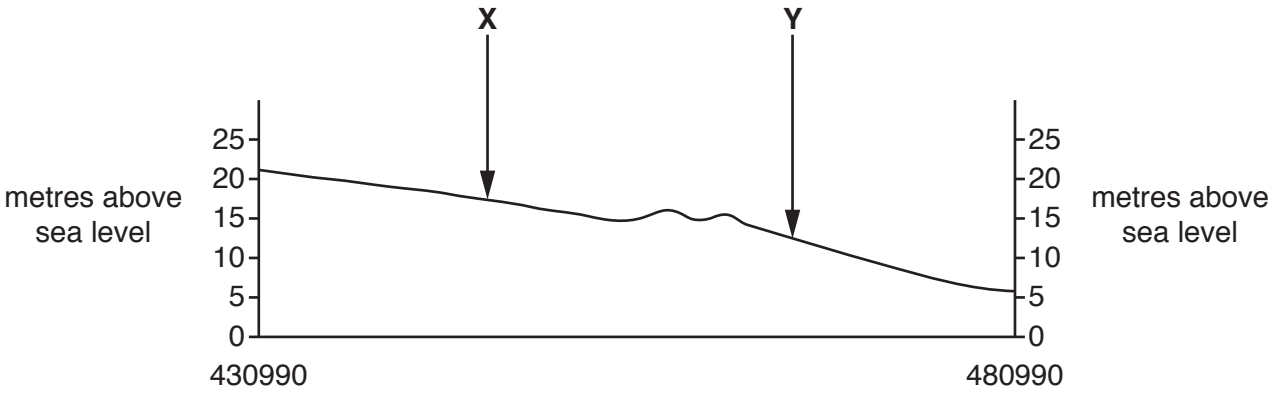

Fig. 1.3

Identify the types of land use at **X** and **Y** on Fig. 1.3.

	land use
X	.....
Y	.....

[2]

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(e) Look at the junction of the public roads near Hovby in the north east of the map extract and the junction of the public roads in Ripa in the south east of the map extract.

(i) Measure the distance along the road between these two junctions. Give your answer in metres.

.....metres [1]

(ii) Give the compass direction **from** the road junction near Hovby **to** the road junction in Ripa.

..... [1]

(iii) Measure the bearing **from** the road junction near Hovby **to** the road junction in Ripa.

.....degrees [1]

(iv) What is the six-figure grid reference of the road junction near Hovby?

..... [2]

[Total: 20]

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2 Study Figs. 2.1, 2.2 and 2.3, which show the population structures of Japan, USA and Mozambique in 2016. Answer the questions on the opposite page.

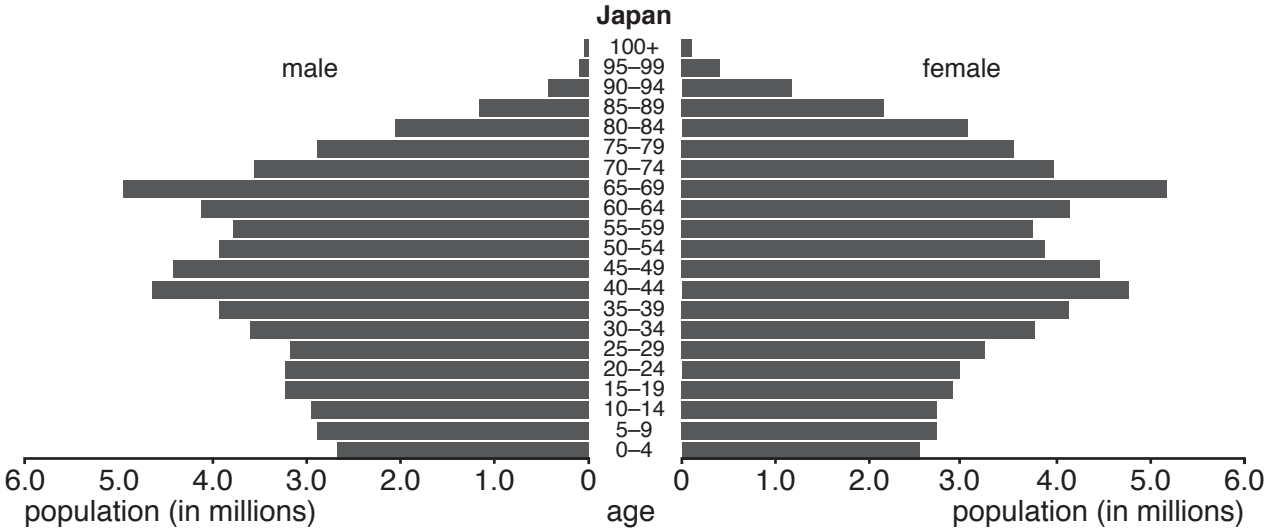

Fig. 2.1

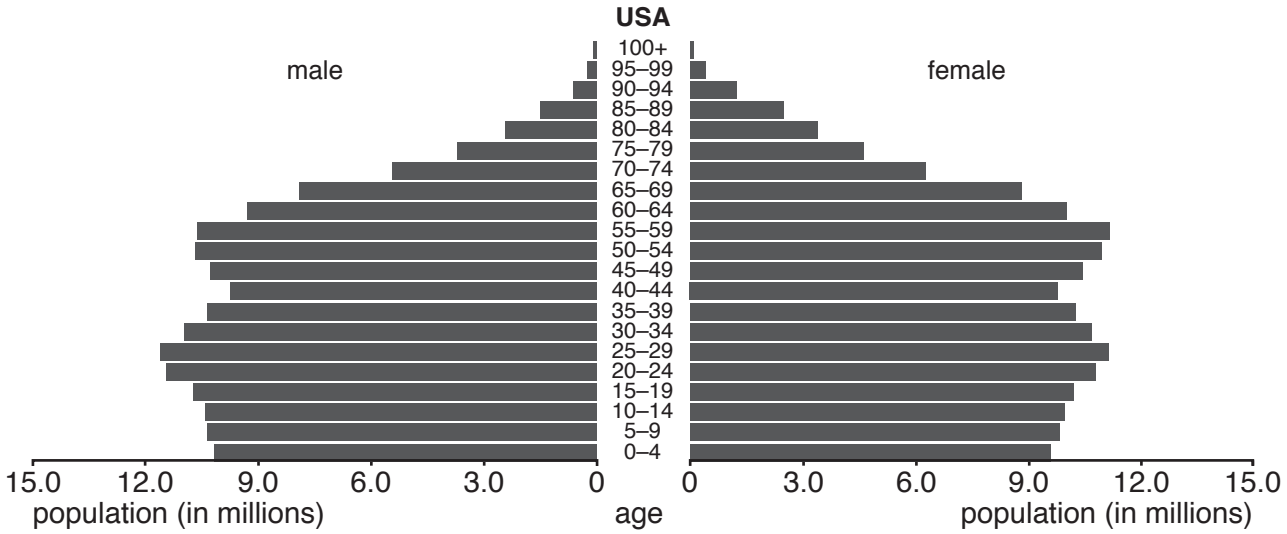

Fig. 2.2

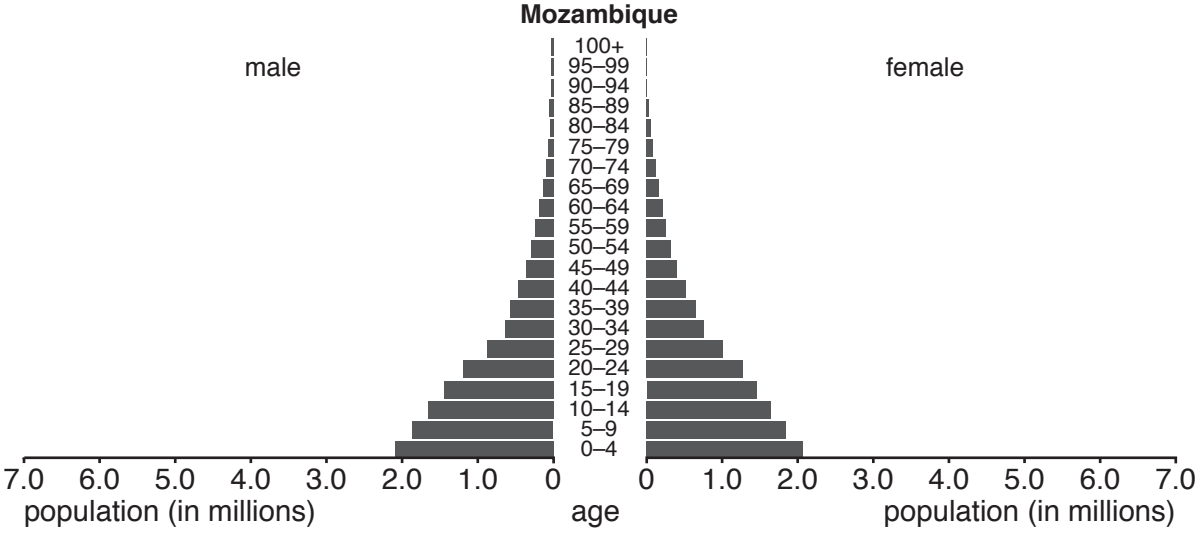

Fig. 2.3

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(a) What was the population of:

(i) females aged 70–74 in USA

..... million [1]

(ii) males aged 35–39 in Mozambique?

..... million [1]

(b) Which of the three countries had:

(i) the lowest birth rate

..... [1]

(ii) the highest death rate

..... [1]

(iii) a steady birth rate and low death rate

..... [1]

(iv) the largest total population

..... [1]

(v) the highest **percentage** of old dependents

..... [1]

(vi) the highest **percentage** of young dependents?

..... [1]

[Total: 8]

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[Turn over

3 Figs. 3.1 and 3.2 (Insert) are photographs which show two residential areas of Windhoek, the capital city of Namibia.

(a) Describe the housing shown in Fig. 3.1.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

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(b) Give **three** differences between the residential area shown in Fig. 3.1 and the residential area shown in Fig. 3.2.

1 .....

.....

2 .....

.....

3 .....

..... [3]

[Total: 8]

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4 Fig. 4.1 shows the location of active strato-volcanoes in part of central America. Fig. 4.2 is a cross section between points **X** and **Y** on Fig. 4.1. Study Figs. 4.1 and 4.2 and answer the questions on the opposite page.

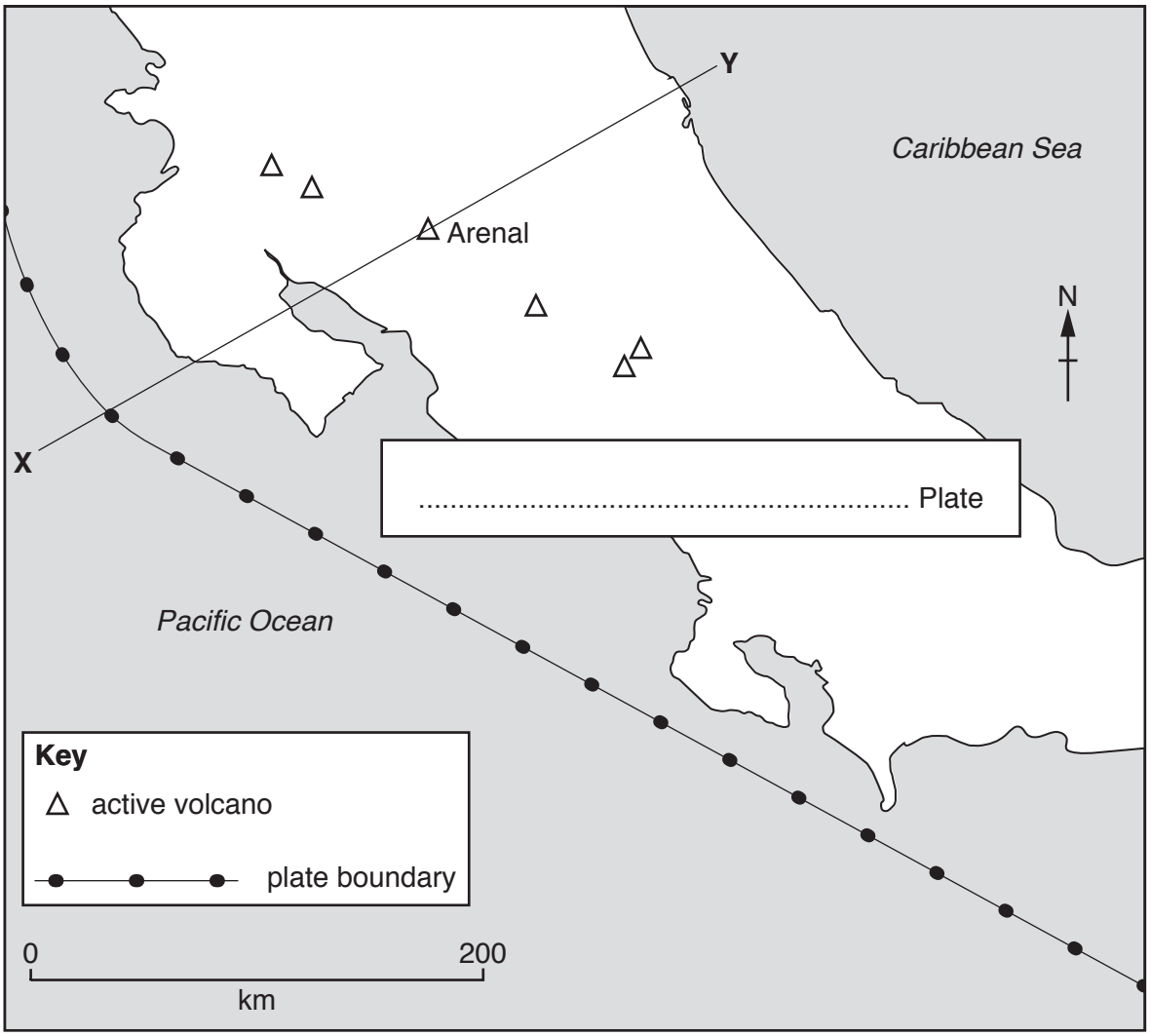

Fig. 4.1

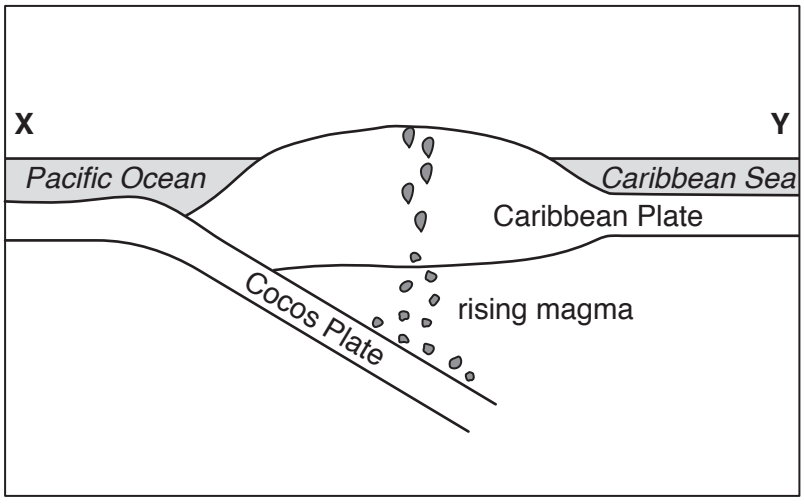

Fig. 4.2

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(a) (i) Arenal is an active volcano shown on Fig. 4.1. Use a labelled arrow to **mark the position** of Arenal on Fig. 4.2. [1]

(ii) **Draw two arrows** on Fig. 4.2 to show the directions of plate movement. [1]

(iii) In the space provided on Fig. 4.1, **write the name of the plate** which forms central America. Use information from Fig. 4.2. [1]

(iv) What type of plate boundary is shown on Figs. 4.1 and 4.2? Tick **one** box below.

Type	Tick (✓)
divergent (constructive)	
convergent (destructive)	
conservative	

[1]

(b) Give **two** advantages of living near to an active volcano like Arenal.

1 .....

.....

2 .....

..... [2]

(c) Give **two** hazards which endanger life near to an active volcano like Arenal.

1 .....

.....

2 .....

..... [2]

[Total: 8]

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5 Study Figs. 5.1 and 5.2 (Insert), which are photographs showing coasts in South Africa.

(a) Identify landforms **X**, **Y** and **Z** on Fig. 5.1.

X .....

Y .....

Z ..... [3]

(b) Describe the physical features of the coastline shown in Fig. 5.2.

.....

.....

.....

.....

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.....

.....

.....

.....

.....

.....

..... [5]

[Total: 8]

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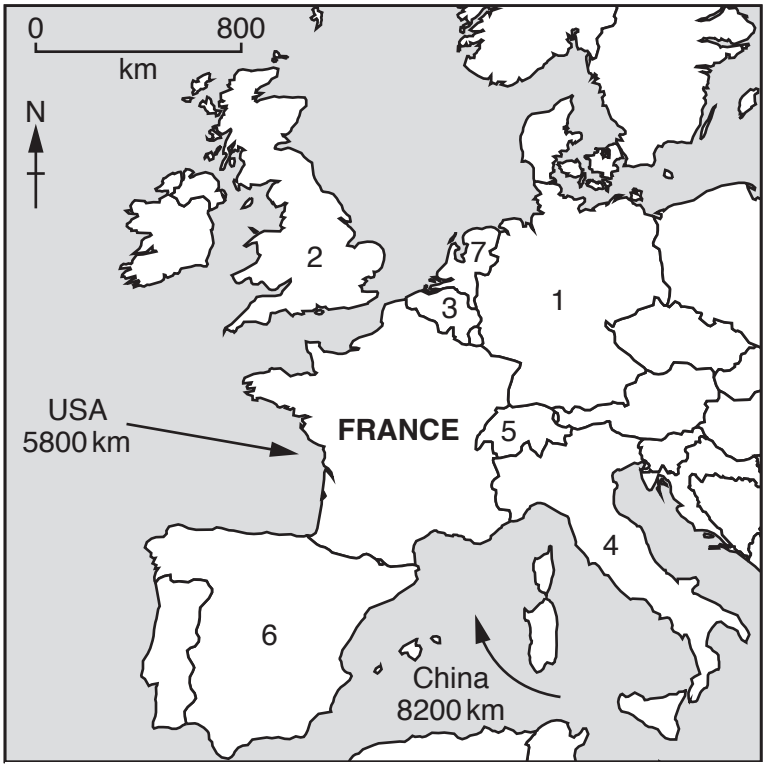
6 France, in north west Europe, is the most popular international tourist destination in the world, with over 80 million visitors a year. Fig. 6.1 shows where most visitors came from in 2016.



Key

Countries with number of visitors to France per year (millions)

1	Germany (MEDC)	12.8	6	Spain (MEDC)	6.1
2	United Kingdom (MEDC)	11.8	7	Netherlands (MEDC)	5.5
3	Belgium (MEDC)	9.3	8	USA (MEDC)	3.2
4	Italy (MEDC)	7.5	9	China	1.7
5	Switzerland (MEDC)	6.2			

Fig. 6.1

(a) Using evidence from Fig. 6.1, suggest why the location of France is an advantage for the development of the tourist industry.

.....

.....

.....

.....

.....

..... [3]

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(b) Fig. 6.2 shows some of the tourist features of France.

Paris (the capital city)
- some of the world's largest and most famous museums, including the Louvre
- landmarks such as the Eiffel Tower
- the Palace of Versailles, the former palace of the kings of France

Coastline
- south east France has 300 days of sunshine per year
- the Côte d'Azur has 115 km of coastline and beaches

Rural France
- castles of the Loire Valley, a World Heritage Site
- wine producing areas such as Bordeaux
- memorials to the First and Second World Wars in Normandy, Picardy and Vis-en-Artois

The Alps and Pyrenees
- high mountains
- snow in winter

Religious pilgrimages
- e.g. Lourdes

Theme Parks
- Puy du Fou
- Disneyland Paris

Fig. 6.2

Using evidence from Fig. 6.2 **only**, explain how the **physical** landscape of France has helped the development of the tourist industry.

.....

.....

.....

.....

.....

..... [3]

(c) Suggest **two** possible disadvantages of the tourist industry for the physical environment.

.....

.....

.....

..... [2]

[Total: 8]

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CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

5653305727

GEOGRAPHY **0460/22**

Paper 2 **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Protractor
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 5.1 and 5.2 for Question 5.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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1 Study the map extract for Degeberga, Sweden. The scale is 1:50 000.

(a) Fig. 1.1 shows some features in the west of the map extract around the main settlement of Degeberga.

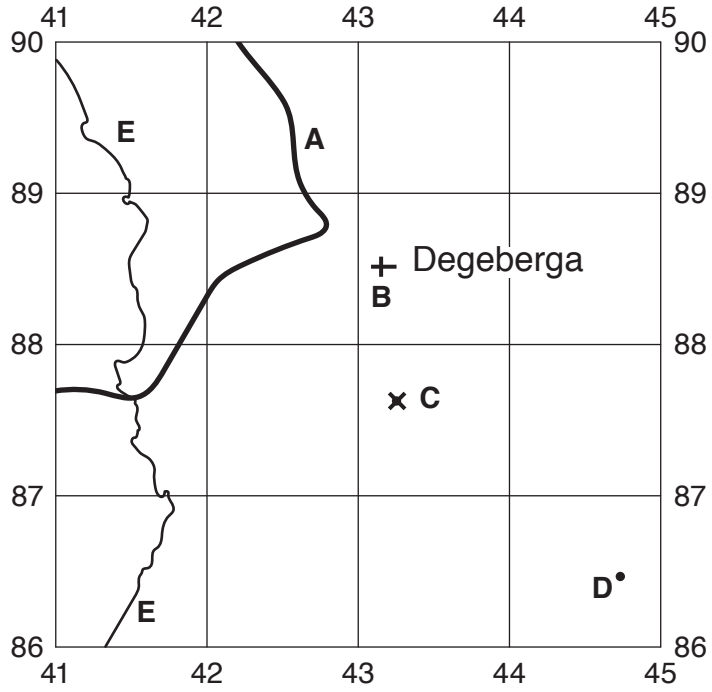

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**

..... [1]

(ii) feature **B**

..... [1]

(iii) feature **C**

..... [1]

(iv) the height above sea level at spot height **D**

..... metres [1]

(v) the height above sea level of contour **E**.

..... metres [1]

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(b) Fig. 1.2A shows an area in the north west of the map extract and Fig. 1.2B shows an area in the south east of the map extract. Study the two areas and answer the questions below.

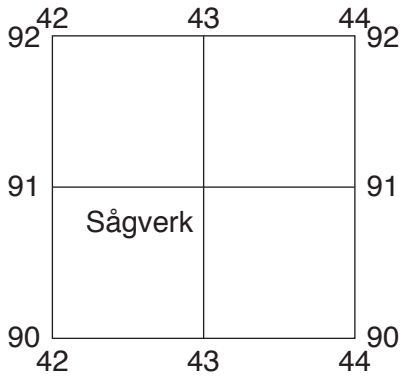

Fig. 1.2A

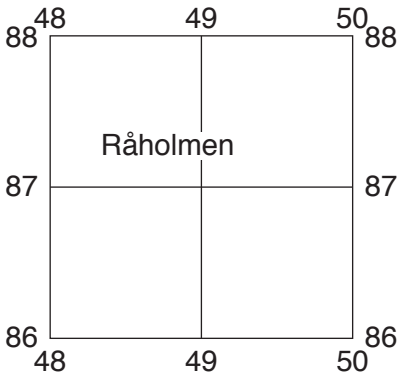

Fig. 1.2B

The table below compares the features of the two areas. Complete the table by putting ticks in the correct **five** boxes. Use only **one** tick for each row.

	Area in Fig. 1.2A	Area in Fig. 1.2B	Both these areas	Neither of these areas
Example: motorway				✓
flat land				
steep land				
gentle slopes				
mostly forest				
mostly arable land				

[5]

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(c) Fig. 1.3 shows a cross section along northing 86 from 440860 to 510860.

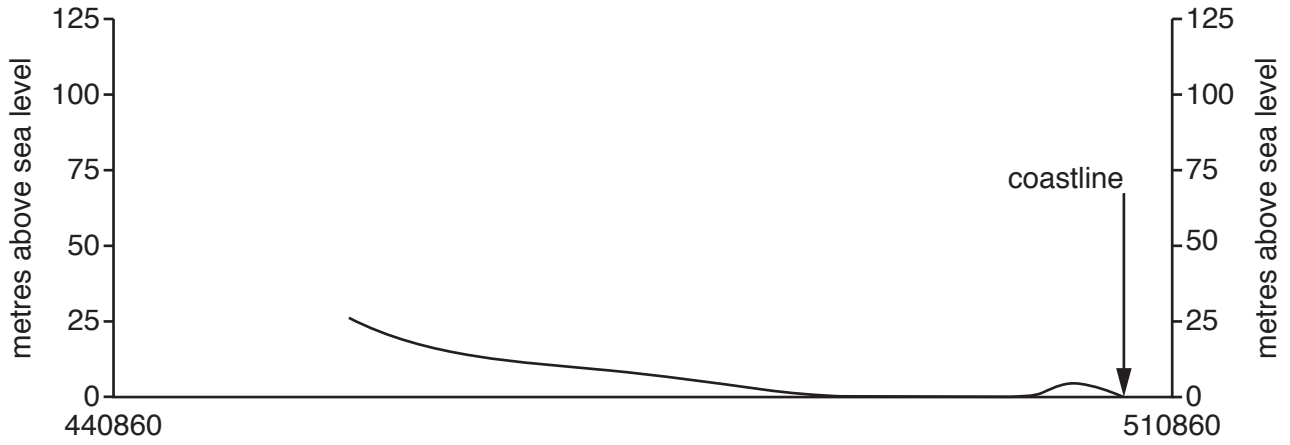

Fig. 1.3

(i) On Fig. 1.3, **use labelled arrows and the letter shown** to show the positions of:

public road 19 (**X**)

the Segesholmsån river (**Y**). [2]

(ii) On Fig. 1.3, **complete the cross section**. [2]

(d) Look at the coastal settlement around Nyehusen and Furuboda. Give map evidence that suggests that this is a tourist settlement.

.....

.....

.....

..... [2]

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(e) Find the following two triangulation points:

the 22 m triangulation point south of Nyehusen
the 129 m triangulation point near Norrlia, south of Degeberga.

(i) Give the compass direction **from** the 129 m triangulation point **to** the 22 m triangulation point.

..... [1]

(ii) Measure the bearing **from** the 129 m triangulation point **to** the 22 m triangulation point.

..... degrees [1]

(iii) What is the six-figure grid reference of the 129 m triangulation point near Norrlia?

..... [2]

[Total: 20]

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2 **(a)** **(i)** Which **one** of the following statements describes a *settlement hierarchy*? Tick only **one** box.

Statement	Tick (✓)
settlements in order of population size and importance	
linear, nucleated and dispersed settlement	
how a settlement has grown over time	
the physical factors which lead to the growth of a settlement	

[1]

(ii) Which **one** of the following statements describes *a service*? Tick only **one** box.

Statement	Tick (✓)
the site and situation of a settlement	
the sphere of influence of a settlement	
amenities provided in a settlement for the population e.g. shops	
a type of settlement pattern e.g. linear	

[1]

(b) Fig. 2.1 shows settlement in a valley in northern England.

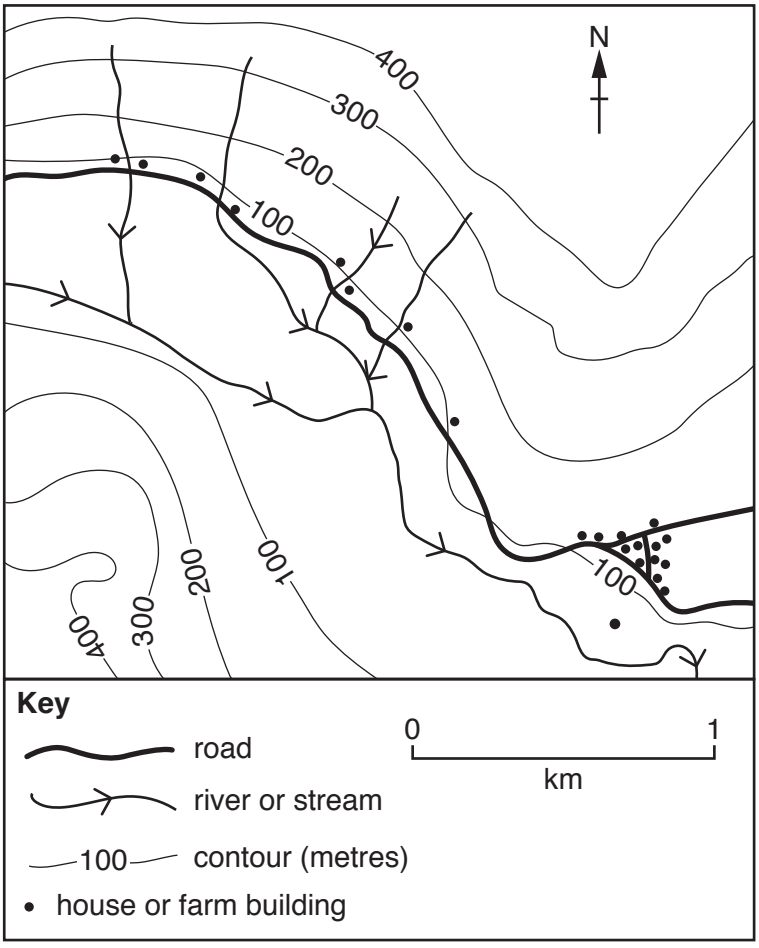

Fig. 2.1

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Suggest how each of the following factors has influenced the sites and growth of settlement in the area shown in Fig. 2.1:

(i) transport and accessibility

.....

.....

.....

..... [2]

(ii) water supply

.....

..... [1]

(iii) protection from flooding

.....

..... [1]

(iv) relief.

.....

.....

.....

.....

..... [2]

[Total: 8]

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3 **(a)** Fig. 3.1 shows the temperatures and rainfall of an area of equatorial climate.

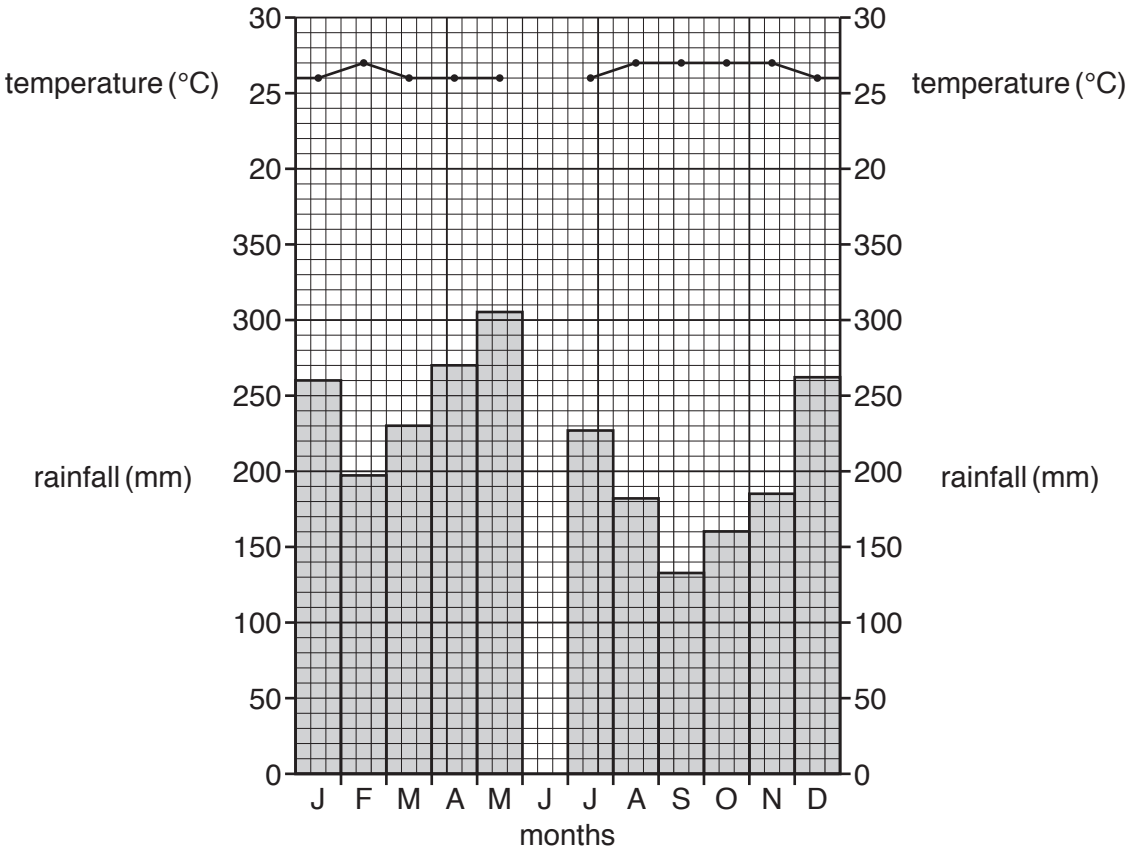

Fig. 3.1

(i) The area shown on Fig. 3.1 has a temperature of 24 °C and 250 mm of rainfall in June. **Plot this information** on Fig. 3.1. [1]

(ii) Use the information in Fig. 3.1 to complete the table below.

Feature of the climate	Amount	Description
mean temperature of the hottest month	..... °C	hot
mean temperature of the coldest month	24 °C	.....
annual temperature range	3 °C	.....

[3]

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(b) The equatorial climate is constant throughout the year. Table 3.1 shows a typical day's weather.

Table 3.1

Weather element	Average reading	Time
maximum temperature	33 °C	14:00
minimum temperature	25 °C	06:00
maximum humidity	95%	15:00
minimum humidity	53%	13:00
cloud	0 – 2 oktas	00:00 – 06:00
	3 – 5 oktas	06:00 – 12:00
	6 – 8 oktas	12:00 – 18:00
	2 – 5 oktas	18:00 – 24:00

(i) Calculate the daily range of temperature shown in Table 3.1.

..... °C [1]

(ii) Using information in Table 3.1, at what time of day would rainfall be expected? Tick **one** box below.

Time	Tick (✓)
00:00 – 06:00	
06:00 – 12:00	
12:00 – 18:00	
18:00 – 24:00	

[1]

(c) Explain why the equatorial climate is constant throughout the year with little seasonal variation.

.....

.....

.....

.....

..... [2]

[Total: 8]

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4 **(a)** Table 4.1 gives the definitions of some terms used in the study of earthquakes.

Table 4.1

Letter	Definition
A	an ocean wave produced when there is movement of the sea bed caused by the fault movement which causes an earthquake
B	a type of stress where forces pull in opposite directions causing stretching
C	the point in the Earth where an earthquake occurs
D	a scale measuring the total amount of energy released by an earthquake
E	the point on the Earth's surface directly above an earthquake focus

For each of the following terms give the letter for the correct definition from Table 4.1:

(i) focus Letter ..... [1]

(ii) epicentre. Letter ..... [1]

(b) Fig. 4.1 gives information about a series of earthquakes which occurred in New Zealand in November 2016.

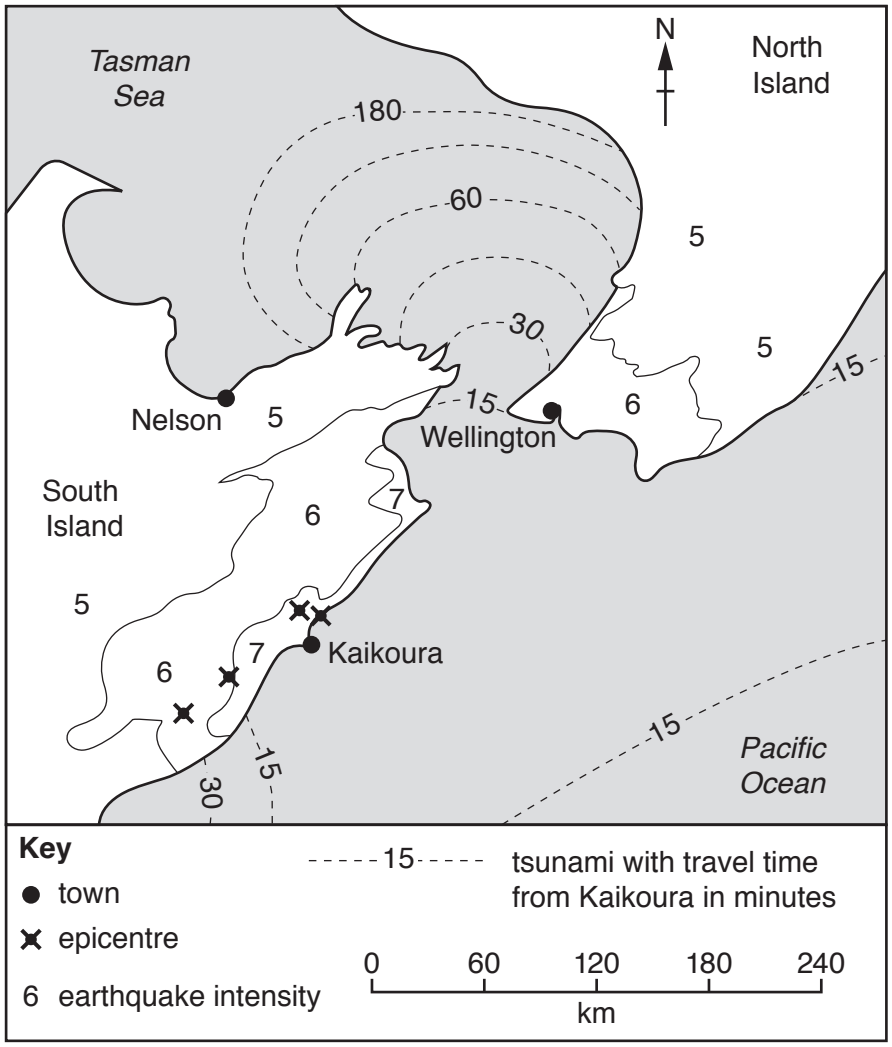

Fig. 4.1

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Table 4.2 describes the effects of different earthquake intensities (strengths).

Table 4.2

Intensity value	Description of effects
4	Felt by people moving. Cars rock.
5	Sleepers wakened. Some windows broken. Furniture moves.
6	Small bells ring. Trees sway. Loose objects fall.
7	Difficult to stand up. People run outdoors. Walls crack.
8	Partial collapse of buildings. Chimneys fall.
9	Ground cracks. Pipes break.

(i) Using Fig. 4.1 and Table 4.2, describe the effects of the earthquakes on the buildings in Nelson.

.....

..... [1]

(ii) Using Fig. 4.1 and Table 4.2, explain why the earthquakes caused loss of life near Kaikoura but not in Wellington.

.....

.....

.....

.....

..... [2]

(c) Fig. 4.1 shows a tsunami which first appeared near Kaikoura.

(i) How long did it take the tsunami to reach Wellington from Kaikoura?

.....minutes [1]

(ii) What is the distance from Kaikoura to Wellington?

..... km [1]

(iii) Calculate the speed of the tsunami between Kaikoura and Wellington.

..... km per minute [1]

[Total: 8]

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5 Figs. 5.1 and 5.2 (Insert) are photographs which show two rural areas in Madagascar.

(a) (i) Look at the agriculture shown in Fig. 5.1. Which **two** of the following terms describes this agricultural system? Tick **two** boxes.

	Tick (✓)
intensive	
mixed	
extensive	
pastoral	
arable	

[2]

(ii) Using evidence from Fig. 5.1 **only**, explain how soil erosion has been prevented in this area.

.....

.....

.....

.....

.....

..... [3]

(b) People living in the area shown on Fig. 5.2 have used the land to increase their food supply. Using evidence from Fig. 5.2 **only**, describe how this has been done.

.....

.....

.....

.....

.....

..... [3]

[Total: 8]

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6 **(a)** Fig. 6.1 shows changes in the share of world wealth production (GDP) in three world regions. These changes are part of globalisation.

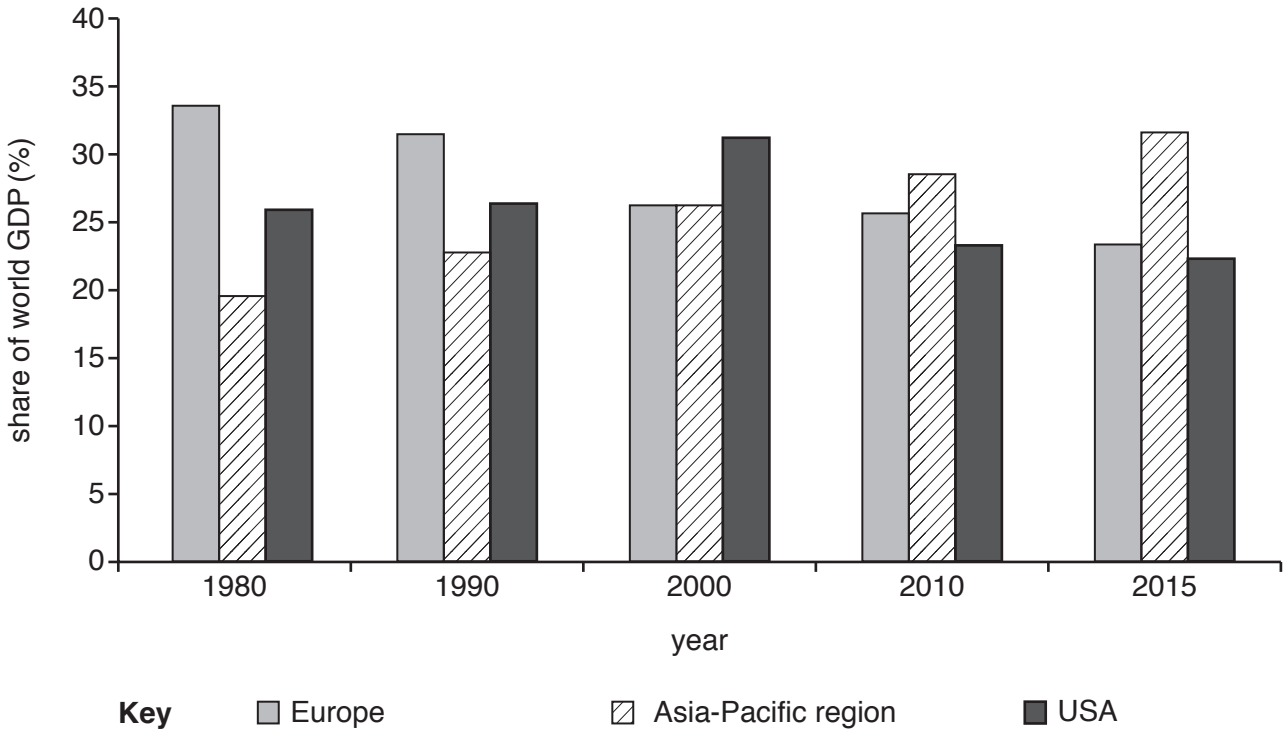

Fig. 6.1

Describe the changes in each region.

(i) Europe

.....

..... [1]

(ii) Asia-Pacific region

.....

..... [1]

(iii) USA

.....

.....

.....

..... [2]

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(b) Improved communication is part of globalisation. Table 6.1 shows changes in internet use in different parts of the world.

Table 6.1

Percentage of the population who use the internet

	2005	2014
Africa	2	19
N and S America	36	65
Arab States	8	41
Asia-Pacific	9	32
Europe	46	75

(i) Which region shown in Table 6.1 has seen the greatest increase in percentage internet use?

..... [1]

(ii) Suggest how increased internet use can help people in LEDCs.

.....

.....

.....

.....

.....

..... [3]

[Total: 8]

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GEOGRAPHY **0460/23**

Paper 2 **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Plain paper
Protractor
Calculator

1:50 000 Survey Map Extract is enclosed with this Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 2.1 and 2.2 for Question 2, Figs. 3.1 and 3.2 for Question 3, and Figs. 4.1 and 4.2 for Question 4.
The Survey Map Extract and the Insert are **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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1 Study the map extract for Knislinge, Sweden. The scale is 1:50 000.

Fig. 1.1 shows some of the features in the west of the map extract.

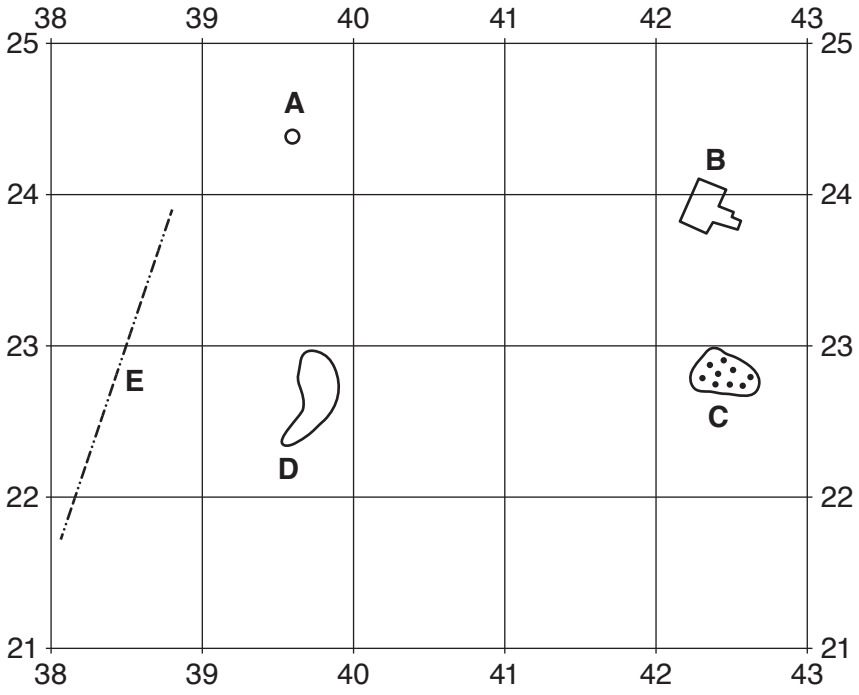

Fig. 1.1

(a) Using the map extract, identify the following features shown on Fig. 1.1:

(i) feature **A**

..... [1]

(ii) the type of land at **B**

..... [1]

(iii) the type of natural vegetation at **C**

..... [1]

(iv) the height of the contour **D**

..... [1]

(v) feature **E**.

..... [1]

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(b) Fig. 1.2 shows the area around the town of Knislinge.

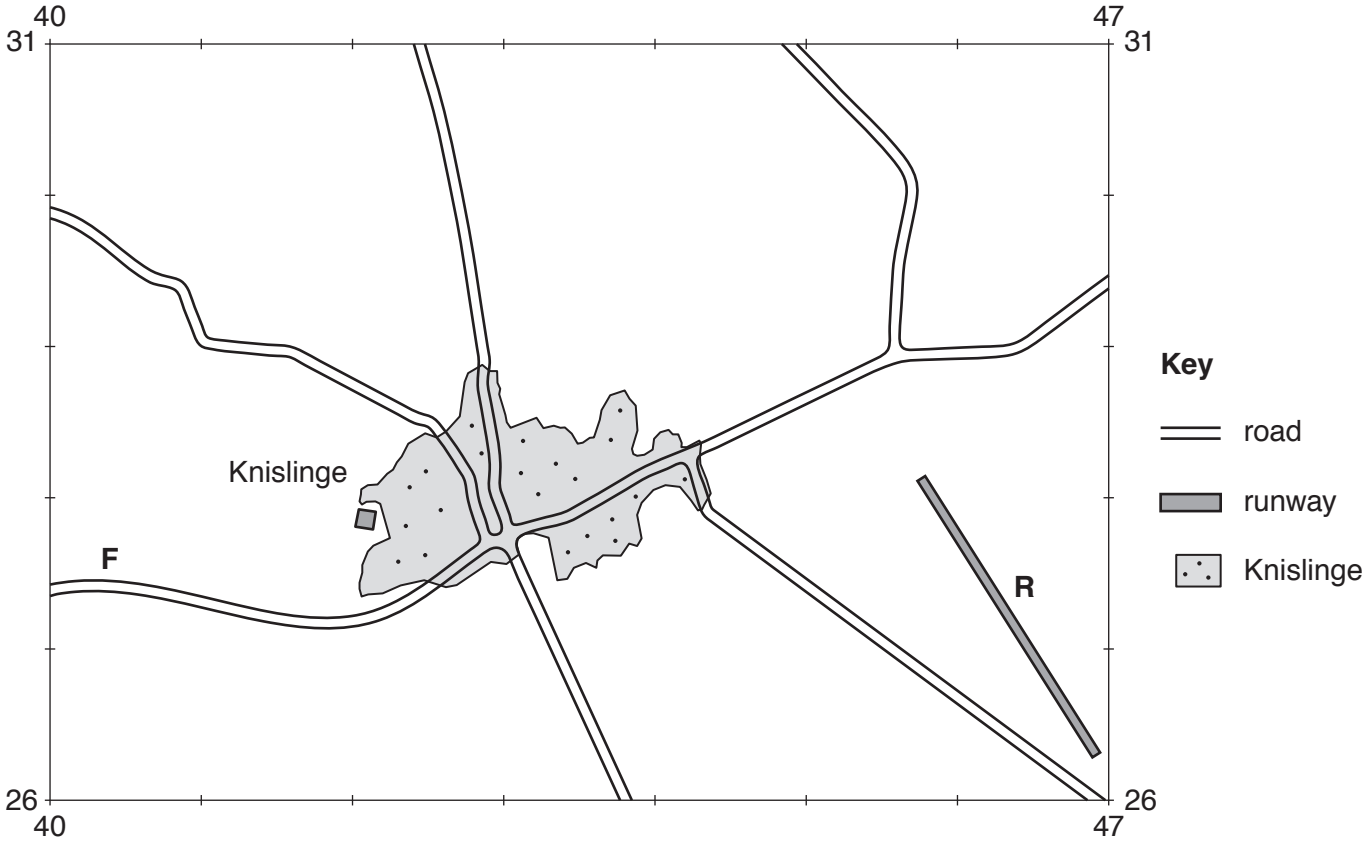

Fig. 1.2

(i) State the width of the road labelled **F**.

..... metres [1]

(ii) Describe the general pattern of the main roads shown on Fig. 1.2.

.....

..... [1]

(c) A runway to the east of Knislinge is labelled **R** on Fig. 1.2. Find this runway on the map extract.

(i) Measure the length of the surfaced section of the runway. Give your answer in metres.

..... metres [1]

(ii) Give the compass direction along the surfaced runway **from** the end near Sigfridssten **to** the other end near Bivarödsmölla.

..... [1]

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(d) Describe the features of the river between the western edge of the map extract at 380260 and its confluence with the river Helge å in grid square 4425.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(e) Fig. 1.3 shows the area around the town of Hanaskog.

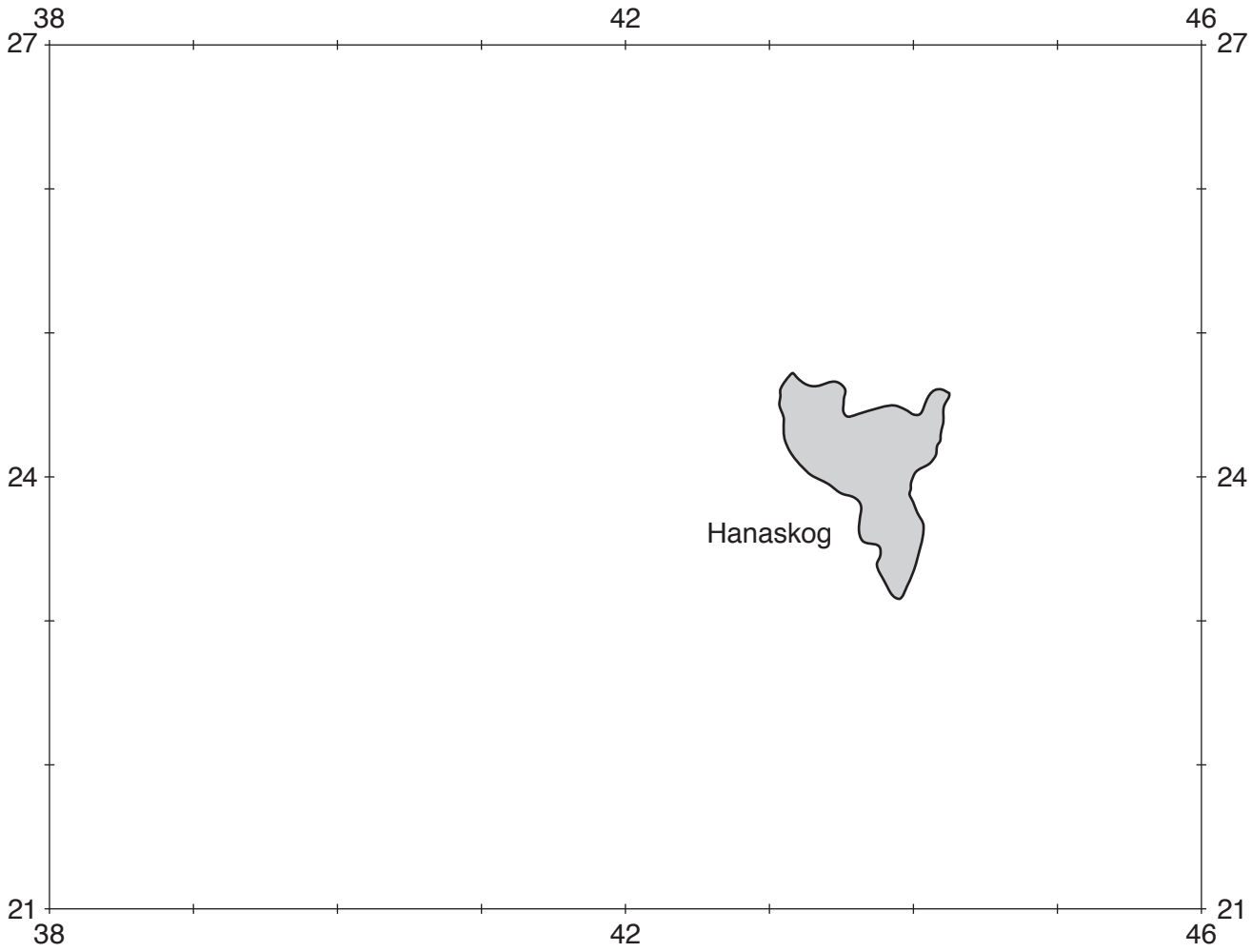

Fig. 1.3

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(i) Using the map extract, describe the distribution of the arable land in the area shown on Fig. 1.3.

.....

.....

.....

..... [2]

(ii) Using the map extract, state **one** way in which the distribution of woodland in the area shown on Fig. 1.3 differs from that of the arable land.

.....

..... [1]

(f) Find the lake called Araslövssjön in the south east of the map extract.

(i) Name the type of vegetation on the edges of the lake.

..... [1]

(ii) State one way in which the lake is used.

..... [1]

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[Turn over

(g) Fig. 1.4 is a cross section along northing 23 from 400230 to 470230.

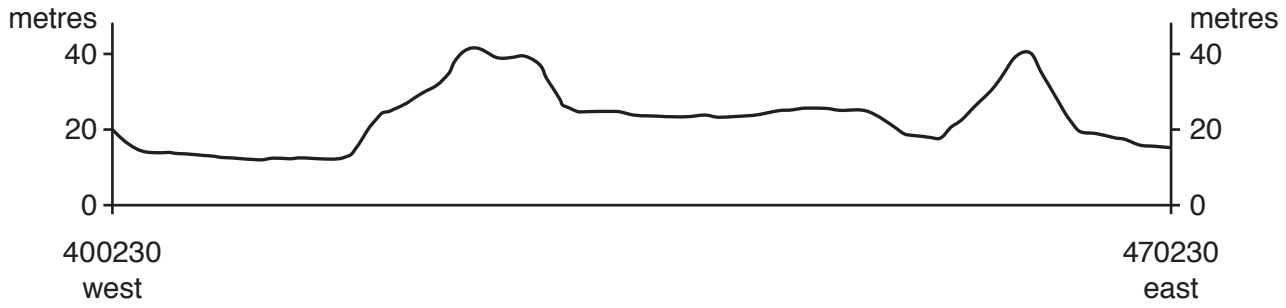

Fig. 1.4

On Fig. 1.4, using labelled arrows, mark the positions of:

(i) a railway (**R**) [1]

(ii) the river Kälan (**K**). [1]

[Total: 20]

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2 Fig. 2.1 (Insert) shows population density in Chile in South America. Fig. 2.2 (Insert) shows some influences on population density.

Use the information on Figs. 2.1 and 2.2 **only** to answer the following questions.

(a) (i) What is the population density of region 6?

..... people per square kilometre [1]

(ii) In which part of Chile is the region with the highest population density?

Circle the correct answer below.

centre east north south west [1]

(iii) Explain why population density is low in region 2.

.....

.....

.....

.....

.....

..... [3]

(iv) Suggest possible difficulties of living in region 8.

.....

.....

.....

..... [2]

(b) State **one** advantage of the position of Santiago as the capital of Chile.

.....

..... [1]

[Total: 8]

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3 Study Figs. 3.1 and 3.2 (Insert), which are photographs showing different methods of coastal protection.

(a) (i) Describe the beach material in Fig. 3.1.

.....

..... [1]

(ii) Describe the evidence in Fig. 3.1 that the wooden structure is reducing longshore drift.

.....

..... [1]

(b) Fig. 3.2 shows two other methods of coastal protection, **F** and **G**.

(i) Describe the structures **F** and **G**.

F .....

.....

G .....

..... [2]

(ii) Explain how structure **G** protects the coast.

.....

.....

.....

..... [2]

(iii) Some people think that the coastal protection methods seen in Fig. 3.2 should not have been built.

Explain why people might be opposed to this coastal protection scheme.

.....

.....

.....

..... [2]

[Total: 8]

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4 Figs. 4.1 and 4.2 (Insert) are photographs and Fig. 4.3, a diagram, showing types of cloud.

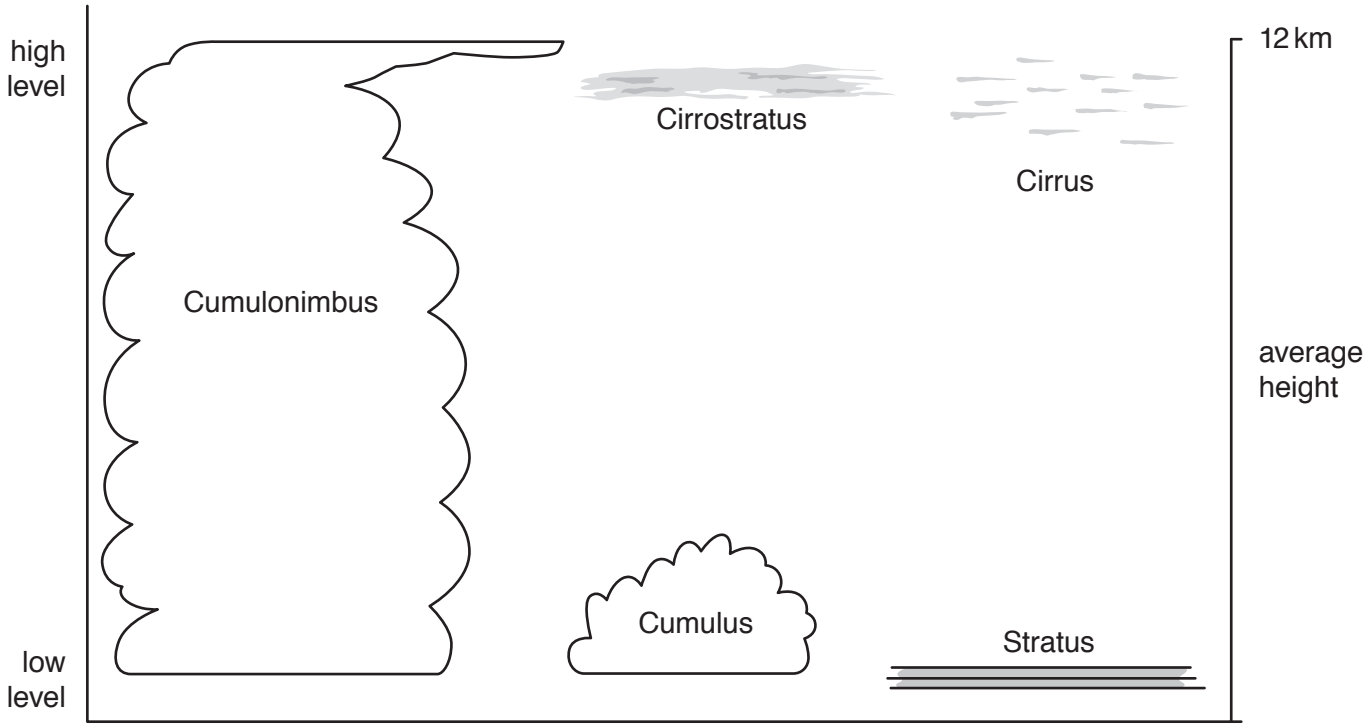

Fig. 4.3

(a) Use Figs. 4.1, 4.2 and 4.3 to **complete the tables** that follow.

Cloud in Fig. 4.1

shape of the cloud	…… …… …… ……
colour of cloud	……
name of cloud type	……

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Cloud in Fig. 4.2

shape of the cloud	…… …… …… ……
main colour of cloud	……
name of cloud type	……

[5]

(b) Estimate the cloud cover on Fig. 4.2.

..... oktas (eighths) [1]

(c) Use Fig. 4.3 to state **one** difference between:

(i) stratus and cirrostratus cloud

.....

..... [1]

(ii) cumulus and cumulonimbus cloud.

.....

..... [1]

[Total: 8]

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[Turn over

5 Fig. 5.1 shows the two stages in the production of aluminium from bauxite.

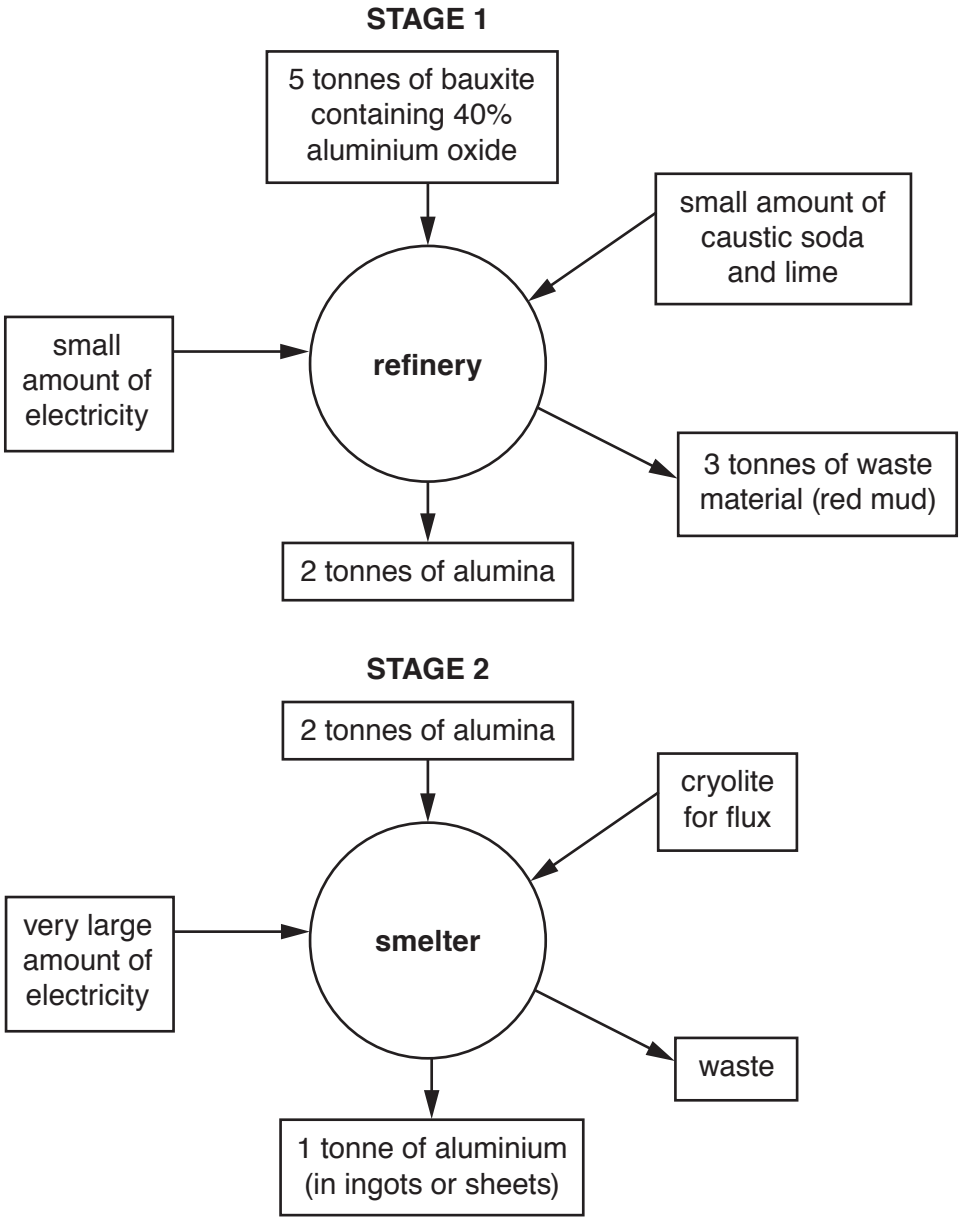

Fig. 5.1

(a) (i) How many tonnes of bauxite are needed to make one tonne of aluminium?

..... tonnes [1]

(ii) Name **one** output of refining bauxite, apart from alumina.

..... [1]

(iii) What is mixed with bauxite in the refinery?

..... [1]

(iv) Which substance on Fig. 5.1 is both an output of the refinery and an input of the smelter?

..... [1]

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(b) Fig. 5.2 shows information about countries producing aluminium and mining bauxite for 2014.

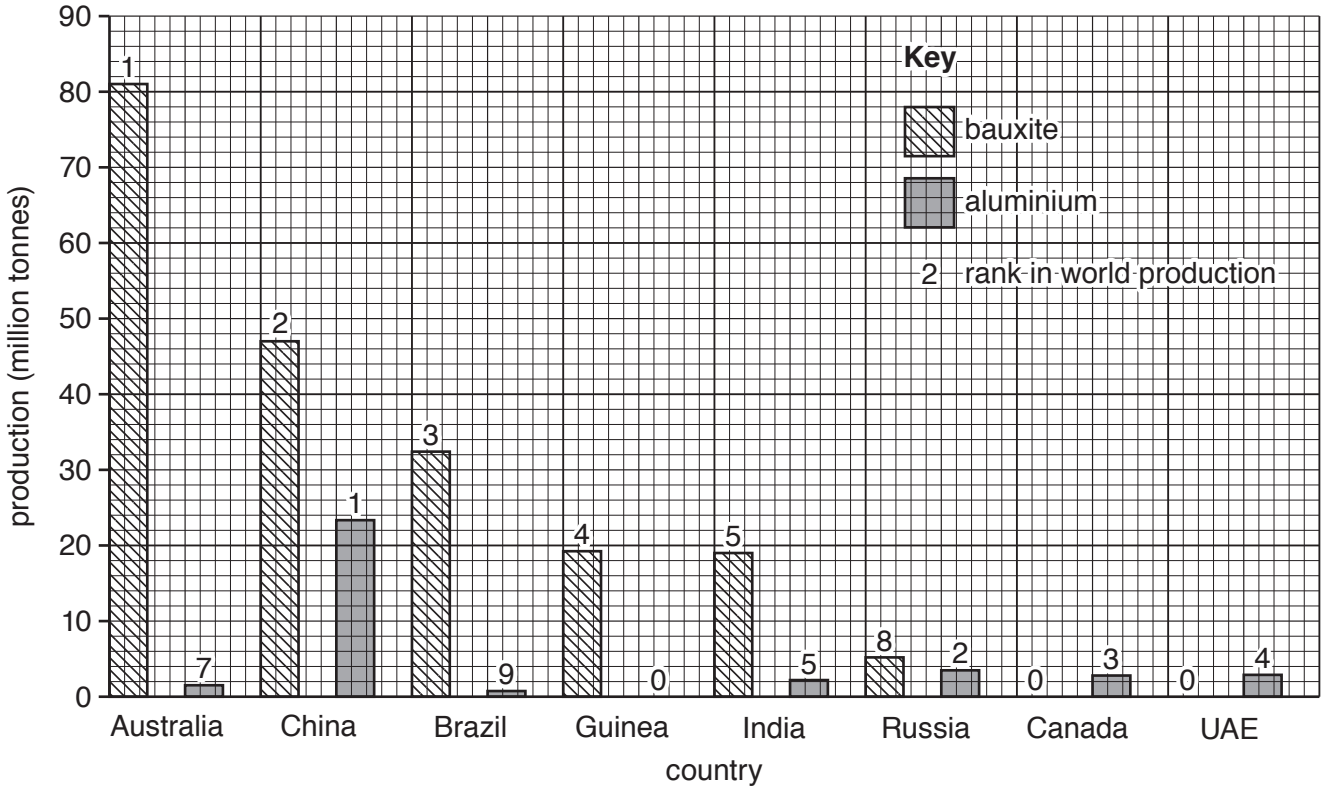

Fig. 5.2

(i) Name the country with the same ranks for bauxite mining and aluminium production.

..... [1]

(ii) State the quantity of bauxite mined in Guinea in 2014.

..... [1]

(iii) Suggest **one** reason why Guinea, an LEDC, does not manufacture aluminium.

.....

..... [1]

(c) Use Fig. 5.1 to explain why a country with no bauxite deposits usually imports alumina rather than bauxite to manufacture aluminium.

.....

..... [1]

[Total: 8]

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6 Fig. 6.1 shows sources of water used in Egypt. Fig. 6.2 shows part of the River Nile and its main tributary, the Blue Nile, which provides 85% of the river water that reaches Egypt.

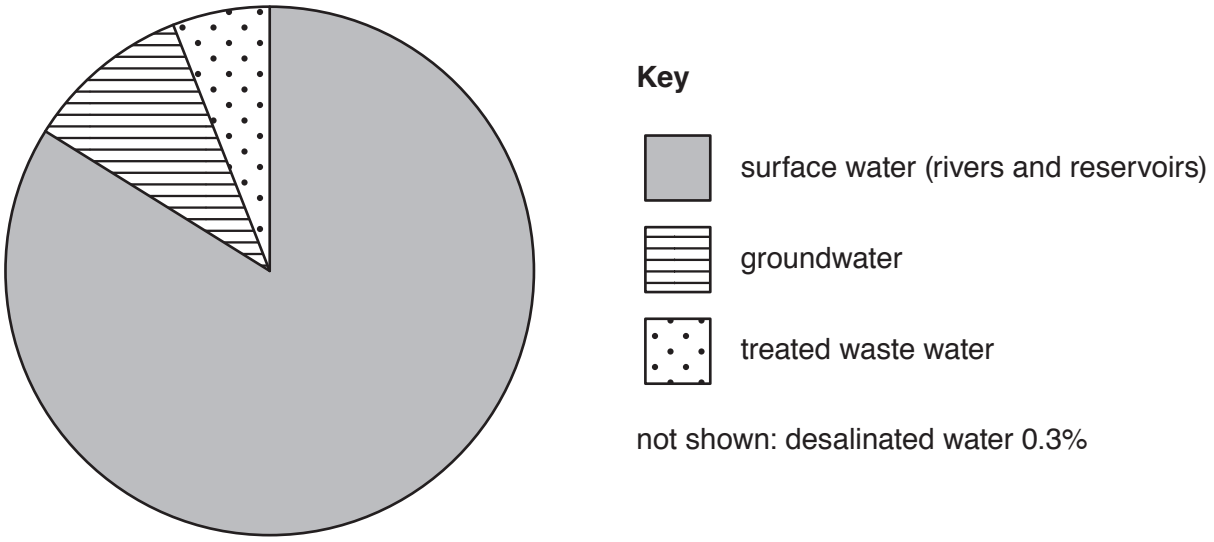

Fig. 6.1

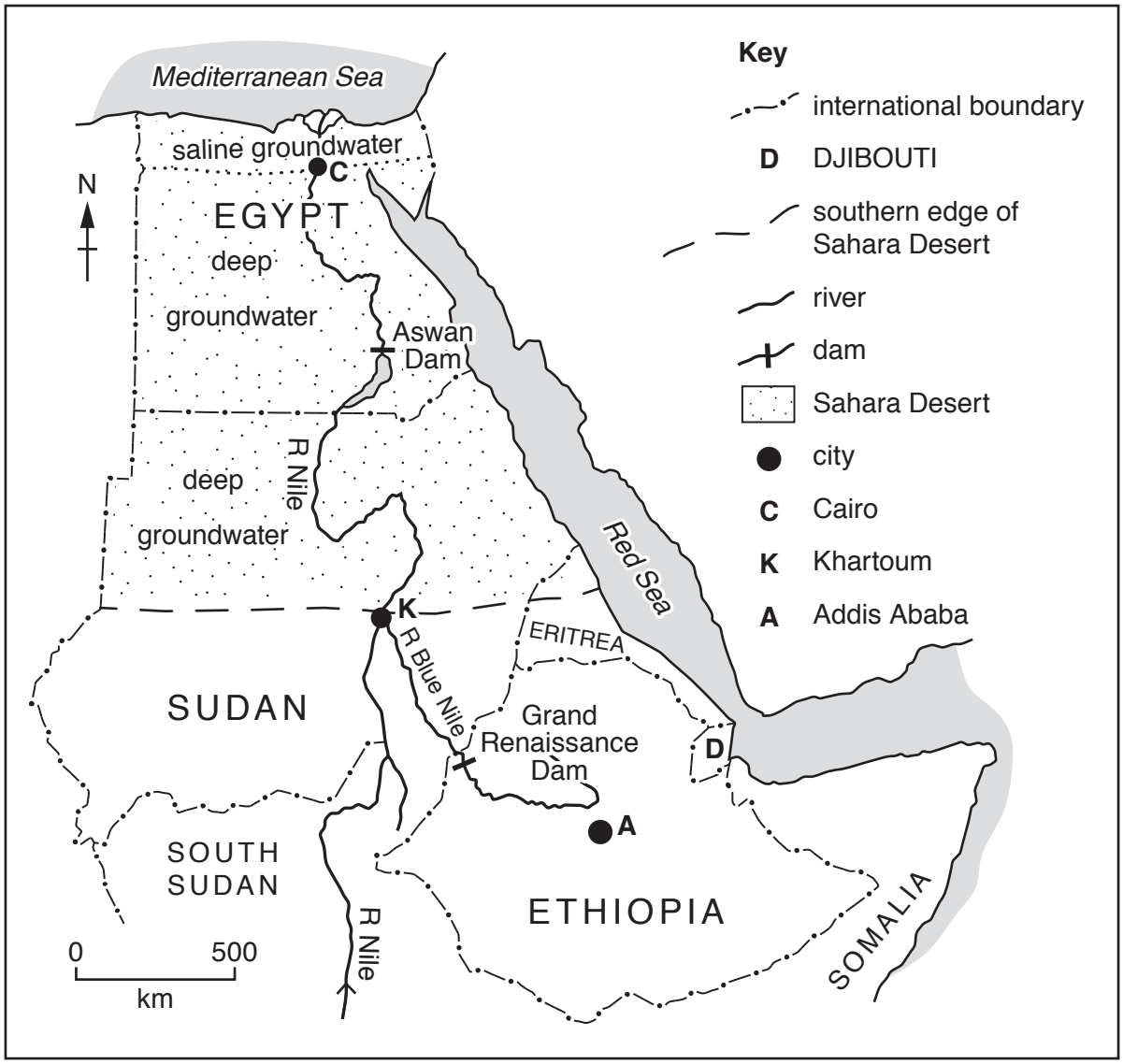

Fig. 6.2

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Use Figs. 6.1 and 6.2 to answer the following questions.

(a) (i) State the percentage of water used in Egypt that is obtained from surface rivers and reservoirs.

..... [1]

(ii) Give **two** problems for Egypt of relying on groundwater for water to use.

1 .....

.....

2 .....

..... [2]

(iii) Explain how groundwater is obtained.

..... [1]

(iv) Name **one** source which could provide a large quantity of water for desalination in Egypt.

..... [1]

(v) Describe **one** disadvantage for a country of needing to use desalinated water.

..... [1]

(b) The Grand Renaissance Dam was due to be finished in 2017. The Egyptian government protested about Ethiopia's plans to construct it.

Explain why Egyptians would be opposed to the new dam being built.

.....

.....

.....

..... [2]

[Total: 8]

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CENTRE NUMBER

CANDIDATE NUMBER

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GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

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Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2, 1.3, 1.4 and 1.7 and Tables 1.1, 1.2 and 1.3 for Question 1, and Fig. 2.1 and Tables 2.1 and 2.2 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

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Cambridge Assessment International Education

[Turn over

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1 A class of students investigated a local high technology industrial area. They wanted to find out about the companies located there.

(a) The high technology industrial area is shown in Figs. 1.1 and 1.2 (Insert). The photograph in Fig. 1.1 shows the area in 2006 and the map in Fig. 1.2 shows it in 2016.

(i) Identify **two** buildings **in different areas** which have been constructed since 2006.

Building number .....

Building number ..... [2]

(ii) What is the number of the building labelled **X** on Fig. 1.1?

Building number ..... [1]

(iii) Figs. 1.3 and 1.4 (Insert) are photographs which show views of this industrial area. Describe **three** features of the industrial area shown in Figs. 1.3 and 1.4.

1 .....

.....

2 .....

.....

3 .....

..... [3]

The students identified the following hypotheses:

Hypothesis 1: *The sectors (types) of high technology industry in the area changed between 2006 and 2016.*

Hypothesis 2: *High technology companies employ a highly skilled workforce.*

(b) To investigate **Hypothesis 1** the students did a survey of the companies which occupied some of the buildings shown in Fig. 1.2 (Insert). They wanted to find out what sector of high technology industry the companies were involved in.

(i) Companies involved in the bio-medical sector are shaded on Fig. 1.2. Describe the distribution of these companies.

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..... [2]

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(ii) Explain why high technology companies are usually located near to other similar companies.

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..... [3]

(iii) Table 1.1 (Insert) shows the percentage of companies in each industrial sector. Use these results **to complete Fig. 1.5 below**. [2]

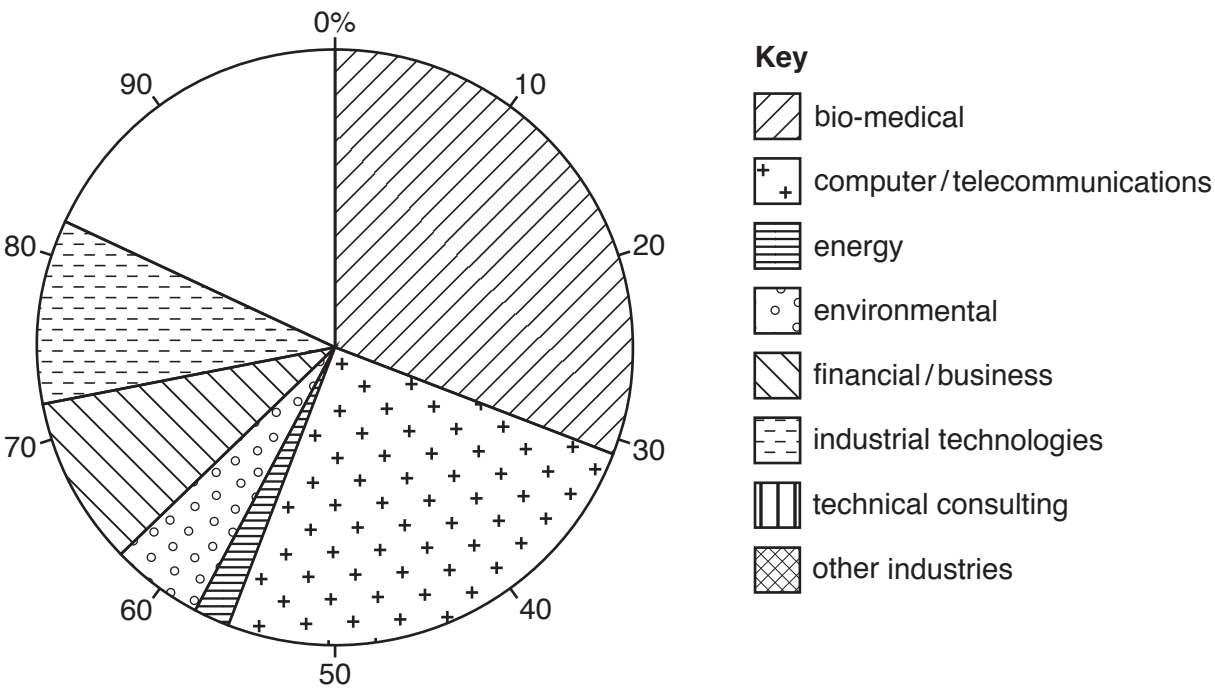

Fig. 1.5

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(c) To test **Hypothesis 1:** *The sectors (types) of high technology industry in the area changed between 2006 and 2016*, the students compared the results of their survey with those of a similar survey done 10 years earlier. The results of both surveys are shown in Table 1.2 (Insert).

(i) The students used the data in Table 1.2 to draw the graph, Fig. 1.6, below.
Complete the graph to show the changes in the number of bio-medical and computer/telecommunications companies. [2]

Changes in the number of companies in the high technology industrial sectors

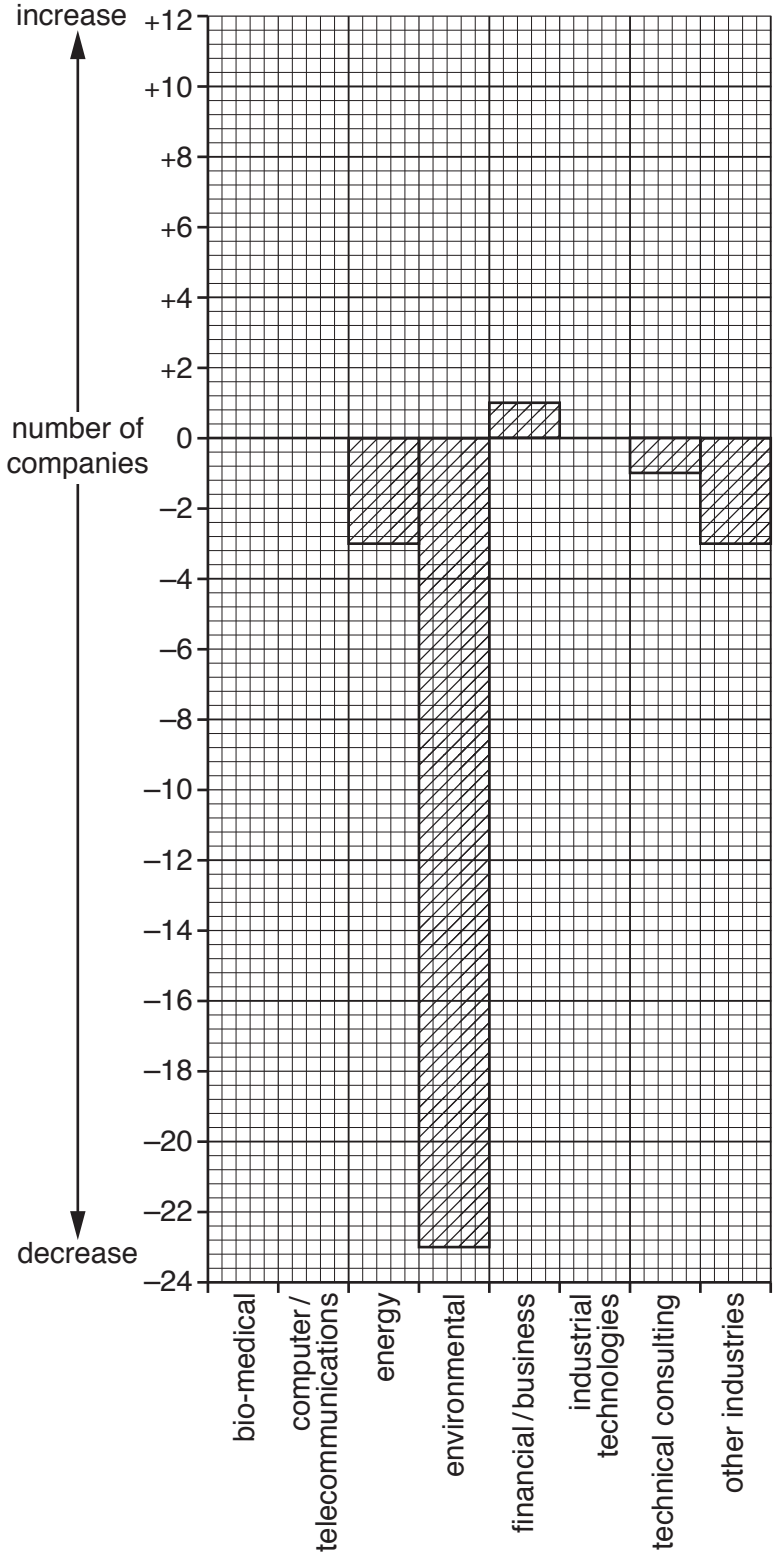

Fig. 1.6

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(ii) What conclusion would the students make about **Hypothesis 1:** *The sectors (types) of high technology industry in the area changed between 2006 and 2016*? Support your decision with evidence from Fig. 1.6 and Table 1.2.

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..... [4]

(iii) Companies in the 'other industries' sector shown in Table 1.1 include businesses such as a nursery (childcare centre), restaurant, and health club and gym.
Suggest **two** advantages for these companies of a location in this industrial area.

1 .....

.....

2 .....

..... [2]

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(d) To investigate **Hypothesis 2:** *High technology companies employ a highly skilled workforce*, the students used a questionnaire with 50 employees from different high technology companies. Their questionnaire is shown in Fig. 1.7 (Insert).

(i) The results of Question 1 (Which **one** of the following is your highest academic qualification?) are shown in Table 1.3 (Insert).

Use the results **to complete Fig. 1.8** below. [2]

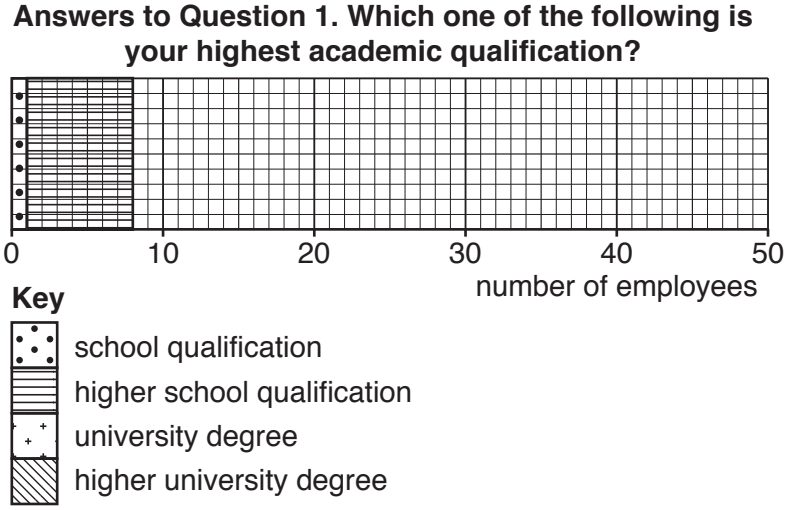

Fig. 1.8

(ii) The answers to Question 2 (Do you think your job is highly skilled?) are shown in Table 1.3 (Insert). The reasons these people gave to answer Question 3 (Why do you think your job is highly skilled?) are also shown in Table 1.3.

The students decided that **Hypothesis 2:** *High technology companies employ a highly skilled workforce*, was correct. How do the answers to Questions 1, 2 and 3 support this conclusion?

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..... [3]

(iii) Suggest **two** benefits which employees would give in answering Question 4 (What are the main benefits which you get from your job?).

1 .....

.....

2 .....

..... [2]

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(e) Which **two** of the following are factors which attract high technology industries to an area? Tick your choices in the table below.

Location factor	Tick (✓)
Air pollution from the buildings will not affect local residents	
Links to universities in the local area	
Large quantities of raw materials nearby	
Near to the main market for the produce	
Road, rail and air transport links make the area accessible	

[2]

[Total: 30]

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2 Geography students from Bantry in south west Ireland did a weather investigation. They wanted to see if there was a link between atmospheric pressure and rainfall, and a link between wind direction and temperature.

The students agreed to investigate the following hypotheses:

Hypothesis 1: *Rainfall increases when atmospheric pressure rises.*

Hypothesis 2: *Temperature is affected by the direction from which the wind is blowing.*

(a) (i) The students used a computerised weather station to obtain data every three hours over a period of three days. Give **two** advantages of using electronic recording instruments.

1 .....

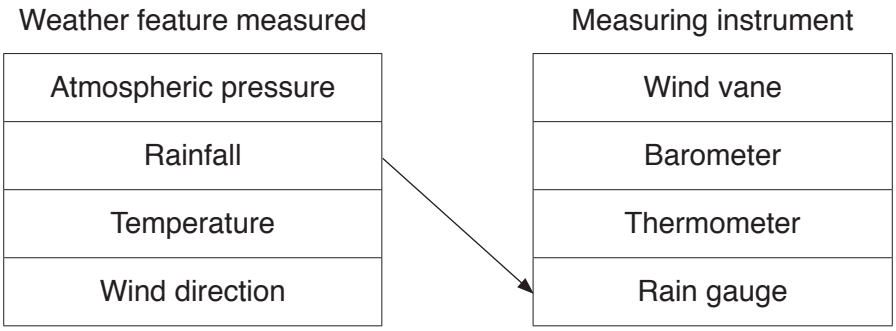
.....

2 .....

.....

[2]

(ii) Their teacher instructed the students to make some measurements using traditional instruments so they would understand how to use them.
Use arrows to match the weather feature with the correct measuring instrument in the table below. One has been completed for you.



[2]

(iii) In the box below draw and label a traditional rain gauge.

[3]

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(iv) Describe and explain a good position to put a rain gauge to make sure that the data collected will be accurate.

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..... [4]

(v) Fig. 2.1 (Insert) shows a weather instrument. How does this instrument measure wind direction?

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.....

..... [2]

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[Turn over

(b) The students' measurements of atmospheric pressure and rainfall are shown in Table 2.1 (Insert).

(i) Use data from Table 2.1 **to draw on Fig. 2.2 below the rainfall bar** for 07.00 on day 2 (measurement number 8). [1]

Atmospheric pressure and rainfall data

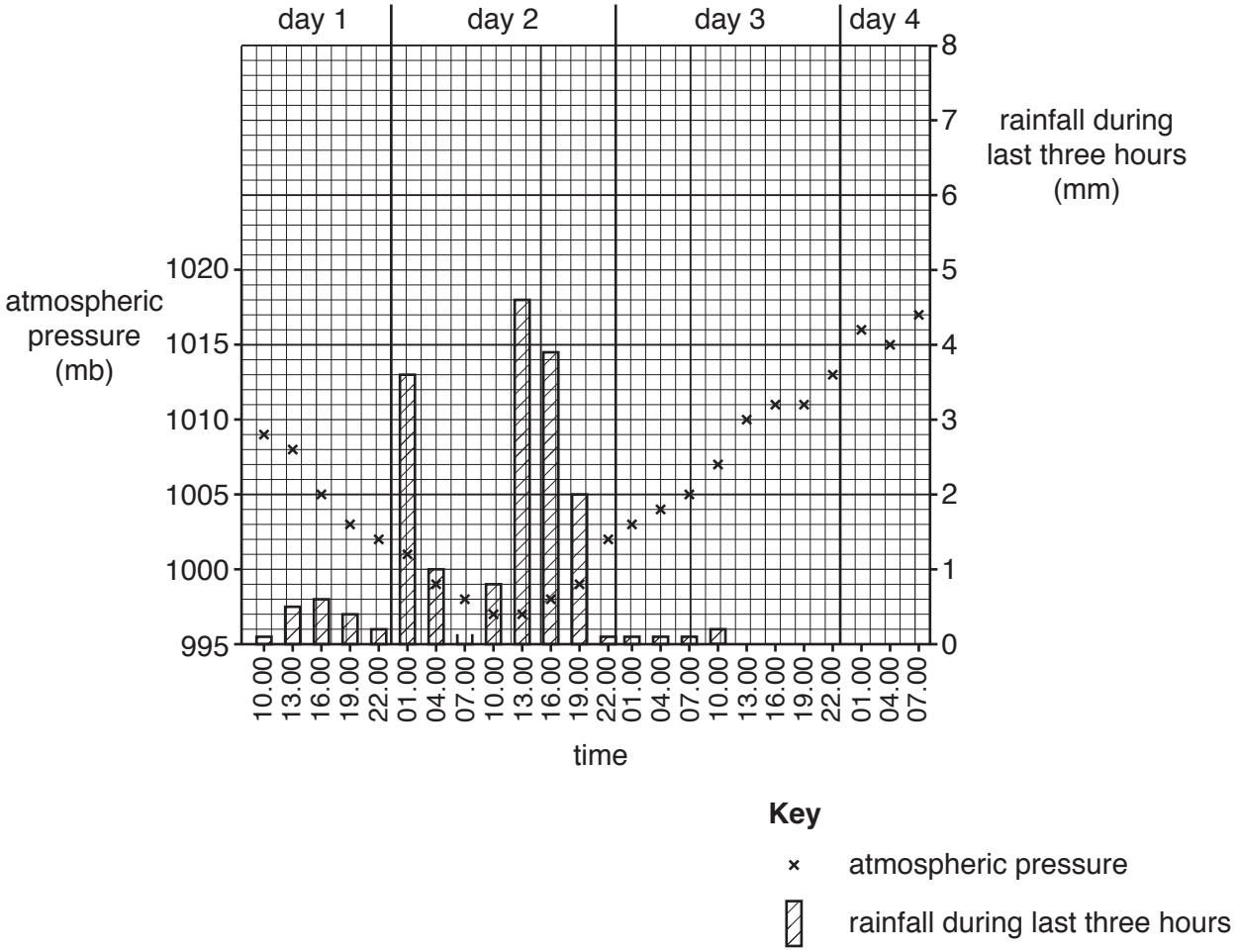

Fig. 2.2

(ii) Complete the table below to show the highest and lowest atmospheric pressure measurements recorded by the students.

Highest atmospheric pressure (mb)	Lowest atmospheric pressure (mb)

[1]

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(iii) Do the measurements shown in Fig. 2.2 and Table 2.1 support **Hypothesis 1:** *Rainfall increases when atmospheric pressure rises*?
Support your decision with data.

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..... [4]

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(c) The students' measurements of wind direction and temperature are shown in Table 2.2 (Insert).

(i) Use data from Table 2.2 **to plot on Fig. 2.3 below the temperatures** when the wind came from the east south east (ESE) direction. [2]

Temperature when wind came from different directions

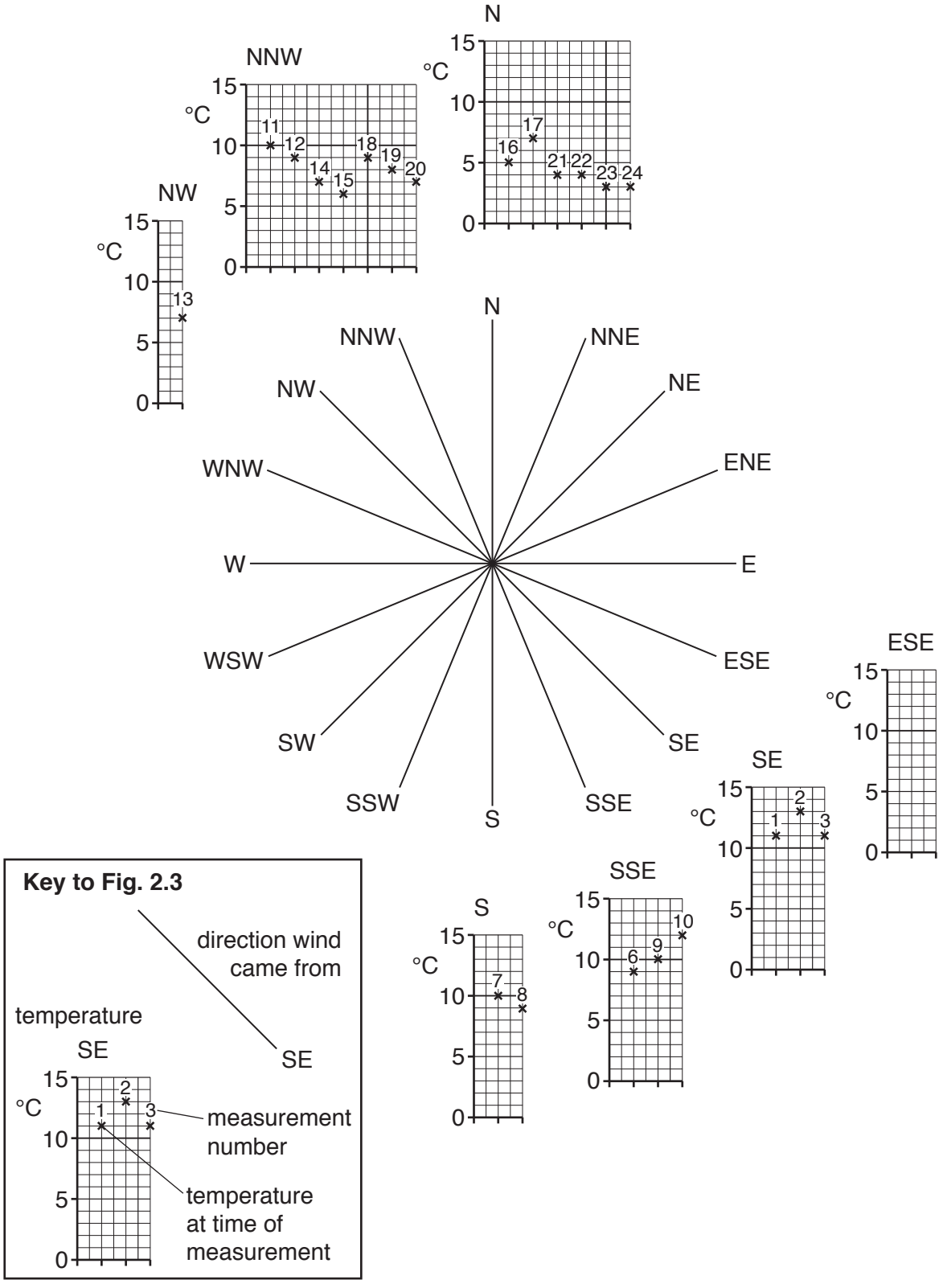

Fig. 2.3

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(ii) From which direction did the wind blow most frequently?

..... [1]

(iii) The students made the conclusion that **Hypothesis 2:** *Temperature is affected by the direction from which the wind is blowing* is true. Support this conclusion with data from Fig. 2.3 and Table 2.2.

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..... [3]

(d) Give **one** other weather element which the students could have measured to extend their fieldwork. (Do **not** write about temperature, rainfall, atmospheric pressure or wind direction.)

(i) Weather element ..... [1]

(ii) Describe how the students could collect data about the weather element named in **(i)** above.

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..... [4]

[Total: 30]

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CANDIDATE NAME

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GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

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The Insert is **not** required by the Examiner.
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1 A class of students did fieldwork in their town. They wanted to find out where the boundary of the CBD was located. They had learned in class that this is known as 'delimiting' the CBD. They discussed with their teacher several fieldwork methods they could use to delimit the CBD. One group of students also investigated the quality of shops in and around the CBD.

(a) What does CBD stand for?

C ..... B ..... D ..... [1]

The students decided to test the following hypotheses.

Hypothesis 1: *Different methods of delimiting the CBD produce the same result.*

Hypothesis 2: *The shopping environment in and around the CBD varies.*

(b) The students used the following methods to test **Hypothesis 1**:

- pedestrian counts
- survey of building heights
- survey of traffic restrictions (controls)

(i) The students did pedestrian counts at 30 sites around the town centre.
In the space below, draw a recording sheet the students could have used at each site.

[3]

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(ii) Describe an appropriate method to ensure the students obtained reliable results from the pedestrian count.

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..... [4]

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The results of the pedestrian count are shown in Fig. 1.1 below. Isolines have been drawn on the map to show the variation in the number of pedestrians.

(iii) On Fig. 1.1, **complete the isoline** that shows 200 pedestrians. [2]

Results of pedestrian count

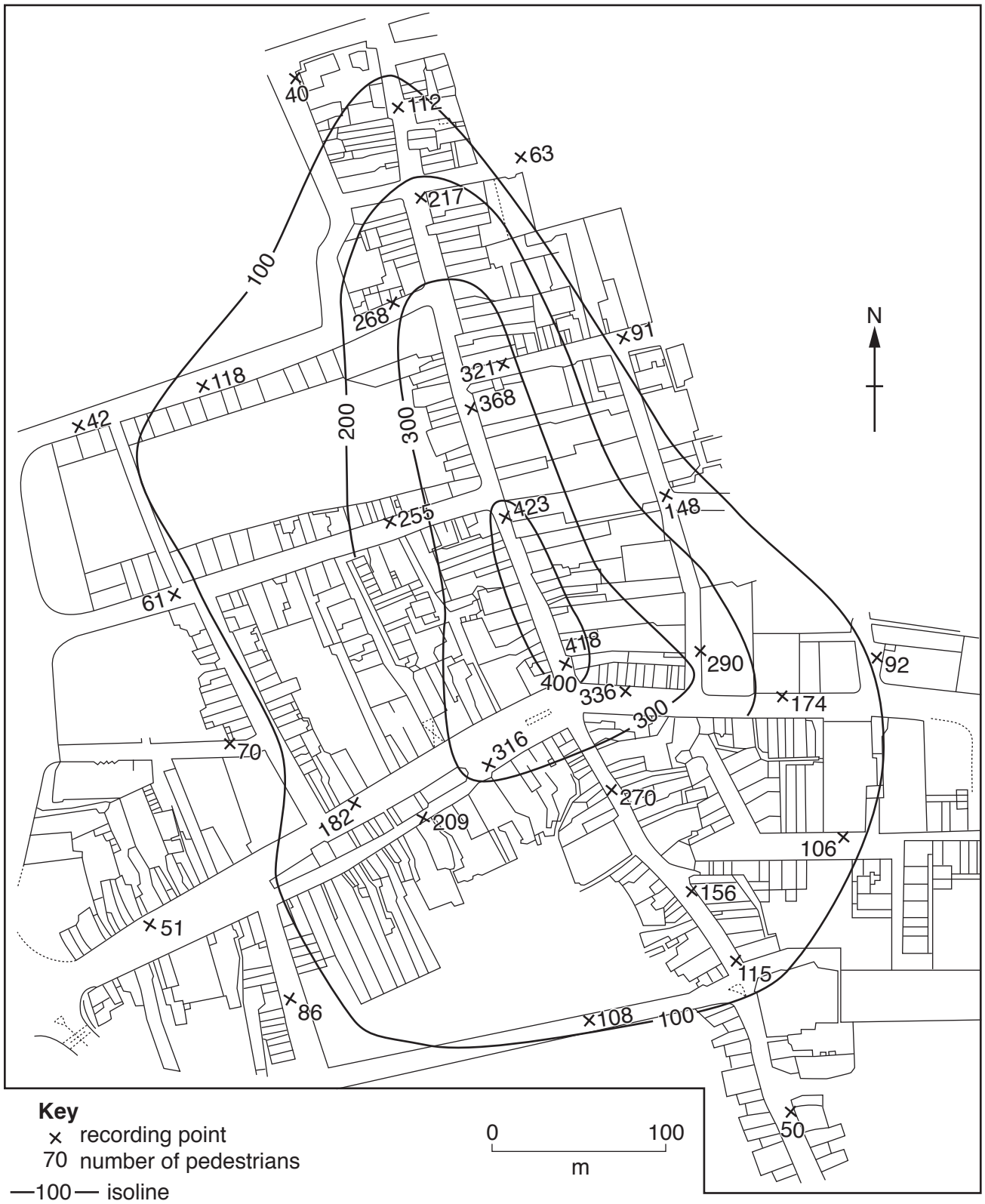

Fig. 1.1

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(c) To collect data about the height of buildings the students selected five buildings at each of the pedestrian count sites. They then counted the number of storeys of each building and calculated an average.
Give **one** advantage and **one** disadvantage of this method of working out the height of buildings.

Advantage

.....

.....

Disadvantage

.....

..... [2]

(d) The students marked on a map of the town two examples of traffic restrictions (controls) which they saw. These were a pedestrianised area and an area where there was restricted vehicle access. Give **three** other examples of traffic restrictions they could have recorded.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(e) Having completed their data collection for **Hypothesis 1** the students decided to use the following criteria to delimit the area of the CBD:

- more than 300 pedestrians
- buildings which are 3 or more storeys high
- any traffic restrictions

Using these criteria, the students located possible boundaries of the CBD. These are shown on Fig. 1.2 (Insert).
The students decided that **Hypothesis 1:** *Different methods of delimiting the CBD produce the same result*, was **false**.
Give **two** pieces of evidence from Fig. 1.2 (Insert) to support this decision.

1 .....

.....

2 .....

..... [2]

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(f) Another group of students chose a different fieldwork method to delimit the CBD. They drew a land use map of the town centre and using this map they decided where the boundary of the CBD was.
Describe how they would carry out these tasks.

.....

.....

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.....

..... [3]

(g) To investigate **Hypothesis 2:** *The shopping environment in and around the CBD varies*, the students did a survey using the shopping environment index shown in Fig. 1.3 (Insert).

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(i) The results of the survey are shown in Table 1.1 (Insert). **Draw the bar** to show the shopping index score at site 12 in Fig. 1.4 below. [1]

Results of shopping environment survey

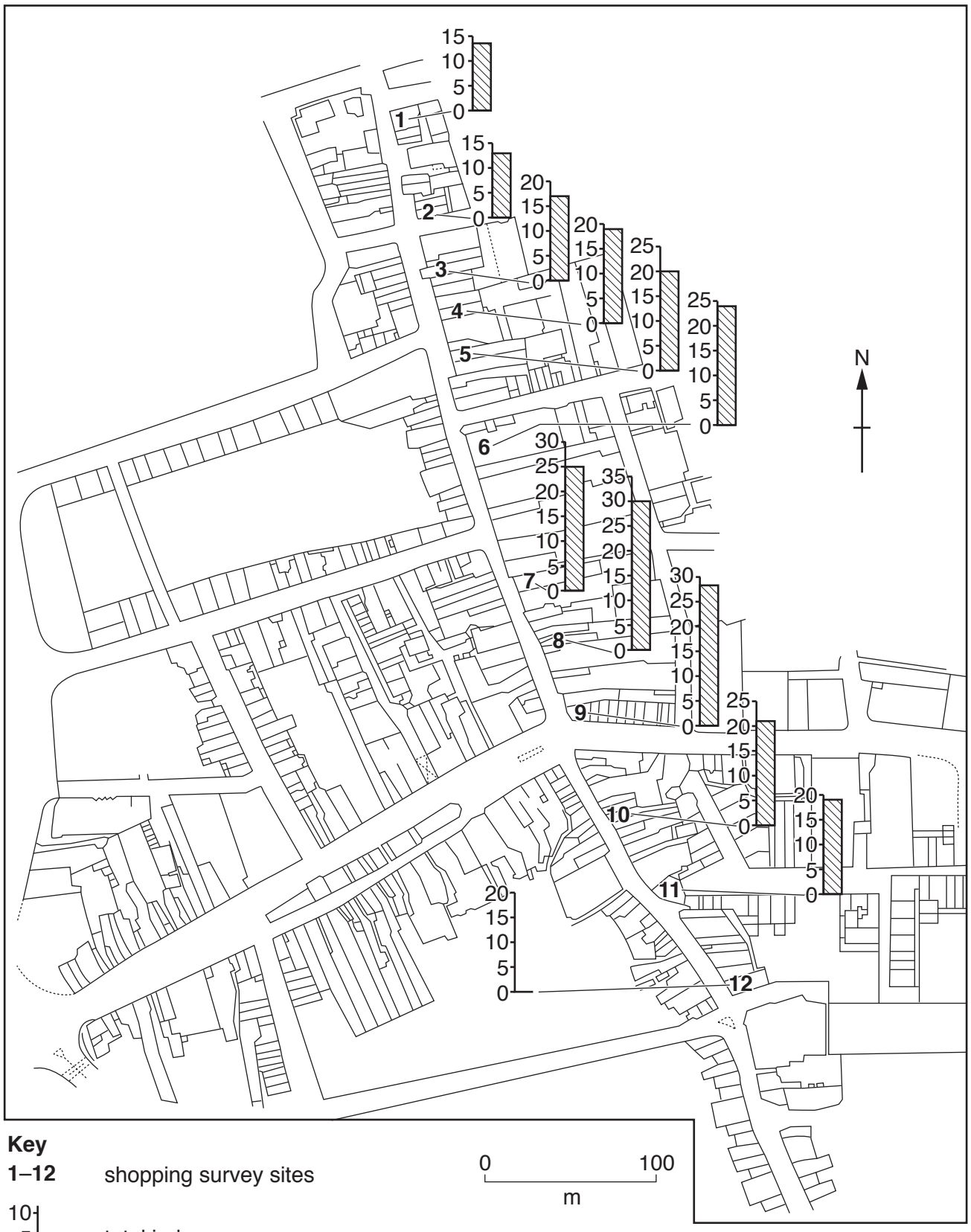

Fig. 1.4

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[Turn over

(ii) What conclusion would the students make about **Hypothesis 2:** *The shopping environment in and around the CBD varies*? Support your decision with evidence from Fig. 1.4 and Table 1.1 (Insert).

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.....[4]

(iii) Suggest **two** ways that the students could have improved the reliability of their shopping environment survey.

1 .....

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2 .....

..... [2]

(h) After they completed their fieldwork the students discussed with their teacher how the CBD of a town changes over time. Suggest **three** ways that a CBD might change.

1 .....

.....

2 .....

.....

3 .....

..... [3]

[Total: 30]

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2 Students carried out fieldwork at a popular tourist beach in south east England. The cliffs behind the beach are being eroded by the sea, especially where they are unprotected. The area is shown in Fig. 2.1 (Insert).

(a) Before they began their fieldwork, the students assessed the possible hazards they may come across and how to manage them. Their decisions are shown in Table 2.1 below.

Table 2.1

Risk assessment

Hazard	Likelihood	Severity	Risk	Management
Slipping, tripping or falling	4	2	8	Wear suitable footwear and avoid slippery surfaces
Cliff collapse	2	5	10	
Drowning in the sea	1	5	5	Beware of sea currents and do not go into the sea when it is rough
Hypothermia from getting cold and wet	4	3	12	
Sharp pebbles or objects	3	3	9	Be careful when handling objects and do not throw pebbles
Getting lost or isolated	2	3	6	

Likelihood of encountering hazard: 1 (little chance) to 5 (greatest chance)
Severity of hazard: 1 (not likely to be dangerous) to 5 (very dangerous)
Risk = likelihood of encountering hazard □ severity of hazard

(i) Which **one** of the possible hazards did the students think was the greatest risk?

..... [1]

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[Turn over

(ii) Suggest different ways to reduce the risk of each of the following hazards during fieldwork:

Cliff collapse

.....

.....

Hypothermia from getting cold and wet

.....

.....

Getting lost or isolated

.....

..... [3]

(b) The cliffs at **X** shown in Fig. 2.1 are being eroded by the sea at a rate of two metres per year.

(i) Use arrows to match the processes of sea erosion with the correct definitions in the table below. One has been completed for you.

Process	Definition
Attrition	Particles carried by the waves are thrown at the cliffs and erode them
Corrasion (abrasion)	Acids in the sea water dissolve chalk and limestone cliffs
Hydraulic action	Waves trap and compress air in cracks in the cliff which causes the rocks to break apart
Solution (corrosion)	Particles carried by the waves crash against each other and are broken up

[2]

(ii) Explain why erosion is taking place at **X** but not at **Y** (shown in Fig. 2.1).

.....

.....

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..... [3]

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The students tested the following hypotheses through fieldwork at two areas of the coast shown in Fig. 2.1:

Hypothesis 1: *The beach profile is steeper than the wave-cut platform profile.*

Hypothesis 2: *Infiltration is faster on the beach than on the wave-cut platform.*

(c) To investigate **Hypothesis 1**, the students measured the profile of the beach and the profile of the wave-cut platform. Fig. 2.2 (Insert) shows a student doing this task.

(i) Describe how the students would measure the profile.

.....

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.....

.....

..... [4]

(ii) The students used the results to draw the two profiles shown in Fig. 2.3 (Insert).

What conclusion would the students make about **Hypothesis 1:** *The beach profile is steeper than the wave-cut platform profile*? Use evidence from Fig. 2.3 to support your decision.

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.....

..... [3]

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(d) To investigate **Hypothesis 2:** *Infiltration is faster on the beach than on the wave-cut platform*, the students measured the rate at which water infiltrated (soaked into) the ground. Their method is described in Fig. 2.4 (Insert).

(i) The students made their measurements at four points (A–D) along each profile from the sea to the cliff. To make their results reliable they measured infiltration three times at each point. Their results are shown in Table 2.2 (Insert).
On Fig. 2.5 below **plot the results** of measurement 3 at points A and B along the beach profile. [2]

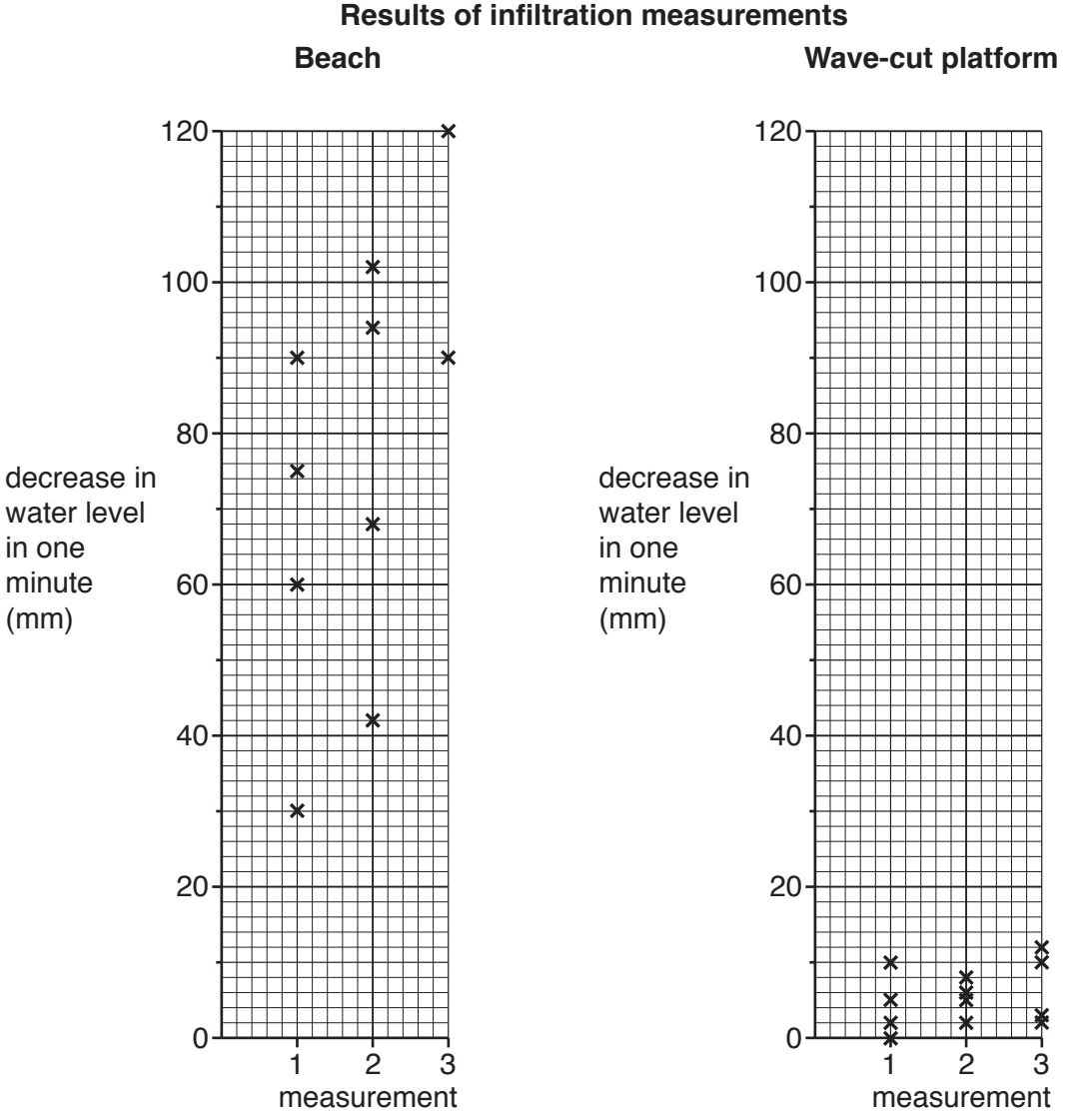

Fig. 2.5

(ii) What conclusion would the students make about **Hypothesis 2:** *Infiltration is faster on the beach than on the wave-cut platform*? Tick your decision below

Conclusion	Tick (✓)
Hypothesis 2 is correct	
Hypothesis 2 is partially correct	
Hypothesis 2 is incorrect	

[1]

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(iii) Use evidence from Fig. 2.5 and Table 2.2 to support your conclusion to **(d)(ii)**.

.....

.....

.....

..... [2]

(iv) Which **one** of the following pairs correctly explains the difference between the infiltration times on the beach and the wave-cut platform? Look at Fig. 2.1 (Insert) to help you to answer.

		Tick (✓) your choice
Groynes prevent longshore drift so sand and shingle build up a beach which water infiltrates through quickly.	The wave-cut platform made of clay is at the surface due to the removal of beach material, and water infiltrates slowly.	
The beach material is clay which slows water infiltration through the wave-cut platform.	The sand and shingle beach material forms a steep slope which increases infiltration.	
The wave-cut platform is uncovered and water quickly infiltrates into the ground.	The beach builds up behind groynes and prevents infiltration.	

[1]

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[Turn over

(e) The students wanted to find out what people thought about coastal protection in the area. They produced a questionnaire which is shown in Fig. 2.6 (Insert).

The results of the questionnaire are shown in Table 2.3 (Insert).

(i) Use the results of Question 4 to **complete the divided bar graph** in Fig. 2.7 below. [2]

Answers to Question 4: Which one of these protection methods would you prefer to be used?

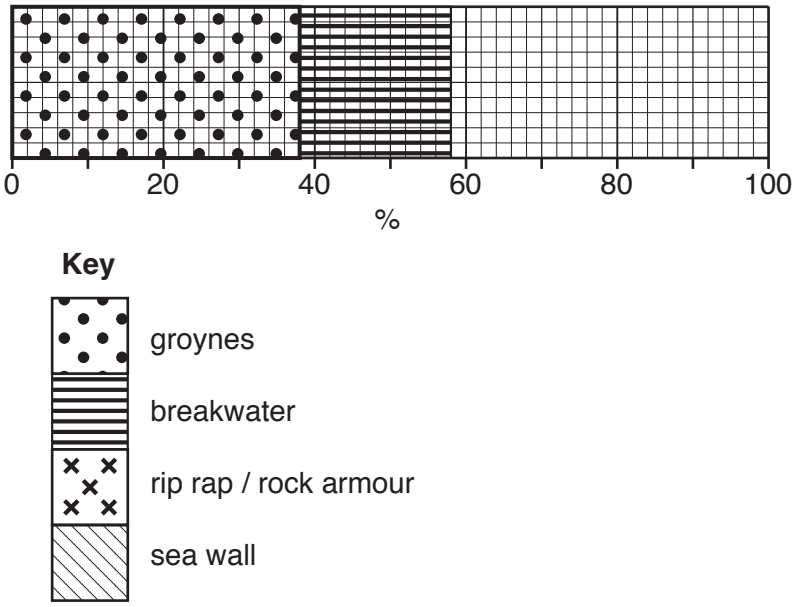

Fig. 2.7

(ii) Use the results of Question 5 to **complete the pie graph** in Fig. 2.8 below. [2]

Answers to Question 5: Who do you think should pay for the protection work?

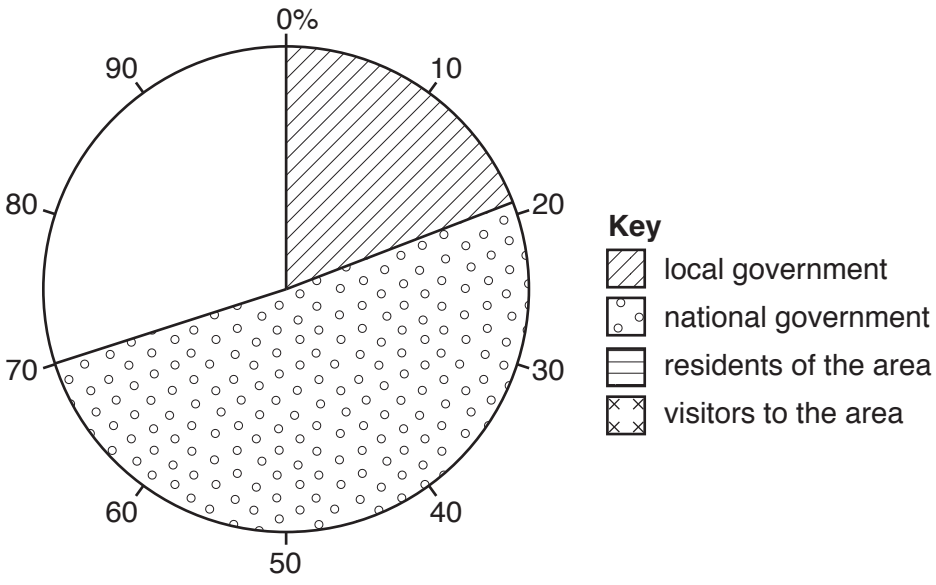

Fig. 2.8

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(iii) Write a report about coastal protection based on what the students found out from their questionnaire.
Refer to the results in Table 2.3 but do **not** copy them out.

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.....[4]

[Total: 30]

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Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

4340745422

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **October/November 2019**

1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials: Calculator
Protractor
Ruler

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Write your answer to each question in the space provided.
If additional space is required, you should use the lined pages at the end of the booklet. The question number(s) must be clearly shown.

Answer **all** questions.

The Insert contains Figs. 1.1, 1.2, 1.3 and 1.5 and Tables 1.1 and 1.2 for Question 1, and Figs. 2.1, 2.2 and 2.5 and Tables 2.2 and 2.3 for Question 2.
The Insert is **not** required by the Examiner.
Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages, **1** blank page and **1** Insert.

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Cambridge Assessment International Education

[Turn over

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1 Students from Brazil who lived near Tijuca National Park did some fieldwork to study the tropical rainforest ecosystem. They visited three sites which are described and located in Fig. 1.1 (Insert).

(a) The vegetation in the tropical rainforest adapts to the climate. Use arrows to match the vegetation feature with the reason for its adaptation. One has been completed for you.

Feature of the vegetation	Reason for adaptation
Drip-tip leaves	to compete for sunlight
Tall trees	to make the tree more stable
Large leaves	to remove heavy rainfall
Buttress roots	to allow more transpiration

[2]

The students decided to investigate the effect of vegetation cover at the three sites. They agreed on the following hypotheses:

Hypothesis 1: *Humidity is greater where there is more vegetation cover.*

Humidity is the amount of water vapour in the air.

Hypothesis 2: *Infiltration is quicker where there is more vegetation cover.*

(b) **(i)** To obtain data the students made each of their measurements five times at each site. Explain why this would make their results more reliable.

.....

.....

.....

..... [2]

(ii) To measure the amount of vegetation cover the students used the piece of equipment shown in Fig. 1.2 (Insert).
What is this piece of equipment called? Tick (✓) your answer below.

	Tick (✓)
barometer	
callipers	
clinometer	
quadrat	
ruler	

[1]

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(iii) To measure humidity the students did a simple test which a student described in his fieldwork notebook, Fig. 1.3 (Insert). Suggest **one** weakness of this test.

.....

..... [1]

(iv) The students also measured the time it took for water to infiltrate (soak into) the ground. Describe a fieldwork method to measure infiltration. Refer to equipment which could be used.

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..... [4]

(c) The results of the students' measurements are shown in Table 1.1 (Insert).

(i) Which site has the highest amount of vegetation cover? **Circle your answer**.

site A site B site C [1]

(ii) One set of measurement results is shown below.

Percentage of vegetation cover = 68
Percentage of bare ground = 32
Humidity measurement = 90 seconds
Infiltration time = 28 seconds

At which site and for which measurement (1–5) were these results recorded?

Site .....

Measurement number ..... [1]

(iii) Use the results in Table 1.1 to calculate the average infiltration time at site B. Show your calculation below.

Answer = ... seconds [2]

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(d) Using their results from Table 1.1 the students plotted the graphs shown in Fig. 1.4 below.

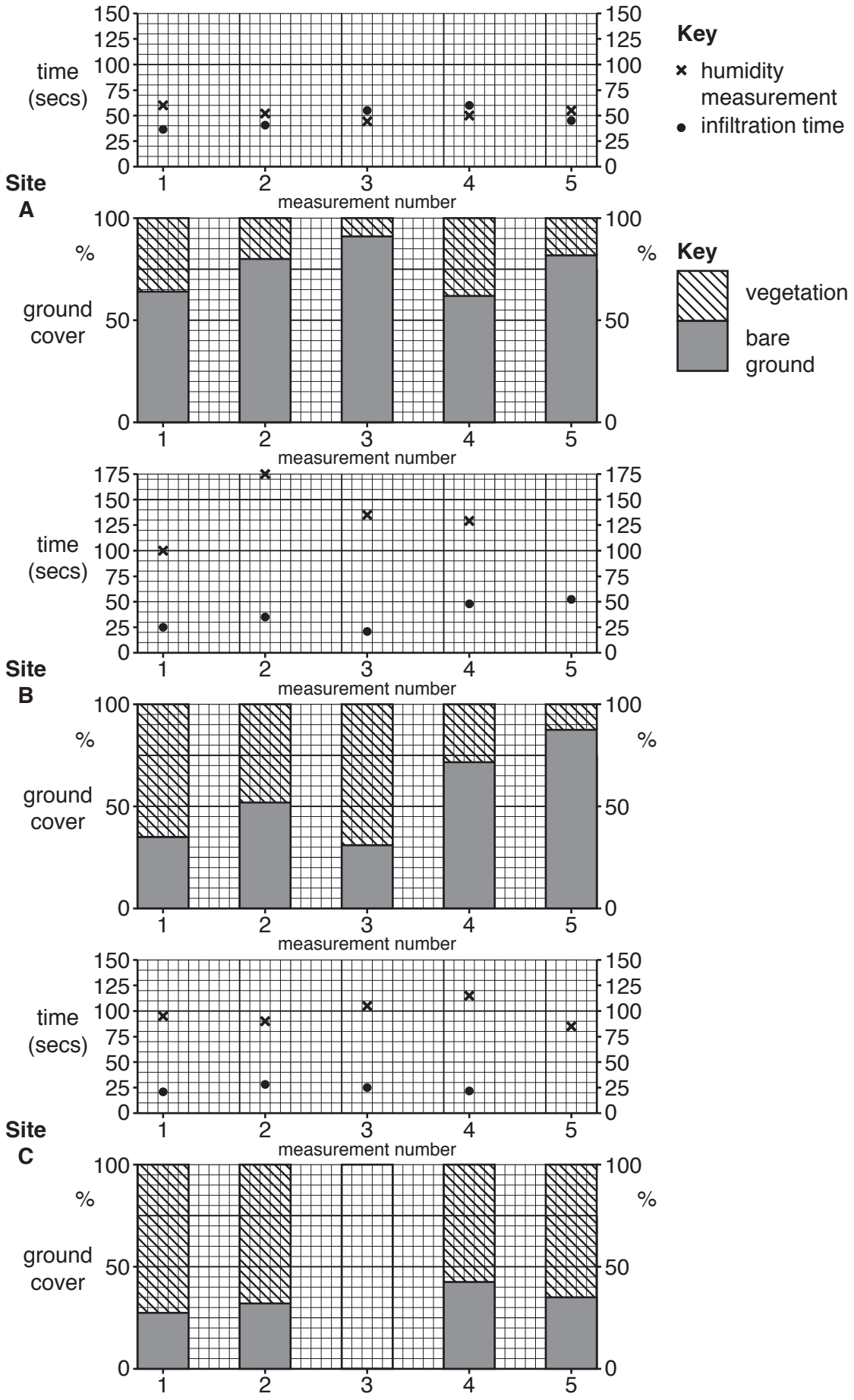

Fig. 1.4

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(i) Use the information in Table 1.1 to **plot the following** on Fig. 1.4:

- the percentage of vegetation cover and the percentage of bare ground in measurement 3 at site **C**
- how long the cobalt chloride paper took to turn pink (humidity measurement) in measurement 5 at site **B**
- the infiltration time in measurement 5 at site **C**. [3]

(ii) Before they made a conclusion to **Hypothesis 1** the teacher reminded the students that the **less** time the paper took to turn pink the greater the humidity of the air.
What conclusion would the students make about **Hypothesis 1:** *Humidity is greater where there is more vegetation cover*? Support your decision with evidence from Fig. 1.4 and Table 1.1.

.....

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..... [4]

(iii) The students decided that **Hypothesis 2:** *Infiltration is quicker where there is more vegetation cover* was **correct**.
What evidence from Fig. 1.4 and Table 1.1 supports their conclusion?

.....

.....

.....

.....

.....

..... [3]

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[Turn over

(e) Suggest why infiltration times are different at sites A and C. Look again at Fig. 1.1 (Insert) to help you to answer.

.....

.....

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.....

..... [3]

(f) Whilst doing their fieldwork the students saw many different plant species in the tropical rainforest. As an extension activity, they returned to their three fieldwork sites and counted the number of different species using the reference sheet shown in Fig. 1.5 (Insert). Their results are shown in Table 1.2 (Insert).

(i) One student wanted to show the number of different plant species seen at each site. Which **one** of the following would be suitable to show the information in Table 1.2? Tick (✓) your choice.

	Tick (✓)
Bar graph	
Flow diagram	
Kite diagram	
Radial graph	
Triangular graph	

[1]

(ii) Suggest **two** reasons why the number and types of plant species vary between the sites. Look again at Fig. 1.1 (Insert) to help you to answer.

1 .....

.....

2 .....

..... [2]

[Total: 30]

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2 Students in Mauritius, an island in the Indian Ocean, were studying tourism. Tourism is an important industry in Mauritius and earns much foreign income.

(a) Fig. 2.1 (Insert) shows the number of international tourists who visited Mauritius between 1995 and 2015.

(i) How many international tourists visited Mauritius in 2005?

..... [1]

(ii) Between which two years was there a decline in the number of international tourists visiting Mauritius?

..... and ..... [1]

(iii) Suggest **four** reasons why the number of international tourists visiting LEDCs, such as Mauritius, has increased in the last 30 years.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

..... [4]

The students decided to investigate why international tourists came to Mauritius and what impact tourists had on people who lived on the island. Their two hypotheses were:

Hypothesis 1: *The physical landscape attracts more tourists to Mauritius than the human landscape.*

Hypothesis 2: *Tourism is a good development for the residents of Mauritius.*

(b) To investigate **Hypothesis 1** the students produced a questionnaire. This is shown in Fig. 2.2 (Insert).

(i) When they showed their questionnaire to their teacher she suggested that before using the questionnaire they should ask:

'Are you a tourist or do you live in Mauritius?'

Why do you think the teacher made this suggestion?

.....

.....

.....

.....[2]

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(ii) The answers to Question 1 (Which continent do you come from?) are shown in Table 2.1 below.

Table 2.1

Answers to Question 1

Continent	Number of tourists
Asia	17
Africa	14
Europe	55
Australasia	2
North America	11
South America	1
Total	100

Using Table 2.1, give **two** conclusions about where tourists came from to visit Mauritius. Do **not** just copy out the statistics.

1 .....

.....

2 .....

..... [2]

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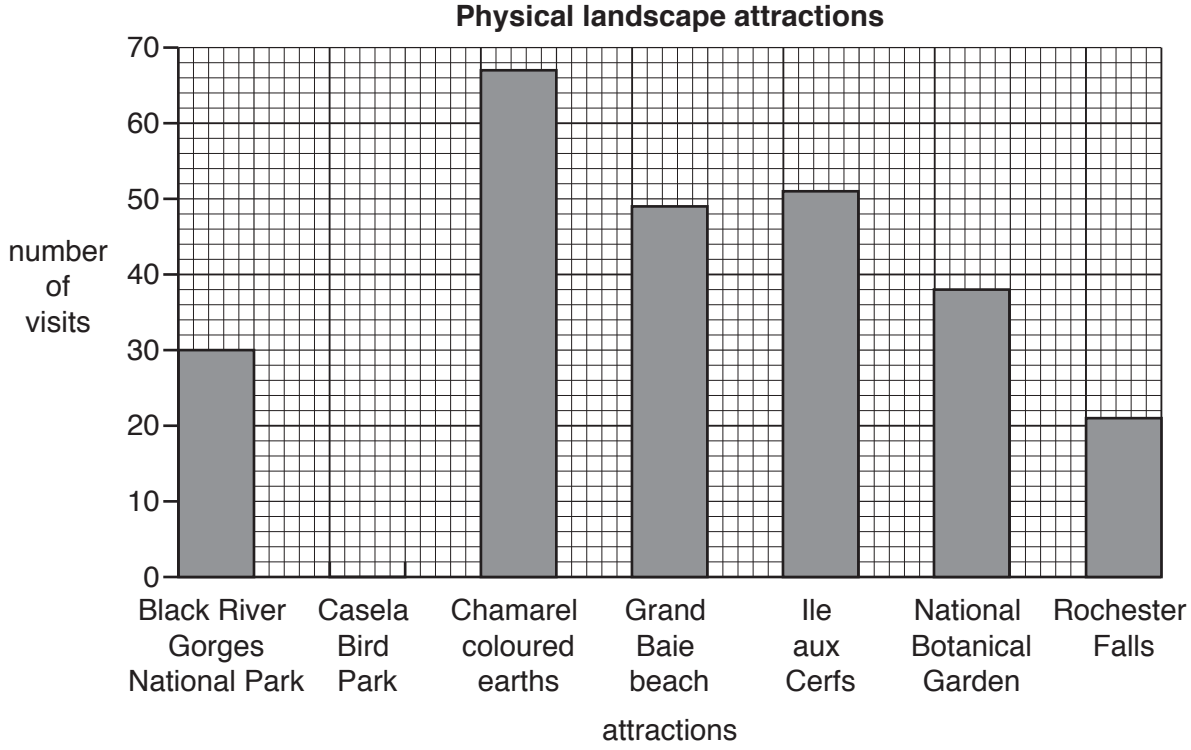
(iii) The answers to Question 2 (Which of the following physical landscape attractions are you visiting in Mauritius?) and Question 3 (Which of the following human landscape attractions are you visiting in Mauritius?) are shown in Table 2.2 (Insert).
Use this data to **complete the bar graphs** in Fig. 2.3 below, to show the number of visits made to the Casela Bird Park and the Grand Bassin temples. [2]



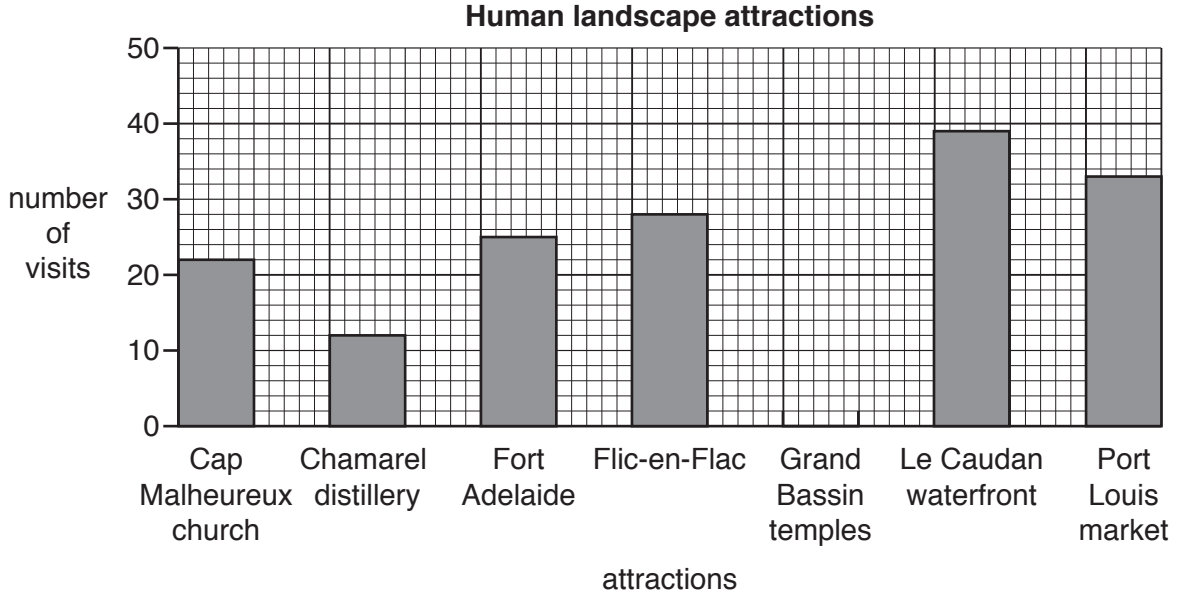


Fig. 2.3

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(iv) **Complete the pie graph and key** in Fig. 2.4 below to show the answers to Question 4 (Overall which attracted you most to Mauritius?).

	Percentage of tourists
Physical landscape attractions	58
Human landscape attractions	42

[2]

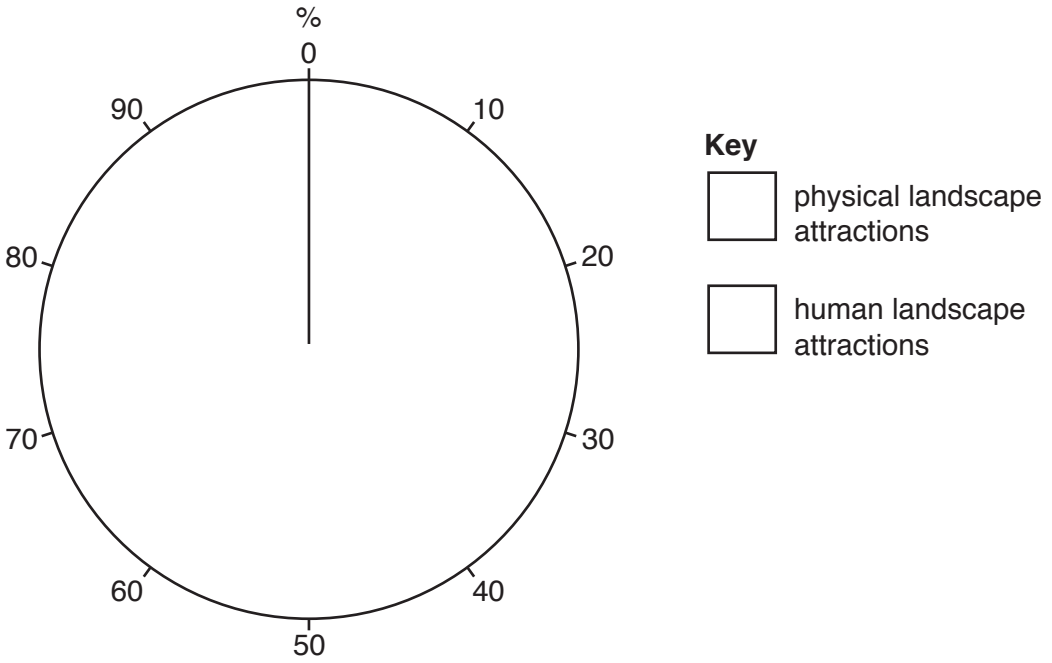

Fig. 2.4

(v) What conclusion would the students make to **Hypothesis 1:** *The physical landscape attracts more tourists to Mauritius than the human landscape*? Support your decision with evidence from Figs. 2.3 and 2.4 and Table 2.2.

.....

.....

.....

.....

.....

.....

.....

..... [4]

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(c) The students used a different questionnaire to investigate **Hypothesis 2:** *Tourism is a good development for the residents of Mauritius*. The questionnaire is shown in Fig. 2.5 (Insert).

Name and describe a sampling method to choose people to complete their questionnaire.

.....

.....

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.....

.....

..... [3]

(d) The answers to Question 2 (Which are the three main benefits of tourism in Mauritius?) and Question 3 (Which are the three main disadvantages of tourism in Mauritius?) are shown in Table 2.3 (Insert).

The students devised this simple index to work out which benefits and disadvantages were most important.

Benefit:	More jobs and income
First choice	39 x 3 = 117
Second choice	25 x 2 = 50
Third choice	11 x 1 = 11
Total index score = 178	

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(i) The students used the results in Table 2.3 to draw the graph in Fig. 2.6 below. **Plot the total index scores** for improved transport and air pollution on Fig. 2.6. [2]

Benefits and disadvantages of tourism for residents

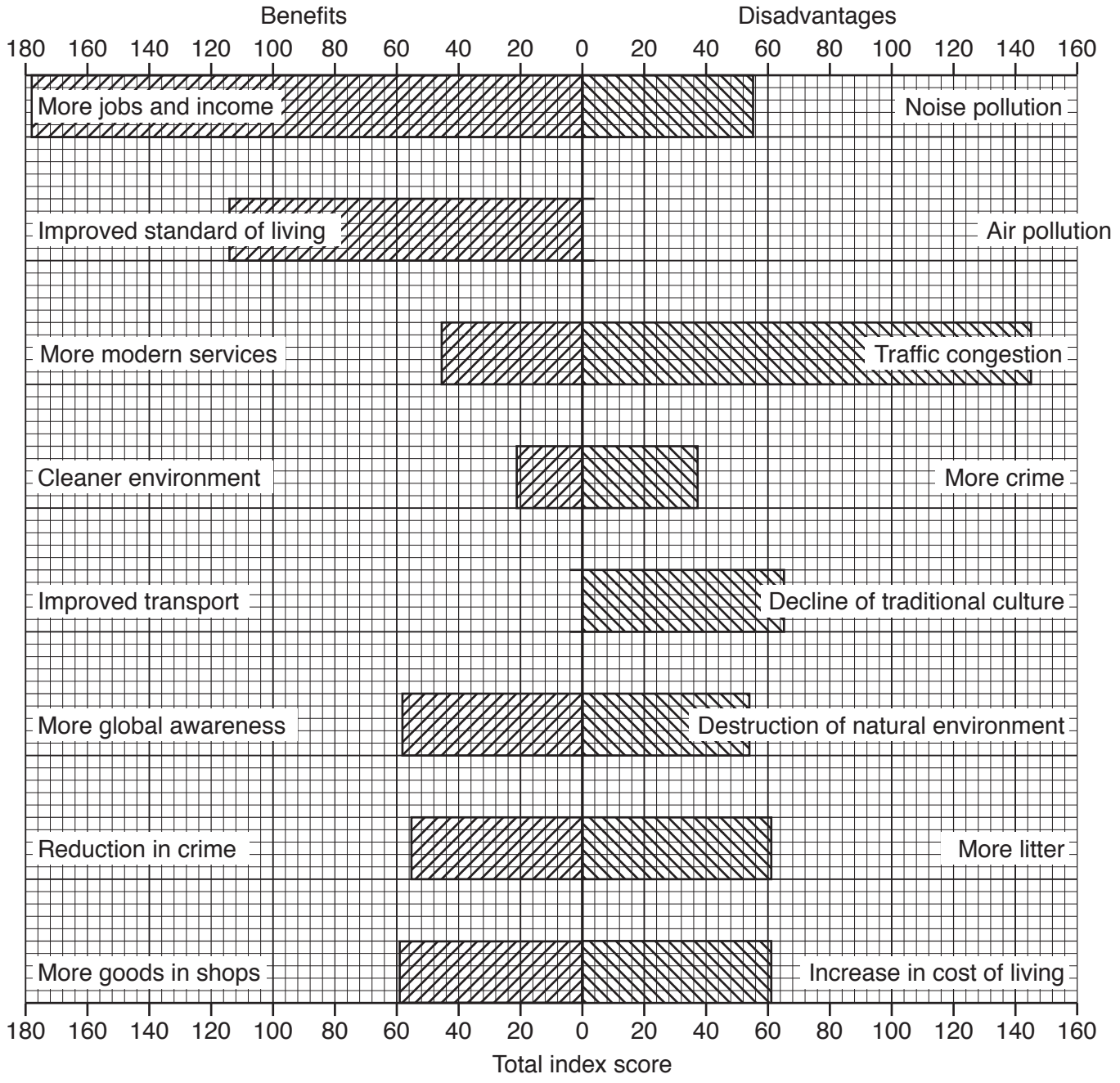

Fig. 2.6

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(ii) Using evidence in Table 2.3 **only**, which **one** of the following statements supports **Hypothesis 2:** *Tourism is a good development for the residents of Mauritius*?

Statement	Tick (✓)
There are more benefits of tourism than disadvantages of tourism.	
The total index score for benefits is greater than the total index score for disadvantages.	
Overall people think the benefits of tourism are greater than the disadvantages.	

[1]

(e) Local people identified traffic congestion as the main disadvantage of tourism in Mauritius.

(i) Suggest why tourism is likely to increase traffic congestion.

.....

.....

.....

..... [2]

(ii) Describe how the students could carry out fieldwork to investigate the impact of traffic congestion in Mauritius.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY **0460/01**

Paper 1 Geographical Themes **For examination from 2020**

MARK SCHEME

Maximum Mark: 75

Specimen

This document has **20** pages. Blank pages are indicated.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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The features of the mark scheme

Each question carries 25 marks. Candidates cannot earn above the maximum marks available within each sub-section.

The marking scheme attempts to give guidance about the requirements of each answer and lists a number of responses, which will earn marks along with the general principles to be applied when marking each question.

It should be noted that candidates can earn marks if their answers are phrased differently, provided they convey the same meaning as those in the mark scheme. THE CANDIDATES DO NOT NEED TO USE THE SAME WORDING TO EARN MARKS.

The notation 'etc.' at the end of an answer in the mark scheme signifies that there may well be other correct responses or examples that can be given credit. Providing the statement is true, relevant to the question asked and not a repetition of a previous point made, credit should be given.

A point made within one sub-section which is an answer to the question set in a different sub-section should not be given credit as each sub-section asks different questions which require independent answers.

The mark scheme uses diagonals to separate alternative answers.

Levels of response marking is used for section **(c)** of each question.

It is the quality of the response that determines which level an answer has achieved rather than the quantity of statements contained within it. However, once assigned to a level, the mark achieved within that level is determined by the number of points made.

Levels 1 and 2 are distinguished by whether statements are simple (level 1) or developed/ elaborated (level 2). A candidate can immediately enter level 2 by making developed points without making any level 1 statements. In order to achieve level 3, a candidate must have already reached the top end of level 2 but his/her answer should include a clear example and place-specific information.

Summary:

Level 3 (7 marks)
3 or more developed statements + named example with at least one piece of place-specific detail.

Level 2 (4 to 6 marks):
1 developed statement (4 marks)
2 developed statements (5 marks)
3 or more developed statements with example (6 marks)

Level 1 (1 to 3 marks):
1 simple statement (1 mark)
2 simple statements (2 marks)
3 simple statements (3 marks)

Level 0 [0 marks]
No creditable response

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Question	Answer	Marks
1(a)(i)	17.2 out of 1000 people die per year or in 2013/1.72% of the population died in 2013. Note: South Africa is not needed. Look for 17.2 as an exact figure.	**1**
1(a)(ii)		**2**
	Vietnam	1
	Kuwait	1
1(a)(iii)	Any three from ideas such as (variations in amount/quality of): health care/hospital/clinics/medicines; number of people per doctor/availability of doctors; food supply/diet/famine/starvation; water supply/quality/drought; sanitation/hygiene; diseases or examples/AIDS or HIV; wars; vaccinations; education about healthcare/disease; care for the elderly/pensions etc.	**3**
1(b)(i)	Steep reduction from 1960 to 2000; levels off after 2000 or Look at the four time periods on the graph and accept any two statements with appropriate dates. steep reduction – Period 1 gentle reduction – Period 2 steep decline – Period 3 levels off – Period 4 1 mark maximum for at least two supporting statistics (e.g. 47 in 1960, 17 in 2000). Can accept a figure for the change with two supporting dates. Note: Reserve 1 mark for statistics. Do not need per 1000. We are not looking for candidates to describe the overall trend (1960–2015).	**3**
1(b)(ii)	Any four from ideas such as: government restricted family size/restricted number of children by the use of two-child limit; people fined/had land taken off them/lost income if they did not follow the policy; contraception/abortions made available or made cheaper; campaigns for people to use contraception/abortions; people concentrating on careers; education of women; education about family planning; later marriages; improvement of infant healthcare/lower IMR; pensions; mechanisation of farms/less agricultural work/more emphasis on secondary and tertiary sector etc.	**4**

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Question	Answer	Marks
1(b)(iii)	Any five from ideas such as: they have fallen below replacement level/population decline/death rates higher than birth rates; shortage of workers/shortage of working class/no one to care for the elderly/ shortage of people to exploit the resources; low level of production/businesses fail; difficult to defend country; ageing population/increase in elderly people/lots of old dependents; lack of innovation; closure of schools/nurseries; need to raise more taxes/fewer tax payers/burden on economically active; need to pay more pensions/provide more care homes/provide healthcare for the elderly; economic decline/reduces the economy/less economically active; need to encourage migration etc.	**5**

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Question	Answer	Marks
1(c)	**Content Guide** Answers are likely to refer to: not enough housing; water and air pollution; shortage of food and water; high crime rates; not enough health care and education; lack of employment; poverty etc. Place-specific reference is likely to consist of: named parts of the chosen country/locational detail; population data/statistics. Note: Development is of the problem not the causes. The focus is on impacts within the country. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. Level 3 [7 marks] Uses named example. Comprehensive and accurate statements including some place-specific reference. Level 2 [4–6 marks] Uses named example. More developed statements which describe the problems caused by over-population. (Note: Maximum 5 marks if no named or inappropriate example) Level 1 [1–3 marks] Statements including limited detail which describe the problems caused by over-population. Level 0 [0 marks] No creditable response.	**7**

Question	Answer	Marks
2(a)(i)	A settlement in the countryside/small settlement/a settlement surrounded by fields/a settlement consisting of only a few houses.	**1**

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Question	Answer	Marks
2(a)(ii)	Any two from ideas such as: both are linear/have developed along a road; both are aligned from north–south; both are small/about 400 metres long/around 13–16 buildings/only a few buildings in them; both have large and small buildings; both surrounded by fields etc.	**2**
2(a)(iii)	Any three from ideas such as: separated by countryside/farmland/woodland/fields; buildings are scattered/separated from each other/in small groups/far apart/spread out; no focus/central part of settlement/no roads meet in the middle; no/few services available; low population density/sparsely populated etc.	**3**
2(a)(iv)	Any four from ideas such as: roads from all directions meet/nodal point/crossroads; flat land; no restrictions to development in any direction; presence of a water source/spring/well/lake; mine/natural resource/quarry; bridging point; defensive site etc. Note: The focus of the question is on nucleation rather than growth.	**4**
2(b)(i)	Any three from ideas such as: increase of built-up area; increase in high-class residential area/high-class residential area moved north and west; small settlements swallowed up by urban sprawl/surrounding settlements (or example) became part of urban area; closure of coal mines; increase in industrial sites/or example; new motorway built/M4 built/more roads etc.	**3**
2(b)(ii)	Any five from ideas such as: coastal site/port; easy import/easy export/transporting products/trade; flat, low land for construction; coal available; fuel smelting/powering of machinery; good roads/motorway; component factory/tin works provided raw materials/components for other industries/steel for component factory; cost of transported raw materials/components was low; abundant/skilled workforce; market; availability of water; lots of space/cheap land etc.	**5**

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Question	Answer	Marks
2(c)	**Content Guide** Answers are likely to refer to: number of services; specific types/examples of services; order of services etc. Place-specific reference is likely to consist of: named settlements; locational details of services; named shops and services etc. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. Level 3 [7 marks] Uses named example. Comprehensive and accurate with some place-specific reference. Note: The example can be a named area of any size. Development is of the description. If the answer focuses on a city rather than an area, then award a maximum of 5 marks. Level 2 [4–6 marks] Uses named example. More developed statements which describe the hierarchy of services. (Note: Maximum 5 marks if no named or inappropriate example) Level 1 [1–3 marks] Statements including limited detail which describe the hierarchy of services. Level 0 [0 marks] No creditable response.	**7**

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Question	Answer	Marks
3(a)(i)	A process involving the load/materials being dropped/dumped left behind by the waves/the build-up of materials on a beach or by the sea.	**1**
3(a)(ii)	Any two from ideas such as: are not powerful/are gentle; have a swash that is stronger than the backwash/strong swash/weak backwash; have a long wavelength; are low in height; reach the shore between six and nine times each minute/low frequency; roll onto the beach/do not crash onto it/spilling; build up beach/deposit material/do not erode.	**2**
3(a)(iii)	Any three from ideas such as: prevailing winds cause waves to approach at an angle to the shore; swash carries loose material up the beach at an angle/in same direction as prevailing wind; backwash takes material back out at 90 degrees/straight back/perpendicular; zigzag motion moves materials along the beach/in the same direction/along the coast.	**3**
3(a)(iv)	Any four features such as: long and thin/elongated; curved/hooked end; attached to land at one end only; stretches partly across estuary/bay/river mouth; made of sand shingle/may be covered by sand dunes/deposited material; low in height/just above sea level; (salt) marsh develops behind spit etc. Note: Award appropriate ideas on a diagram as long as they are labelled.	**4**
3(b)(i)	Any three examples of evidence such as: cliff; undercut/uneven profile/notches/jagged; cave; bay/uneven coastline/headland; areas of (fallen) rock at base of cliff/big boulders at base of cliff or near the cliff/rocks broken off the cliff.	**3**

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Question	Answer	Marks
3(b)(ii)	Any five from ideas such as: rock type; consolidated or unconsolidated rock; hard/strong or soft/weak rock; presence of lines of weakness/joints/bedding planes; whether rocks will be eroded by corrosion or not; wave power/wave type/amount of swash and backwash; presence or absence of coastal defences; distance of fetch; stabilised by vegetation; width of/presence of beach or whether shallow or deep water; shelter; wind strength; wave refraction; impact of other processes e.g. sub-aerial processes etc.	**5**

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Question	Answer	Marks
3(c)	**Content Guide** Answers are likely to refer to: hard engineering – sea walls/groynes/gabions/revetments etc.; soft engineering – beach nourishment etc.; types of rocks. Place-specific reference is likely to consist of: locational details; details of named parts of the area; reference to specific schemes/costs etc. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. Level 3 [7 marks] Uses named example. Comprehensive and accurate statements which explain what is being done to manage the impacts of coastal erosion, including some place-specific reference. Level 2 [4–6 marks] Uses named example. More developed statements which describe or explain what is being done to manage the impacts of coastal erosion. (Note: Maximum 5 marks if no named or an inappropriate example) Level 1 [1–3 marks] Statements including limited detail which describe or explain what is being done to manage the impacts of coastal erosion. Level 0 [0 marks] No creditable response. Note: Accept any type of erosion including human. The amount of money spent on a scheme is not a suitable development for Level 2 but would be fine for place-specific detail.	

Question	Answer	Marks
4(a)(i)	Rainfall	**1**
4(a)(ii)		**2**
	A wet and dry (bulb) thermometer/hygrometer is used to measure humidity.	1
	A wind vane/weather vane/wind cock/windsock is used to measure wind direction.	1

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Question	Answer	Marks
4(a)(iii)	Any three from ideas such as: use a rain gauge/digital rain gauge; collecting jar with funnel/linked to computer; water poured into a measuring cylinder/water is read from jar/measured using a scale; put out in the open/area which is not sheltered by trees/buildings/buried in the ground (maximum one site); take measurements every 24 hours/fixed period/same time of day etc.	**3**
4(a)(iv)	Any four from ideas such as: screen is painted white so that it reflects heat or sunlight/reduces direct heating by the sun/does not absorb sunlight; sides have slats/louvres/have spaces/gaps/not solid so that air can circulate; screen/box is made of wood so that heat is not conducted into it; roof is made of a double layer of wood so that air space maintains a constant temperature; screen stands more than 1 m/raised on legs above the ground so that instruments are not affected by heat from the ground; door opens to the north in the northern hemisphere/to the south in the southern hemisphere to avoid sun's rays. Note: Feature and link is needed.	**4**
4(b)(i)	Any three from ideas such as: hot and dry; temperatures vary from 13 to 33 °C/range of 20 °C; hottest months are June/July/August or coldest months are December/January/February (or one from each) – need two months; rainfall varies from 0 to 18 mm monthly/range of 18 mm; wettest months are December/January/February or driest months are April/May/June (or one from each) – need two months. annual rainfall of approx. 91 mm (accept 80–100 mm); hot and dry in summer and cooler and wetter in winter.	**3**
4(b)(ii)	Any five from ideas such as: overhead sun/high angle of sun/only a small area to heat up/sun's rays are more concentrated; high air pressure; descending air; air heats as it descends; therefore no condensation; little or no surface water; little or no evaporation; little or no transpiration/evapotranspiration; wind direction over large areas of land/trade winds; rain shadow effect; cold ocean currents; distant from sea/landlocked etc.	**5**

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Question	Answer	Marks
4(c)	**Content Guide** Answers are likely to refer to: root systems; spines/thorns, plants remain dormant until rain falls; fleshy stems; waxy leaves etc. Place-specific reference is likely to consist of: locational details; specific named plant types – accept cactus. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. Level 3 [7 marks] Uses named example. Comprehensive and accurate statements, which describe and explain the characteristics of natural vegetation of hot deserts, including some specific reference. Level 2 [4–6 marks] Uses named example. More developed statements which describe and explain the characteristics of natural vegetation of hot deserts. Note: Award a maximum of 5 marks if: no named example is given; an inappropriate example is given; the name of a country is given rather than a desert area. Level 1 [1–3 marks] Statements including limited detail which describe and/or explain the characteristics of natural vegetation of hot deserts. Level 0 [0 marks] No creditable response.	**7**

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Question	Answer	Marks
5(a)(i)	1st – Canada 2nd – Brazil 3rd – China 4th – Sudan	**1**
5(a)(ii)	Ideas such as: generally higher in North America; more variation in South America.	**2**
5(a)(iii)	Any three from ideas such as: it takes into account a variety of factors/uses more than one indicator; life expectancy/education (numbers of years in school) are used to give a better index of development than income alone; easy to carry out statistical comparisons between countries/change over time etc.	**3**
5(a)(iv)	Any four from ideas such as: length of time in which development has been occurring; impacts of colonisation; presence/absence of raw material/resources or examples; development of a specific economic activity such as tourism, mining or manufacturing; accessibility/presence of port/land-locked/transport; government policies; political system/level of corruption; levels of education/skills of workforce; investment/aid from other countries/loans; trade policy/free trade; presence of transnationals; wars/civil unrest; reliance on low-value primary products; over-reliance on one product; AIDS/HIV (not other named diseases) etc.	**4**
5(b)(i)	Ethiopia has the lowest percentage of people who can read and write. (1) Tanzania is likely to have the poorest access to a doctor. (1) Ethiopia has the lowest energy use per person. (1)	**3**

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Question	Answer	Marks
5(b)(ii)	1 mark for South Africa or Egypt. 4 further marks for reasoning such as: South Africa uses the largest amounts of energy; which indicates the presence of industry; so GNP per capita will be higher than in the other countries; literacy is highest; which indicates that the population is well educated; the number of doctors is greater than five of the other countries/high number of doctors; so health care is likely to be good etc. Egypt has the highest life expectancy; which indicates good healthcare/diet etc.; number of doctors is highest; doctors are more available/diseases are more readily treated; third highest energy use/energy use is high: which indicate the presence of industry; so GNP per capita will be higher than in other countries. Note: Candidates need to describe the indicator in order to then go on to access the development mark.	**5**

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Question	Answer	Marks
5(c)	**Content Guide:** <u>Answers could refer to:</u> employment; economic growth; infrastructural development; exploitation; environmental destruction etc. <u>Place-specific reference is likely to consist of:</u> locational details; specific details of transnational; named settlements etc. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. <u>Level 3 [7 marks]</u> Uses named example. Comprehensive and accurate statements, which describe the positive and negative impacts of a transnational corporation, including some place-specific reference. Must have both positive and negative but one can be at Level 1. <u>Level 2 [4–6 marks]</u> Uses named example. More developed statements which describe the positive and/or negative impacts of a transnational corporation. (Note: Maximum 5 marks if no named or inappropriate example) <u>Level 1 [1–3 marks]</u> Statements including limited detail which describe the positive and/or negative impacts of a transnational corporation. <u>Level 0 [0 marks]</u> No creditable response. Note: The focus of the question is advantages and disadvantages for the country and not the transnational corporation.	

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Question	Answer	Marks
6(a)(i)	Something which spoils the beauty of the landscape/an eyesore/pollution that is visible to the eye/pollution that you can see/makes the landscape look unsightly.	**1**
6(a)(ii)	<u>Ideas such as:</u> deforestation/clearance of vegetation; overgrazing; leaving areas of land fallow; ploughing up and down the slope; monoculture/overcultivation.	**2**
6(a)(iii)	Any three from ideas such as: manufacturing: disposal of (toxic) waste by manufacturing industry/dirty or waste water; transport: oil spills from tanker accidents/washing out fuel tanks/fuel spills; power stations: return of hot water to rivers from power stations/radioactive water to sea from nuclear power stations; agriculture: run-off of fertilisers/pesticides from farmland/animal waste or slurry etc. Note: Do not double-credit. Three distinct ideas are needed. Acid rain would be acceptable in any of the three. No mark for the economic activity but candidates must name an economic activity.	**3**
6(a)(iv)	Any four from ideas such as: fumes from burning of fossil fuels or coal; clearance of vegetation; gives off carbon dioxide/greenhouse gases; carbon dioxide cannot be converted to oxygen; methane from grazing/rice paddies; greenhouses gases/carbon dioxide build-up in atmosphere; sun's rays pass through the layer of gases; but are trapped/cannot escape etc.	**4**
6(b)(i)	Any three from ideas such as: uses fewer resources/less demand for resources or example/there are fewer resources wasted; saves resources for the future; can use resources again/make more use; resources last longer; saves energy; waste products become useful. Note: Repeat of the three words is acceptable as long as it is in context.	**3**

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Question	Answer	Marks
6(b)(ii)	Any five from ideas such as: many are non-renewable/will run out/are finite; life in future would not be possible without clean water; life in future would not be possible without clean air; life in future would not be possible without land for cultivation; to protect habitats; conserving the natural environment will ensure ecosystems remain in balance; species do not become extinct/animals do not die; to prevent global warming/acid rain/desertification etc.; creates conflict/civil rest; forests act as carbon sinks. Note: Candidates can develop the global warming, acid rain, desertification etc. line to a maximum of 1 mark.	**5**

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Question	Answer	Marks
6(c)	**Content Guide** Answers are likely to refer to: power stations; fossil fuels; domestic supplies and imports; renewable energy; production methods. Place-specific reference is likely to consist of: locational details; named areas/settlements within the country; statistics etc. **Levels marking** Please ensure that you refer to the marking mechanics section at the front of the mark scheme before marking the level questions. Note: Statistics can be used as development to a maximum of 1 × L2 – 4 marks. This applies to all levels-marked questions. Level 3 [7 marks] Uses named example. Comprehensive and accurate statements which describe how energy is supplied, including some place-specific reference. Level 2 [4–6 marks] Uses named example. More developed statements which describe how energy is supplied. (Note: A maximum of 5 marks can be awarded if no named example or an inappropriate example is given.) Level 1 [1–3 marks] Statements including limited detail which describe how energy is supplied. Level 0 [0 marks] No creditable response. Note: Focus is on supply not uses. Candidates can achieve full marks from one energy source. Development is of the description.	**7**

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GEOGRAPHY **0460/02**

Paper 2 Geographical Skills **For examination from 2020**

MARK SCHEME

Maximum Mark: 60

Specimen

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	R/regional	**1**
1(a)(ii)	county boundary (allow border and country)	**1**
1(a)(iii)	coniferous/plantation	**1**
1(a)(iv)	63 (m) If there is more than one answer and one is wrong, no mark is awarded.	**1**
1(b)(i)	dispersed	**1**
1(c)(i)	366 348 = 2 365 348 = 1	**2**
1(c)(ii)	5050–5300 (m)	**1**
1(d)	Any two reasons, such as: road junction/route centre (many roads lead to; good road connections); river for water or any stated use (allow transport but not fishing); castle for defence; bend in river for defence; gentle slopes (fairly flat etc.); bridge point.	**2**
1(e)	to the south west	**1**
1(f)	Use the ruler device to measure the answers. Arrows should end within about 1 cm of the profile. Measure to the point that the arrow projects to. There should be no ambiguity. If there is more than one response and one is wrong, or if a range is given and part is out of tolerance, then do not credit. Allow labels by names or question numbers.	
1(f)(i)	Anmer river 52–55 mm from left hand margin	**1**
1(f)(ii)	south facing valley side 4–54 mm from left hand margin	**1**
1(f)(iii)	R692 road 21–24 mm from left hand margin	**1**

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Question	Answer	Marks

1(g)	Any six features, such as:
	
	<u>Relief:</u>
	high/hilly/hills/upland/mountain;
	steep slopes/scarp;
	concave slopes;
	narrow/small/V–shaped valley(s);
	many valleys (many small valleys = 2);
	spurs;
	(highest point) 721 m;
	low(er) in north west;
	ridge.
	
	<u>Drainage:</u>
	small rivers/small streams/small tributaries (allow small affluents);
	many rivers/streams/high drainage density (many small rivers = 2, 'several' = 0);
	radial/description of radial/flow outwards from summit/three given directions;
	dendritic located (e.g. in SE/in N/in 3030/in 2932);
	intermittent streams;
	waterfall.
	
	Maximum 4 marks for either relief or drainage.
	Mark whole answer as one.
		6

Question	Answer	Marks
2(a)(i)	completion of bar graph at 6 800 tonnes	**1**
2(a)(ii)	1968 Europe main continent 2013 Asia; (allow by numbers if clear) Asia: 1968 Japan/1 2013 all/5; Europe: 1968 4; 2013 0 (must give numbers).	**2**
2(a)(iii)	growing demand for ships in Asia; industrialisation/economic development in Asia/industrial decline in Europe; depletion of raw materials in Europe; cheaper raw materials in Asia/more expensive in Europe; cheaper labour in Asia/more expensive in Europe; If neither of the last two points given allow 1 mark for 'Asian ships cheaper'.	**2**
2(b)	globalisation; expansion in trade/increased demand for goods/economic development; larger ships/more ships; bulk carriers/tankers; cheaper to transport goods in bulk; cheaper to move goods by sea; improved technology/cost efficiency <u>in shipbuilding</u>; development of cruise ships.	**3**

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Question	Answer	Marks
3(a)	Any six features, such as: tall trees/long trunks; thin trunks/stems/trees; emergents; bare/branchless trunks/leaves at top; straight trunks; palms (allow coconut); banana/plantain; short(er) trees (or plants)/few tall trees/shrubs/bushes/different heights; broad/large leaves; luxuriant/lush; red/brown/yellow/orange leaves/flowers; dense/close together; creepers/lianas/vines; grass in foreground.	**6**
3(b)(i)	drain water from surface of leaf/get rid of excess moisture	**1**
3(b)(ii)	for maximum/much/increased/large area for transpiration/photosynthesis (names of terms needed)	**1**

Question	Answer	Marks
4(a)	correct plot of 50 per thousand at 8–9 mm (almost same as Brong Ahafo). Shading not needed.	**1**
4(b)	Any three features, such as: most/much to Greater Accra; north losing population/from north; south/SE/SW gaining population/to south/SE/SW (movement from north to south = 2); east losing population/from east; centre/west gaining population/to centre/west; inland regions losing population/from inland.	**3**
4(c)(i)	from every region (allow ‘countries’); most/many from closer/south and Eastern regions; most/many from Ashanti/Volta/Central; few(er) from more distant/north regions; few(er) from Upper West/Upper East.	**2**
4(c)(ii)	cheaper/easy travel (from south)/hard/expensive to travel from north; more familiar; higher population in south/lower population in north; have relatives.	**1**
4(d)	Any one from: for work/working population; to bring wages/remittances; for education.	**1**

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Question	Answer	Marks
5(a)	shallow focus	**1**
5(b)(i)	very variable/large variation/many versus few/some years many/much more; 0–227 898; 0–thousands.	**1**
5(b)(ii)	Any two reasons, such as: some areas more densely populated; some areas better prepared/more warning/receive more aid/rescue services; different building types/earthquake-proof buildings; time of day; some in oceans; some coastal and this may cause tsunami. Comparative comment not needed.	**2**
5(c)	<u>Description</u> most/many in Asia (allow S/SE/E Asia); three/many in Japan; three/many in Indonesia; one in South America; one in China; one in Pacific Ocean; any two of Eurasian/Australian/Pacific plates/edge of any one of Eurasian/Australian/Pacific plate (as location of a plate margin); <u>Reasons</u> (allow these points if referring to a single boundary) plate boundaries; convergent/destructive/where plates collide/move towards each other (do not allow reference to conservative boundaries); subduction/plates sink; build-up/release of pressure/stress/tension/friction. Reserve one mark for each of description and reasons.	**4**

Question	Answer	Marks
6(a)(i)	Any two ideas, such as: irrigation; deforestation; drainage; terracing; using areas of bush/natural vegetation.	**2**
6(a)(ii)	Any two ideas, such as: more fertiliser; improved crop varieties; improved methods of cultivation/harvesting. Allow mechanisation once under either heading.	**2**

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Question	Answer	Marks
6(b)	<u>Valley sides:</u> steep; natural vegetation/unused/not used for agriculture/barren/scrub/bushes/ shrubs. <u>Valley floor:</u> flat/gentle; cultivated/fields/plantation/houses/trees/farms/crops/agriculture/vineyard.	**4**

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GEOGRAPHY **0460/04**

Paper 4 Alternative to Coursework **For examination from 2020**

MARK SCHEME

Maximum Mark: 60

Specimen

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Question	Answer	Marks
1(a)		**2**
	Source;	1
	Mouth.	1
1(b)(i)	Examples check measurement by repeating process and take average; another student/pair checks the measurement; make sure the tape is taut/stretched out/tight/flexed; make sure the tape is at right angles/straight across the river.	**2**
1(b)(ii)	Plot width of 7.6 at site 6.	**1**
1(b)(iii)	One mark is available for a diagram that shows measuring depth of river or a cross-section. Three marks maximum for labelling. Diagram to show labels in correct context: measuring stick/pole/ruler (must be labelled and in the water); vertical; equal distance apart; pole/ruler touches bed; water level/river/water named; measure section which is wet; tape measure across river; one ranging pole on each bank.	**4**
1(b)(iv)	Two correct plots at site 4.	**3**
	Plot at 6.4/0.4;	1
	Plot at 8.0/0.32;	1
	Shade in cross-sectional area.	1
1(b)(v)	2.4 × 0.27 i.e. width × average depth. Accept international conventions i.e. [**•**] instead of [**×**] and [**,**] instead of decimal point. Ignore any calculated figure they provide.	**1**
1(b)(vi)	'partially' – 1 mark is available. Supports: Area increases from site 1 to site 5/increases from 0.65 sq m to 5.93 sq m (1 mark maximum); Does not support: Area at site 6 is smaller than/decreases from site 5;/ decreases to 3.57 sq m at site 6 from 5.93 sq m at site 5 (1 mark maximum). If candidates state that site 6 is anomaly, they need to give a reason why.	**3**

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Question	Answer	Marks
1(c)(i)	Candidates need to mention each piece of equipment once for each mark; 1 mark maximum for each piece of equipment. Examples put poles/sticks/rods at fixed distance/>5 up to 10 metres along river/at start and end of fixed distance; use tape measure to measure a fixed distance/10 metres; put orange in river at start of measured distance; start stopwatch/timer/watch when orange/ball is put in river/ stopwatch/timer/watch measures time it takes to travel the measured distance/ stop stopwatch/timer/watch when orange reaches end of measured distance.	**4**
1(c)(ii)	Complete bar plot at 0.67 for site 6. No credit for shading.	**1**
1(c)(iii)	Examples of evidence that does NOT support hypothesis. Can refer to any two sites that provide relevant evidence: velocity at sites 1 and 2 are identical/both are 0.29 m/s; velocity at site 3 faster than site 4/with 0.58 m/s compared to 0.46 m/s; velocity is slowest at site 5/being the lowest figure of 0.21 m/s all others are 0.29 m/s or higher. One mark is available for paired data. Note: there is no hypothesis mark here as the choice decision is given in the stem.	**3**
1(d)(i)	Plot data of 3.57 sq m (Area) and 0.67 m/sec for site 6 on scatter graph. Plot must be an x with 6 written by it.	**1**
1(d)(ii)	Evidence for partial relationship Credit paired data (need four figures) to show positive relationship.	**3**
	There is a positive correlation between results at four sites OR refers to relationship at any three of sites 1, 2, 3 or 6 that supports hypothesis.	1
	e.g. site 2 area 1.15 sq m and velocity 0.29 m/s both increase at site 6 to 3.57 sq m and 0.67 m/s	1
	Site 5, however, is an anomaly because it has the largest area but lowest velocity. One mark maximum is available for anomaly.	1
1(d)(iii)	Examples:	**2**
	large area so less water is in contact with sides/bed of channel so there is less friction to slow river down;	1
	small area so more water is in contact with sides/bed of channel so more friction/rocks slow water down.	1

Question	Answer	Marks
2(a)(i)	Clothes and shoe shop	**1**
2(a)(ii)	Bank labelled Fi in box Y on Fig 2.1.	**1**

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Question	Answer	Marks
2(a)(iii)	Entertainment	**1**
2(a)(iv)	Examples Mainly in the south; Mainly west/south west of the main road OR Forest Street/south of Finn Lane. NOT: At bottom of map, to left of road.	**1**
2(a)(v)	Examples: food shops are more clustered/two clusters; specialist non-food shops are more spread out/dispersed. Needs to be a comparison.	**2**
2(b)(i)	Secondary source	**1**
2(b)(ii)	Graph completion; 1 mark per bar. Food shops –7 Entertainment +4	**2**
2(b)(iii)	Hypothesis is true. 1 mark reserved for hypothesis conclusion plus 3 further marks for supporting evidence including statistics of change. Evidence: overall shop numbers have gone down/from 60 to 48; decrease in clothes/food/specialist non-food shops/from 8 to 5/20 to13/29 to 26; overall number of services has gone up/from 33 to 34; increase in entertainment/from 5 to 9; decrease in finance/from 9 to 7; decrease in total number of shops and services/from 93 to 82; decrease in offices/from 2 to 1; only other services stayed same at 17 each year.	**4**
2(c)(i)	Examples: young people/under 16 at school; working people/20 to 60 age group are at work so cannot shop; over 60s/retired can go shopping during the day; used random/systematic sampling system/did not use stratified.	**2**
2(c)(ii)	Examples: repeated survey before/after working day/school hours; repeated survey on non-working days/weekends; keep a check of number in different age groups as they do the survey/limit numbers in each age group; stratified sampling targeting equal age totals.	**1**
2(d)(i)	Completion of pie graph: once a month: 20; less than once a month: 17. 1 mark for dividing line at 83% 1 mark for shading in order of key/table If dividing line is wrongly located at 20% from top, only give shading mark if the two slices are shaded correctly i.e. largest slice once a month.	**2**

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Question	Answer	Marks
2(d)(ii)	Completion of divided bar graph: retail park 40 and other town or city 22. 1 mark for dividing line at 78% 1 mark for shading in order of key/table If dividing line is wrongly located at 40% from right, only give shading mark if the two bars are shaded correctly i.e. largest bar retail park.	**2**
2(d)(iii)		**2**
	1. Shops sell specialist goods.	1
	2. Lack of choice when buying goods.	1
2(d)(iv)	No hypothesis mark as decision is given in the stem. Evidence: more disadvantages than advantages are given/over twice as many disadvantages; 247/69% disadvantages to 111/31% advantages; three most common answers are disadvantages; more people visit all other shopping centres; only 12% visit town centre/88% shop away from town centre; the largest disadvantage has 77 responses but largest advantage only 39. Credit comparative data to 2 marks maximum (use of 'only' is comparative).	**4**
2(e)(i)	Examples: plot locations/distances/addresses where shoppers came from on a map (1) draw desire lines/flow lines of where customers come from (1) draw a boundary around the plots to show sphere of influence/catchment area (1) Credit also use of the information gained to study relationships between information candidates already have and the new information of knowing where shoppers live. e.g. frequency of shopping in town centre with distance travelled; where people live and preferred shopping area; where people live and main reason for shopping.	**3**
2(e)(ii)	Examples Private information/intrusive question/personal. Reason Concern about robbery/harassment in the future/safety/misuse of information.	**2**

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GEOGRAPHY **0460/01**

Paper 1 Geographical Themes **For examination from 2020**

SPECIMEN INSERT **1 hour 45 minutes**

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INFORMATION

- This insert contains additional resources referred to in the questions.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.

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Photograph 3.1 for Question 3



Photograph 3.2 for Question 3



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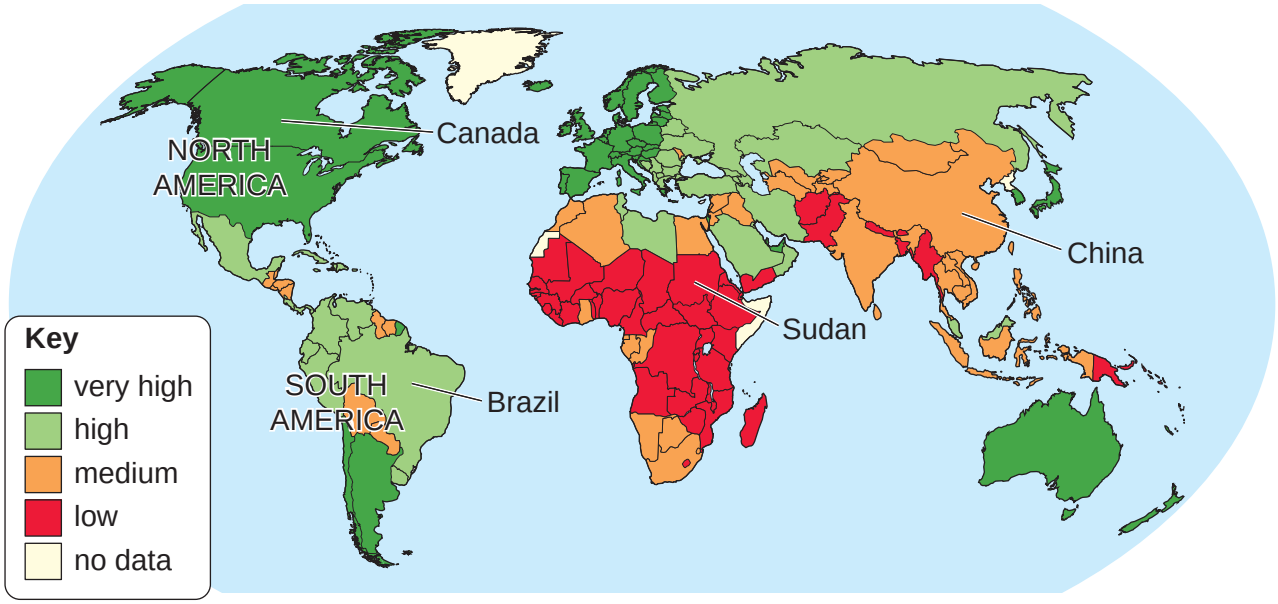
Fig. 5.1 for Question 5

Human Development Index (HDI)



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GEOGRAPHY **0460/02**

Paper 2 Geographical Skills **For examination from 2020**

SPECIMEN INSERT **1 hour 30 minutes**

0123456789

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Photograph 3.1 for Question 3



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GEOGRAPHY **0460/04**

Paper 4 Alternative to Coursework **For examination from 2020**

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Table 1.1 for Question 1

Results of river fieldwork

	Site 1					Average
Width of river (m)	2.4					
Distance across river from left-hand bank (m)	0.38	0.76	1.14	1.52	1.9	
Depth at each point (m)	0.25	0.3	0.31	0.32	0.19	0.27
Velocity of river flow (m/sec)	0.4	0.22	0.3	0.42	0.1	0.29

	Site 2					Average
Width of river (m)	3.6					
Distance across river from left-hand bank (m)	0.6	1.2	1.8	2.4	3.0	
Depth at each point (m)	0.33	0.38	0.4	0.32	0.18	0.32
Velocity of river flow (m/sec)	0.18	0.32	0.33	0.34	0.26	0.29

	Site 3					Average
Width of river (m)	5.2					
Distance across river from left-hand bank (m)	0.87	1.74	2.61	3.48	4.35	
Depth at each point (m)	0.4	0.54	0.52	0.32	0.19	0.39
Velocity of river flow (m/sec)	0.95	0.79	0.47	0.38	0.29	0.58

	Site 4					Average
Width of river (m)	9.6					
Distance across river from left-hand bank (m)	1.6	3.2	4.8	6.4	8.0	
Depth at each point (m)	0.15	0.27	0.33	0.4	0.32	0.29
Velocity of river flow (m/sec)	0.19	0.22	0.5	0.83	0.56	0.46

	Site 5					Average
Width of river (m)	10.4					
Distance across river from left-hand bank (m)	1.73	3.46	5.39	6.92	8.65	
Depth at each point (m)	0.49	0.63	0.7	0.67	0.34	0.57
Velocity of river flow (m/sec)	0.02	0.06	0.41	0.44	0.13	0.21

	Site 6					Average
Width of river (m)	7.6					
Distance across river from left-hand bank (m)	1.27	2.54	3.82	5.08	6.35	
Depth at each point (m)	0.72	0.41	0.39	0.49	0.36	0.47
Velocity of river flow (m/sec)	0.63	0.59	0.83	0.83	0.48	0.67

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Table 1.2 for Question 1

Area of the river channel cross section and average velocity at the six sites

Site	Area of cross section (m^2)	Average velocity (m/sec)
1	0.65	0.29
2	1.15	0.29
3	2.03	0.58
4	2.78	0.46
5	5.93	0.21
6	3.57	0.67

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[Turn over

Fig. 1.3 for Question 1

Equipment used to measure river velocity (not to scale)

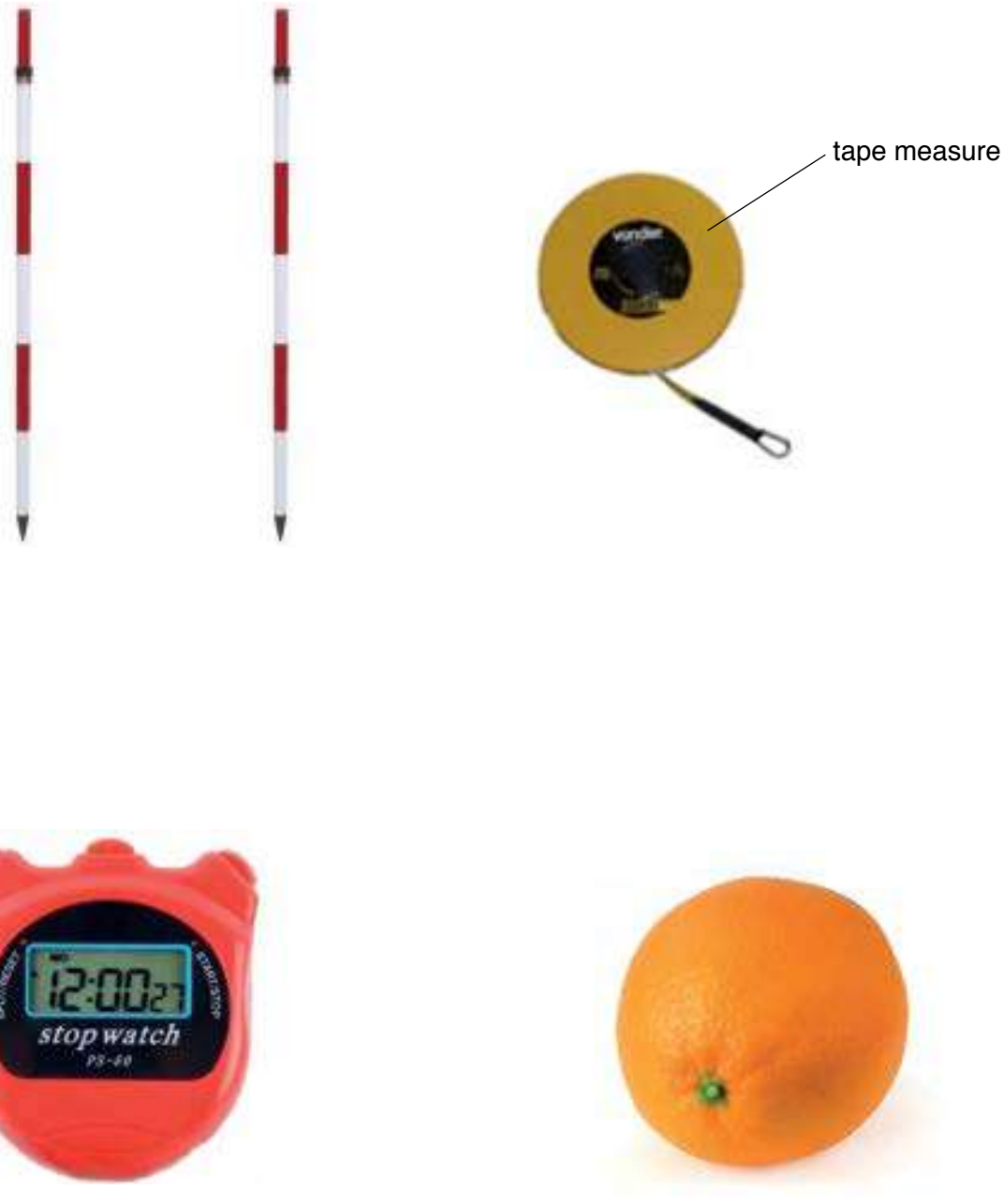

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Fig. 2.3 for Question 2

Shopping questionnaire

Excuse me; I'm a student at The Royal Academy. Please could you answer a few questions to help me with my geography fieldwork?

1. How often do you shop in the town centre?

☐ every day (daily) ☐ once a week (weekly)

☐ once a month (monthly) ☐ less than once a month (infrequently)

2. Where do you usually shop?

☐ town centre shops ☐ local supermarket

☐ retail park on the edge of town ☐ other town or city

3. What are the main advantages of shopping in the town centre? (You may give more than one answer.)

4. What are the main disadvantages of shopping in the town centre? (You may give more than one answer.)

Thank you very much for your help and time.

Gender Male ☐ Female ☐

Age group ☐ Under 16 ☐ 16–30 ☐ 31–45

☐ 46-60 ☐ Over 60

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Table 2.5 for Question 2

Answers to Questions 3 and 4 in the questionnaire

Main advantage	Number of answers
Shops sell specialist goods	39
Friendly and helpful staff	26
Shops are never busy	18
Near to home	15
Frequent bus service to town centre	13
Total	111

Main disadvantage	Number of answers
Prices are more expensive than in shops elsewhere	77
Many shops have closed down	62
Lack of parking	56
Lack of choice when buying goods	34
No shelter against rain and cold weather	18
Total	247

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GEOGRAPHY **0460/01**

Paper 1 Geographical Themes **For examination from 2020**

SPECIMEN PAPER **1 hour 45 minutes**

You must answer on the question paper.

You will need: Insert (enclosed)
Calculator
Ruler

INSTRUCTIONS

- Answer **three** questions in total, **one** from each section.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined pages at the end of this booklet; the question number or numbers must be clearly shown.

INFORMATION

- The total mark for this paper is 75.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains additional resources referred to in the questions.

Definitions
MEDCs – More Economically Developed Countries
LEDCs – Less Economically Developed Countries

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Section A

Answer **one** question from this section.

1 **(a)** Study Fig. 1.1, which shows information about the birth and death rates of three countries in 2013.

Country	Birth rate (per 1000 of population)	Death rate (per 1000 of population)
Kuwait	20.9	2.1
South Africa	19.3	17.2
Vietnam	16.8	5.9

Fig. 1.1

(i) What is meant by *South Africa has a death rate of 17.2*?

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.....

..... [1]

(ii) Using Fig. 1.1, identify the following:

– the country with the lowest birth rate; .....

– the country with the highest rate of natural population growth. ..... [2]

(iii) Give **three** reasons why death rates vary from country to country.

1 .....

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2 .....

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3 .....

..... [3]

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(b) Study Figs. 1.2 and 1.3, which show information about birth rates in Vietnam (an LEDC in South East Asia).

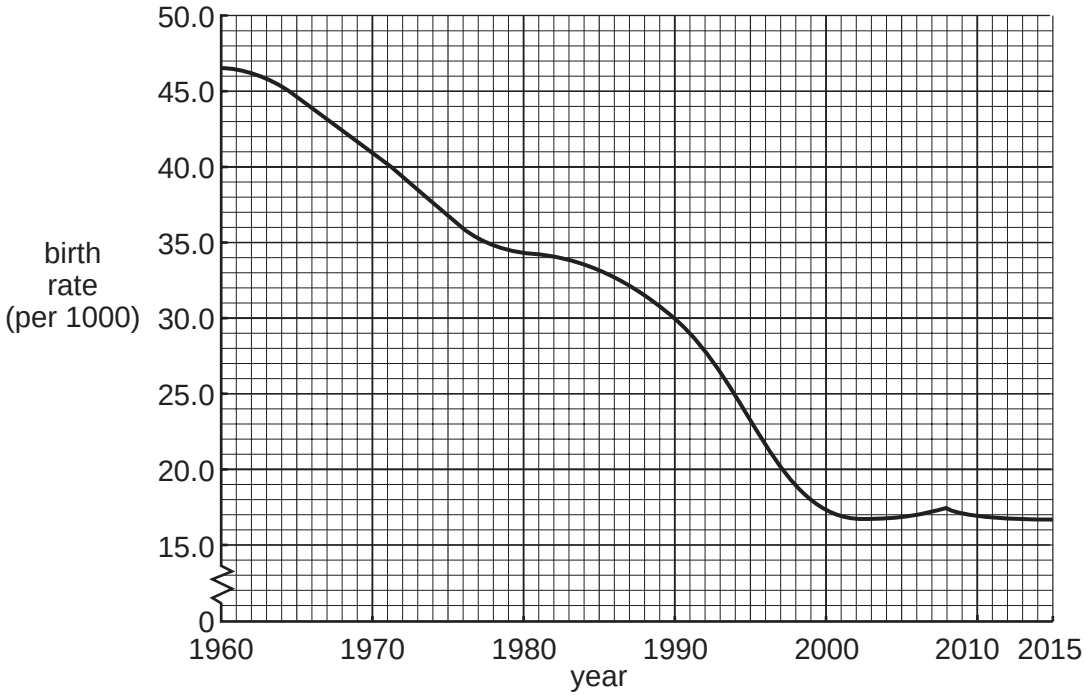

Fig. 1.2

The communist government of Vietnam is penalising couples who have more than two children. In the early 1960s it imposed a two-child limit for couples and there have been campaigns to promote contraception and abortion in the country since 1997.

By 2000, the birth rate had been reduced considerably by the use of fines and confiscation of land. The original policy ended in 2003 but was revived in 2008 after an increase in the birth rate.

Villagers in Thua Thien-Hue province are being fined for having more than two children under the government two-child policy. Catherine Pham Thi Thanh, 44, said that since 1996 she has been fined a total of 3800 kilograms of rice for having six children. This is a great loss for the family which makes an annual profit of only 700 kilograms of rice from their farm.

Fig. 1.3

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(i) Using Fig. 1.2 **only**, describe the reduction in the birth rate of Vietnam between 1960 and 2015. Include statistics in your answer.

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..... [3]

(ii) Suggest how government policies and other factors may have reduced Vietnam's birth rate.

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(iii) Explain why the governments of some MEDCs are now concerned that birth rates are too low in their countries.

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(c) For a named country you have studied, describe the problems caused by over-population.

Name of country .....

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[Total: 25]

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2 **(a)** Study Fig. 2.1, which shows information about four areas of rural settlement in Malta (an MEDC in Europe).



Fig. 2.1

(i) What is meant by a *rural* settlement?

.....

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..... [1]

(ii) Use evidence from Fig. 2.1 **only**, to identify **two** similarities between the settlements of Tas-Salih and Bingemina.

1 .....

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2 .....

..... [2]

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(iii) Describe the main features of an area of dispersed rural settlement such as L-Andrijiet.

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(iv) Suggest reasons for the growth of a nucleated settlement such as Ta' Mrejnu.

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(b) Study Figs. 2.2 and 2.3, which show information about Llanelli, an urban settlement in the UK, in 1850 and 2000.

1850

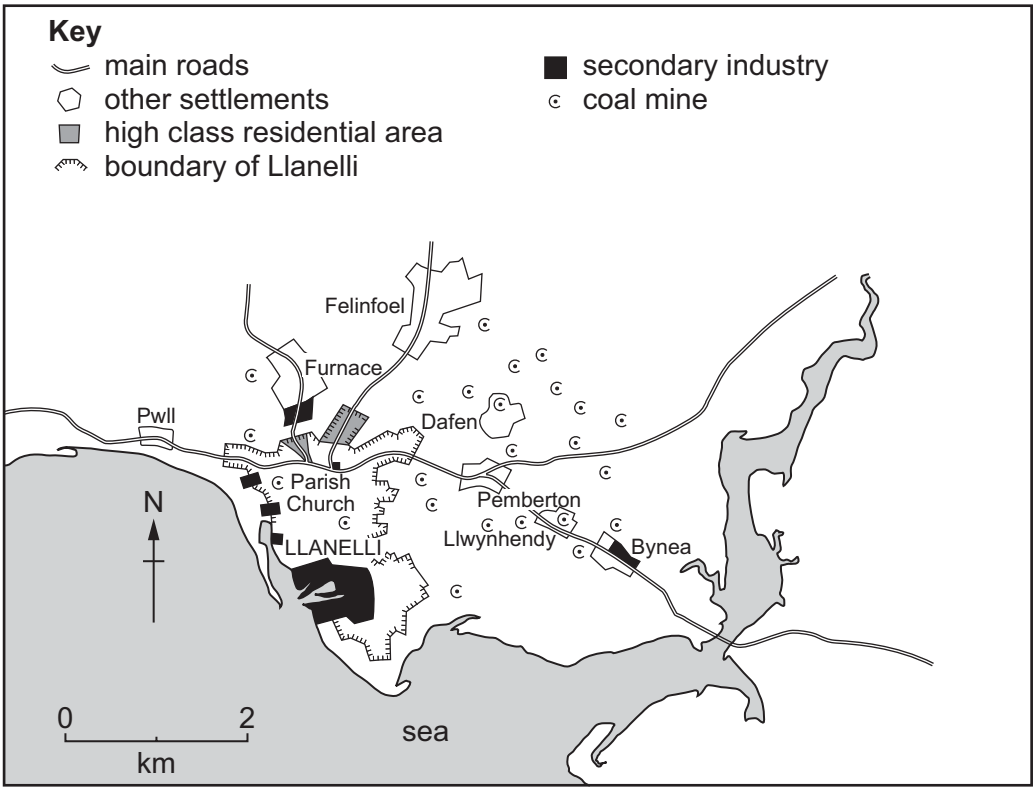

Fig. 2.2

2000

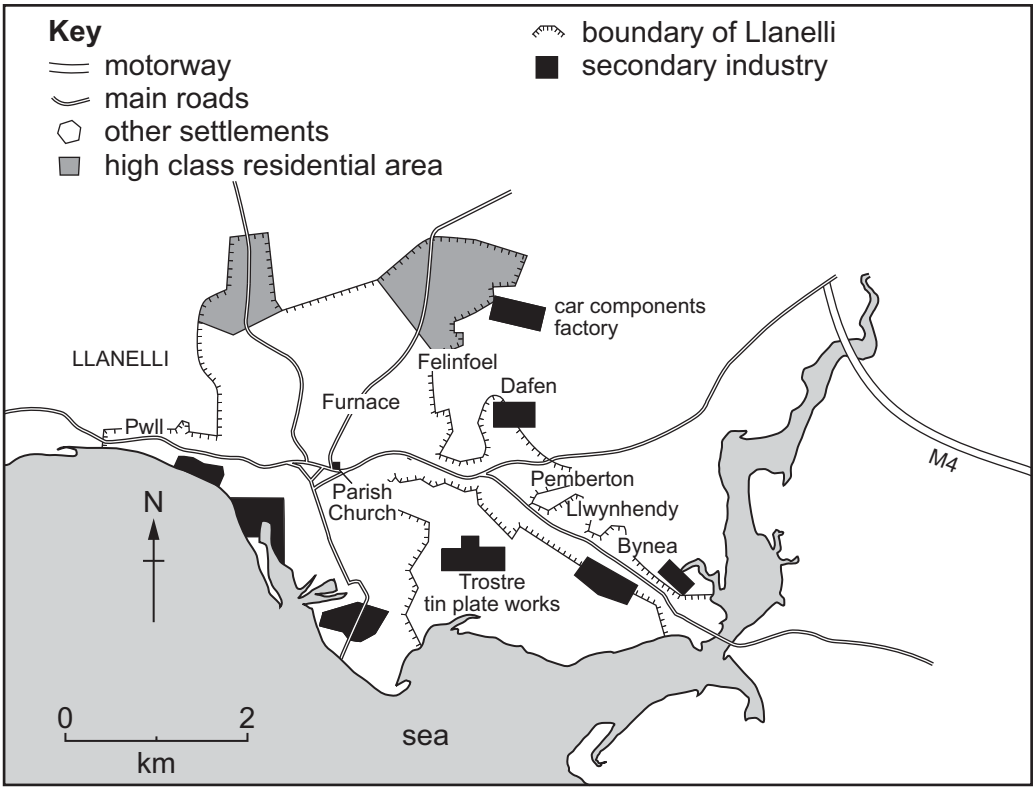

Fig. 2.3

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(i) Using evidence from Figs. 2.2 and 2.3 **only**, describe the main changes which have taken place in Llanelli between 1850 and 2000.

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..... [3]

(ii) Suggest reasons for Llanelli's function as an industrial town.

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(c) For a named area you have studied, describe the hierarchy of service provision.

Name of area .....

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[Total: 25]

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Section B

Answer **one** question from this section.

3 **(a)** Study Photograph 3.1 (Insert), which shows a beach where coastal deposition is taking place.

(i) What is meant by *coastal deposition*?

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..... [1]

(ii) The waves shown on Photograph 3.1 are constructive waves. Describe **two** characteristics of constructive waves.

1 .....

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2 .....

..... [2]

(iii) Use the labelling on Photograph 3.1 to explain how longshore drift occurs.

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..... [3]

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[Turn over

(iv) Spits are formed by longshore drift.

Describe the main features of a spit.

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(b) Study Photograph 3.2 (Insert), which shows an area where coastal erosion is taking place.

(i) Give **three** pieces of evidence that coastal erosion has occurred in the area shown by Photograph 3.2.

1 .....

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2 .....

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3 .....

.....[3]

(ii) Explain why coastal erosion is much more rapid on some coasts than others.

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(c) For a named area of coast you have studied, explain what is being done to manage coastal erosion.

Name of area .....

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[Total: 25]

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4 **(a)** Study Fig. 4.1, which shows information collected in June 2012 and June 2013 at a weather station in Maleny, Australia.

	2012	**2013**
Rainfall (mm)	267.2	164.6
Days with rainfall	16	14
Evaporation (mm)	40.4	58.1
Humidity (%)	77	78
Minimum temperature (°C)	5.8	5.0
Maximum temperature (°C)	21.2	21.8
Wind direction	SSW	SSW
Sunshine hours (per month)	85	80

Fig. 4.1

(i) Using evidence from Fig. 4.1, underline the weather element in the list below which showed the greatest difference between June 2012 and June 2013.

rainfall sunshine hours temperature wind direction [1]

(ii) Which weather instrument is used to measure:

– humidity; .....

– wind direction? ..... [2]

(iii) Describe how information about the amount of rainfall is collected at a weather station.

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..... [3]

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(iv) Some weather instruments are kept in a Stevenson screen.

Explain how the features of the Stevenson screen ensure that the information collected by these instruments is accurate.

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(b) Study Fig. 4.2, a climate graph for Indian Wells, an area of hot desert in California, United States.

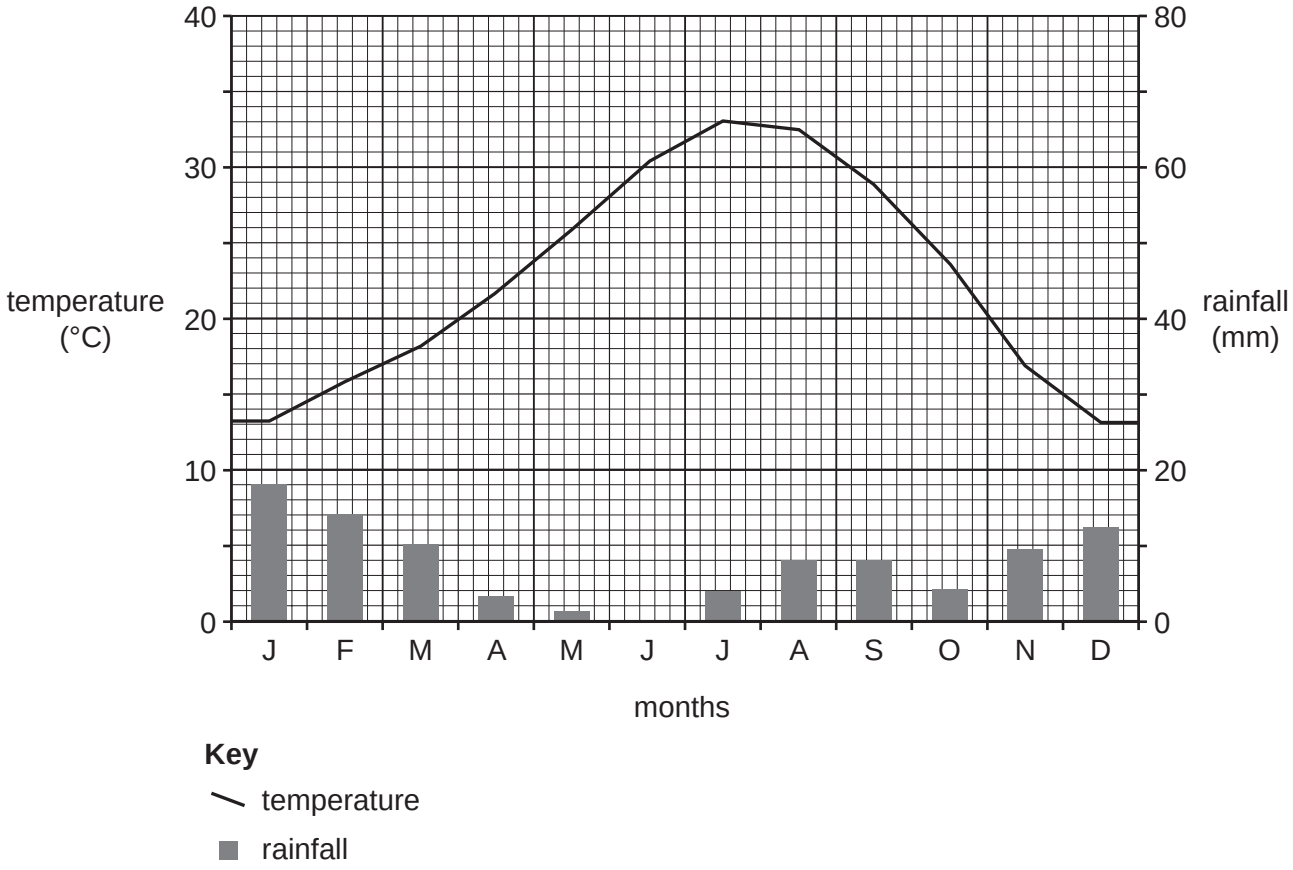

Fig. 4.2

(i) Using Fig. 4.2 **only**, describe the main features of the climate of Indian Wells. Include statistics in your answer.

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..... [3]

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(ii) Explain why there are hot desert climates in some areas close to the Tropics of Cancer and Capricorn.

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(c) For a named area of hot desert you have studied, describe and explain the characteristics of its natural vegetation.

Name of hot desert .....

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[Total: 25]

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Section C

Answer **one** question from this section.

5 **(a)** Study Fig. 5.1 (Insert), a map showing the Human Development Index (HDI).

(i) Put the following countries in rank order according to their HDI.

Brazil Canada China Sudan

1st ..... highest

2nd .....

3rd .....

4th ..... lowest [1]

(ii) Describe the main differences in HDI between North and South America.

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..... [2]

(iii) Explain why HDI is a good measure of development.

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..... [3]

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(iv) Explain why there are differences in levels of development between countries.

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..... [4]

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(b) Study Fig. 5.2, which shows indicators of development for selected countries in Africa.

Country	Life expectancy (years)	Energy use per person (kg. of oil equivalent)	Number of doctors (per 100 000 people)	Adult literacy (percentage)
Angola	55	606	8	67
Egypt	73	735	212	58
Ethiopia	61	299	3	43
Kenya	64	494	13	85
South Africa	50	2587	69	87
Tanzania	61	465	2	78
Uganda	54	776	5	70

Fig. 5.2

(i) Identify the country which:

– has the lowest percentage of people who can read and write;

.....

– is likely to have the poorest access to a doctor;

.....

– has the lowest energy use per person.

..... [3]

(ii) Which country, listed in Fig. 5.2, do you consider has the highest level of development? Justify your answer.

Country .....

Justification .....

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..... [5]

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(c) For a country you have studied, describe the positive and negative impacts of a named transnational corporation being located there.

Name of country .....

Name of transnational corporation .....

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[Total: 25]

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6 **(a)** Study Fig. 6.1, which shows information about economic activities and threats to the natural environment.

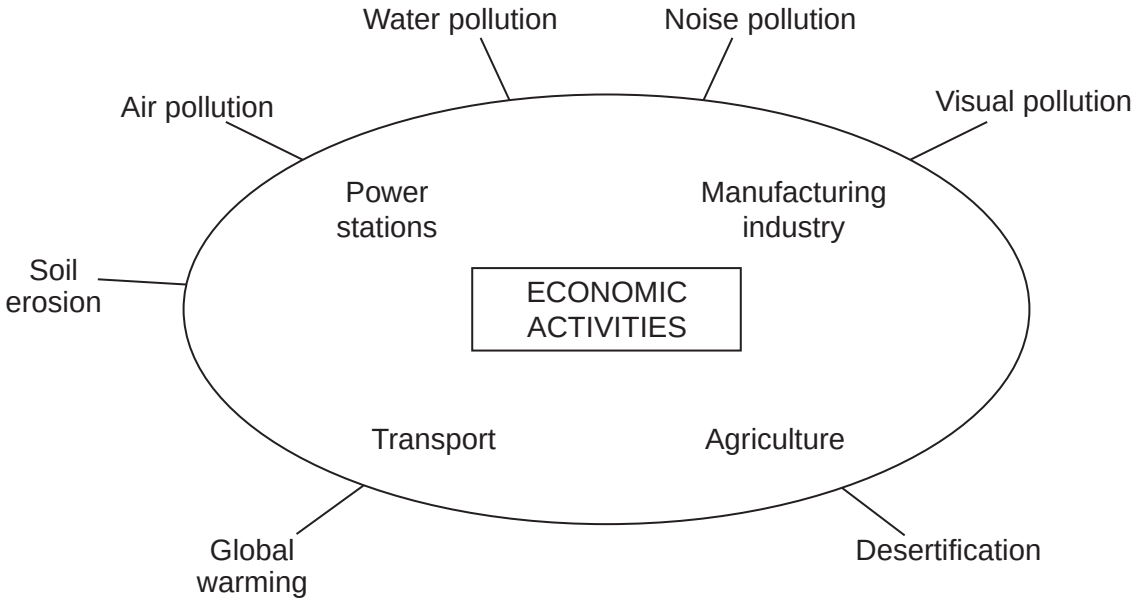

Fig. 6.1

(i) What is meant by *visual pollution*?

.....

.....

..... [1]

(ii) Suggest **two** ways in which agriculture may cause soil erosion.

1 .....

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2 .....

..... [2]

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(iii) Name **three** different economic activities shown in Fig. 6.1 and explain how each one may pollute water.

Economic activity 1 .....

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Economic activity 2 .....

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Economic activity 3 .....

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..... [3]

(iv) Explain how the economic activities shown in Fig. 6.1 may cause global warming.

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..... [4]

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[Turn over

(b) Study Fig. 6.2, which shows advice about conservation of natural resources.



Fig. 6.2

(i) Explain how following the advice given in Fig. 6.2 can help to conserve natural resources.

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..... [3]

(ii) Explain the importance of conserving natural resources and the natural environment.

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(c) For a named country or area you have studied, describe how energy is supplied.

Name of country .....

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[Total: 25]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY **0460/02**

Paper 2 Geographical Skills **For examination from 2020**

SPECIMEN PAPER **1 hour 30 minutes**

You must answer on the question paper.

You will need: Insert (enclosed)
1:50 000 survey map (enclosed)
Calculator
Plain paper
Protractor
Ruler

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined pages at the end of this booklet; the question number or numbers must be clearly shown.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains additional resources referred to in the questions.

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1 Study the map extract for Slievenamon, Republic of Ireland. The scale is 1:50 000.

(a) Fig. 1.1 shows some of the features in the east of the map extract. Study Fig. 1.1 and the map extract, and answer the questions below.

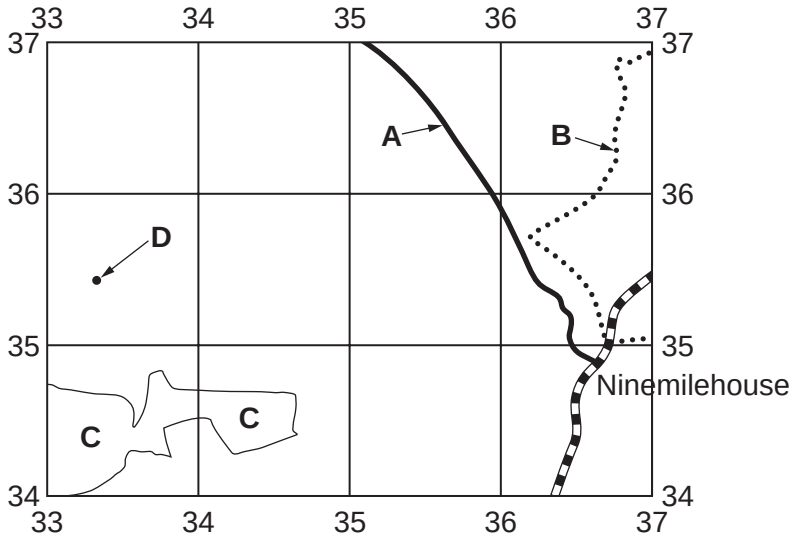

Fig. 1.1

Using the map extract, identify the following features shown on Fig. 1.1:

(i) the type of road at **A**;

..... [1]

(ii) feature **B**;

..... [1]

(iii) the land use in area **C**;

..... [1]

(iv) the height above sea level of the spot height at **D**.

..... metres [1]

(b) What is the settlement pattern in the area shown on Fig. 1.1? Tick **one** correct answer below.

	Tick (✓)
linear	
nucleated	
dispersed	

[1]

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(c) Find the road junction at Ninemilehouse, shown on Fig. 1.1.

(i) What is the six-figure grid reference of the road junction? Tick **one** correct answer below.

	Tick (✓)
347365	
348366	
349366	
365348	
366348	

[2]

(ii) Measure the distance along the N76 road from the road junction to the southern edge of the map extract. Give your answer in metres.

..... metres [1]

(d) Look at the settlement at Fethard in the west of the map extract. Give **two** reasons for the growth of the settlement.

1 .....

.....

2 .....

..... [2]

(e) Find the Anner River on the map. What is the direction of flow of the river? Tick **one** correct statement below.

	Tick (✓)
to the north east	
to the north west	
to the south east	
to the south west	

[1]

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(f) Fig. 1.2 is a cross section along easting 30, across the valley of the Anner River. The cross section is from 300380 (at the northern edge of the map) to 300330.

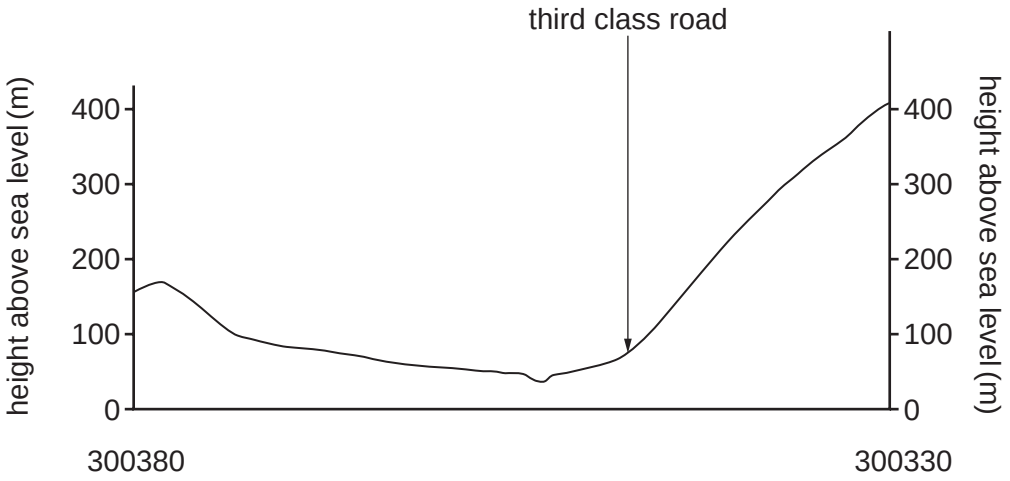

Fig. 1.2

On Fig. 1.2, using labelled arrows, mark the positions of:

(i) the Anner River; [1]

(ii) the south-facing valley side; [1]

(iii) the R692 road. [1]

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(g) Fig. 1.3 shows an area in the south of the map extract.



Fig. 1.3

Describe the relief **and** drainage of the area shown on Fig. 1.3.

Relief .....

.....

.....

.....

.....

.....

Drainage .....

.....

.....

.....

.....

..... [6]

[Total: 20]

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2 **(a)** Figs. 2.1 and 2.2 show the tonnage (total weight) of ships built by the top five shipbuilding countries in 1968 and 2013.

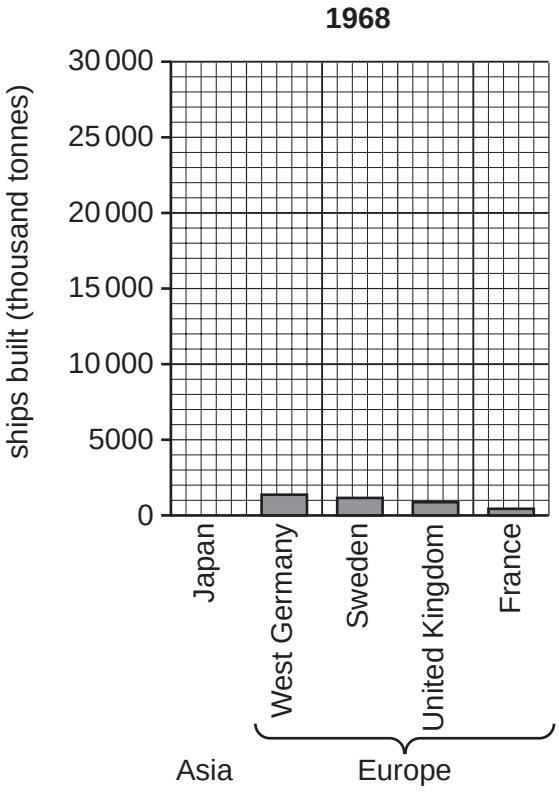

Fig. 2.1

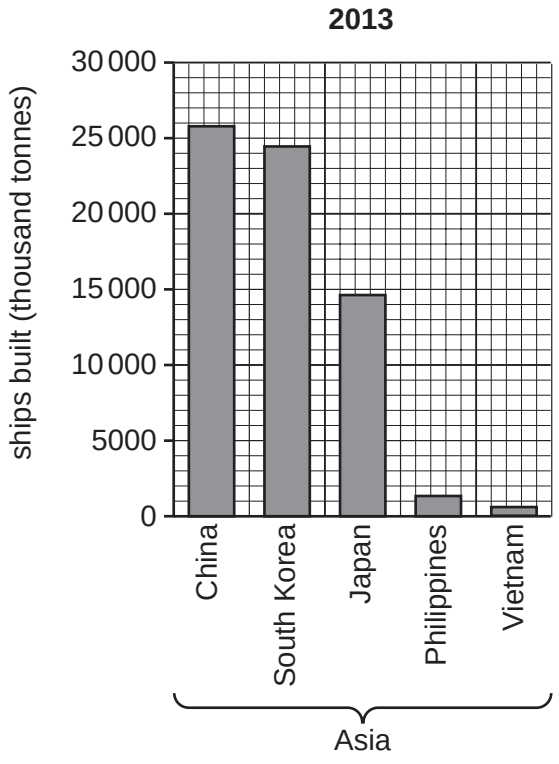

Fig. 2.2

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(i) Complete Fig. 2.1 to show that Japan built 6800 thousand tonnes of ships in 1968. [1]

(ii) Describe how the location of the top five shipbuilding countries changed between 1968 and 2013. Refer to continents in your answer.

.....

.....

.....

..... [2]

(iii) Suggest reasons for the change in the location of the top five shipbuilding countries.

.....

.....

.....

..... [2]

(b) Suggest why the tonnage (total weight) of ships built has increased since 1968.

.....

.....

.....

.....

.....

..... [3]

[Total: 8]

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3 **(a)** Study Photograph 3.1 (Insert), which shows an area of tropical rainforest. Describe the vegetation seen in the photograph.

.....

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.....

.....

.....

..... [6]

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(b) Two features of plants in the tropical rainforest are given below. Explain how each feature is adapted to the equatorial climate:

(i) channelled leaves with drip tips;

.....

.....

..... [1]

(ii) broad leaves.

.....

.....

..... [1]

[Total: 8]

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4 Fig. 4.1 shows the 10 regions of Ghana in west Africa. Fig. 4.2 shows the net population migration rate of the regions. Study Figs. 4.1 and 4.2 and answer the questions on the opposite page.

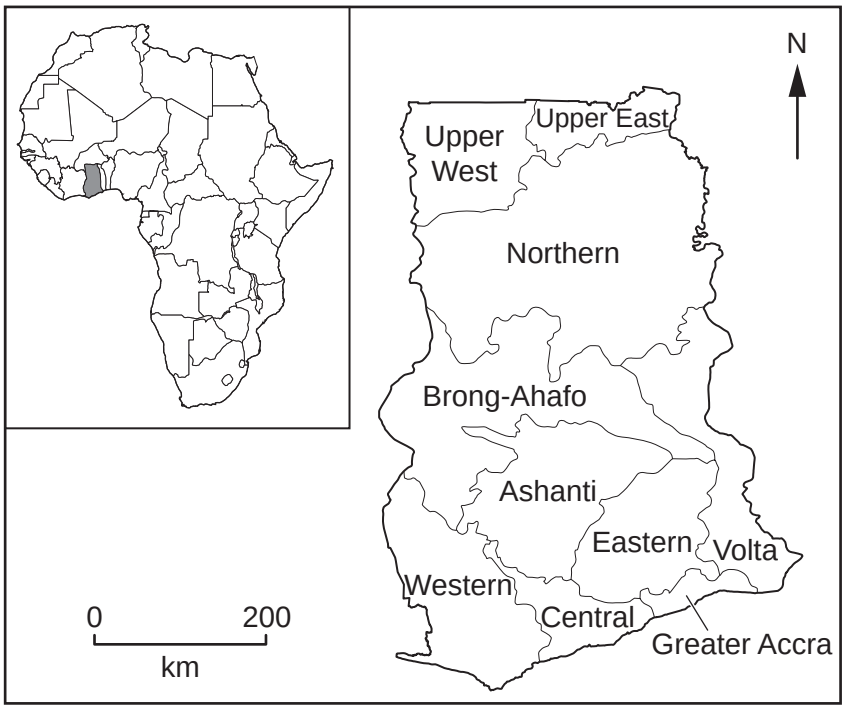

Fig. 4.1

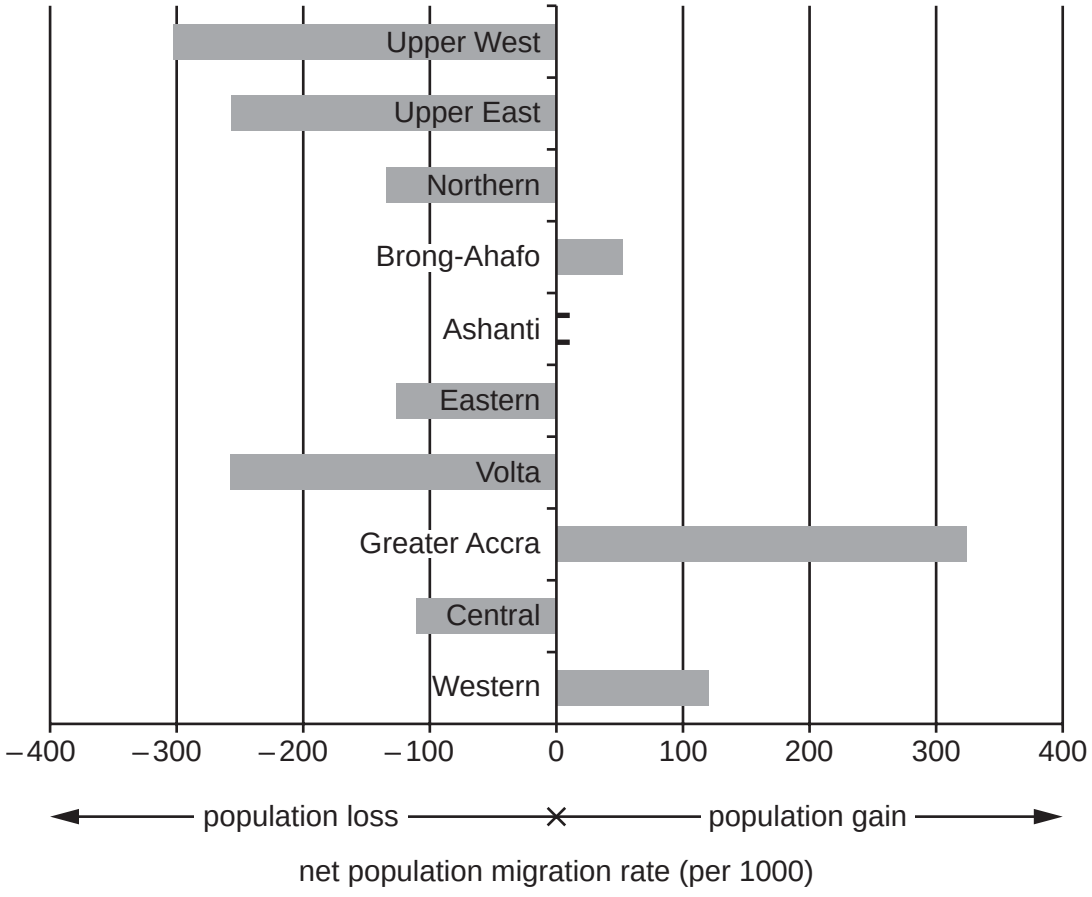

Fig. 4.2

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(a) Ashanti region had a net population gain of 50 per 1000. Plot this information on Fig. 4.2. [1]

(b) Using Figs. 4.1 and 4.2, describe the pattern of internal migration in Ghana.

.....

.....

.....

.....

.....

..... [3]

(c) Table 4.1 shows the region of birth of the residents of Greater Accra region.

Table 4.1

Region of Birth	Number
Greater Accra	2 326 543
Eastern	454 571
Volta	345 729
Central	255 637
Ashanti	246 564

Region of Birth	Number
Northern	93 677
Western	82 855
Brong-Ahafo	61 995
Upper East	40 809
Upper West	16 489

(i) Using Fig. 4.1 and Table 4.1, describe the main features of migration to Greater Accra.

.....

.....

.....

..... [2]

(ii) Suggest **one** reason for the features of migration you described in **(c)(i)**.

.....

..... [1]

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(d) Fig. 4.3 shows the ages of citizens of Ghana who live in other countries.

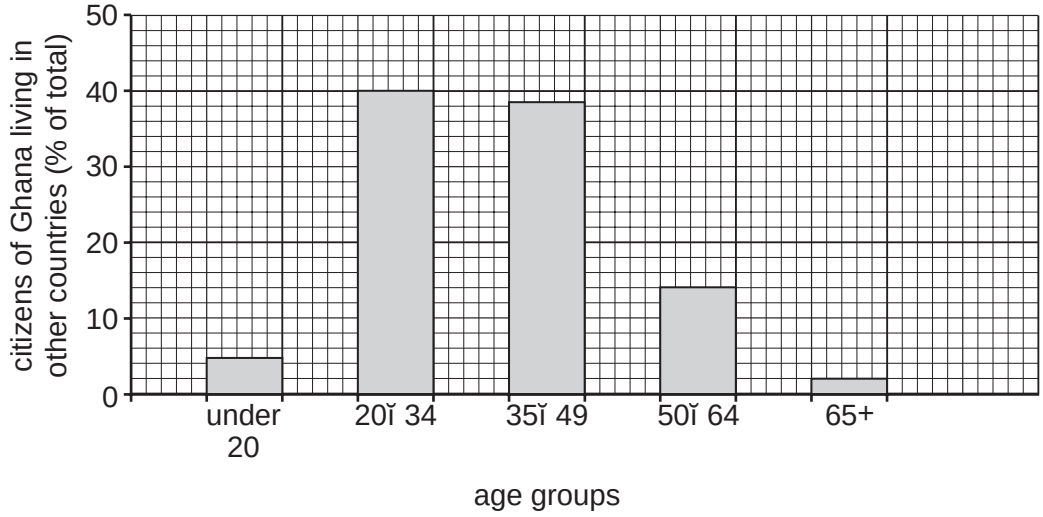

Fig. 4.3

Suggest **one** reason for the pattern of ages shown in Fig. 4.3.

.....

.....

..... [1]

[Total: 8]

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TURN PAGE FOR QUESTION 5

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5 Table 5.1 gives information about the most powerful earthquake in each year between 2003 and 2012.

Table 5.1

Year	Magnitude (Richter Scale)	Number of deaths	Depth of focus (km)
2003	8.3	0	27
2004	9.1	227 898	30
2005	8.6	1313	30
2006	8.3	0	10
2007	8.5	25	34
2008	7.9	87 587	19
2009	8.1	192	18
2010	8.8	547	35
2011	9.0	20 896	29
2012	8.6	0	23

(a) Table 5.2 describes the depth of earthquake foci.

Table 5.2

Depth of focus (km)	Description
0–50	shallow
50.1–300	medium
300.1–670	deep

Using Tables 5.1 and 5.2, describe the depth of foci of the ten earthquakes shown in Table 2.

.....

..... [1]

(b) **(i)** Describe the variation in the number of deaths caused by the earthquakes shown in Table 5.1.

.....

..... [1]

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(ii) Suggest **two** reasons for this variation.

1 .....

.....

2 .....

..... [2]

(c) Fig. 5.1 shows the location of these powerful earthquakes.

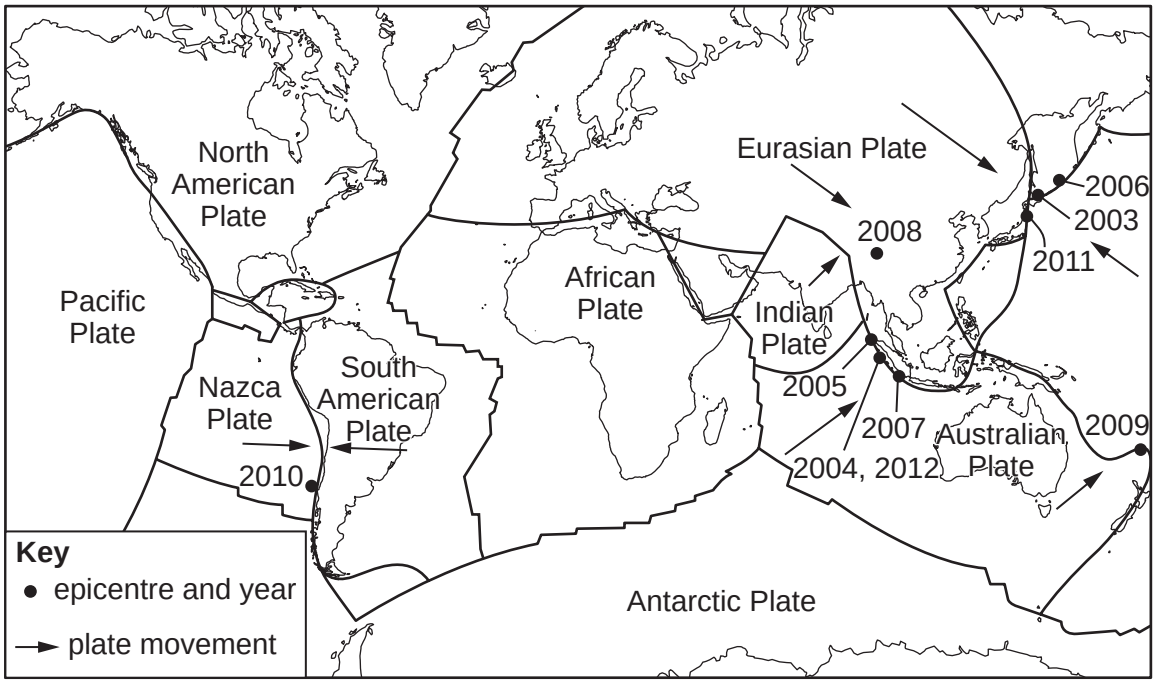

Fig. 5.1

Using Fig. 5.1, describe and give reasons for the distribution of powerful earthquakes. Refer to plate tectonics in your answer.

.....

.....

.....

.....

.....

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.....

..... [4]

[Total: 8]

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6 **(a)** Increasing food supply can be done by increasing the area of cultivation or by making agriculture more intensive. Fig. 6.1 below describes some of these methods.

In some countries the area of irrigated agriculture has increased. There have been increased inputs of fertiliser. Deforestation has occurred and marsh has been drained. Some steep mountain slopes have been terraced. Agriculture has become more mechanised. Areas of unused bushland and other natural vegetation have been brought into cultivation. Improved crop varieties have been introduced and the methods of cultivation and harvesting have been improved.

Fig. 6.1

Using information from Fig. 6.1 only, describe:

(i) **two** ways of increasing the area cultivated;

1 .....

.....

2 .....

..... [2]

(ii) **two** ways of making agriculture more intensive.

1 .....

.....

2 .....

..... [2]

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(b) Study Photograph 6.1 (Insert), which shows a valley in South Africa. Describe the **relief** and **land use** of the valley sides and the valley floor.

Valley sides

relief .....

.....

.....

land use .....

.....

.....

Valley floor

relief .....

.....

.....

land use .....

.....

..... [4]

[Total: 8]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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GEOGRAPHY **0460/04**

Paper 4 Alternative to Coursework **For examination from 2020**

SPECIMEN PAPER **1 hour 30 minutes**

You must answer on the question paper.

You will need: Insert (enclosed) Ruler
Calculator
Protractor

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- If additional space is needed, you should use the lined pages at the end of this booklet; the question number or numbers must be clearly shown.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].
- The insert contains additional resources referred to in the questions.

This document has **20** pages. Blank pages are indicated.

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1 Students in Portugal went to six sites along a local river to do a fieldwork investigation on changes in the river channel downstream. The river which they studied flows 13 km from the Sintra Hills to the Atlantic Ocean.

(a) From the alternatives below choose the correct terms to complete the following sentences.

confluence mouth source tributary valley

- A river begins at its .....
- A river enters the sea at its ..... [2]

The students investigated the following hypotheses:

Hypothesis 1: *The area of the cross section of the river channel increases downstream.*

Hypothesis 2: *Average velocity of river flow increases downstream.*

(b) The students selected six sites along the river approximately 2 kilometres apart to do their fieldwork.

(i) In pairs they measured the width of the river channel at each site using a tape measure.

Suggest **two** things the students could have done to make sure that their results were reliable.

1 .....

.....

2 ..... [2]

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(ii) The results of their measurements at each site are shown in Table 1.1 (Insert).
Plot the result for site 6 on Fig. 1.1 below, which shows how the width of the river channel varies downstream. [1]

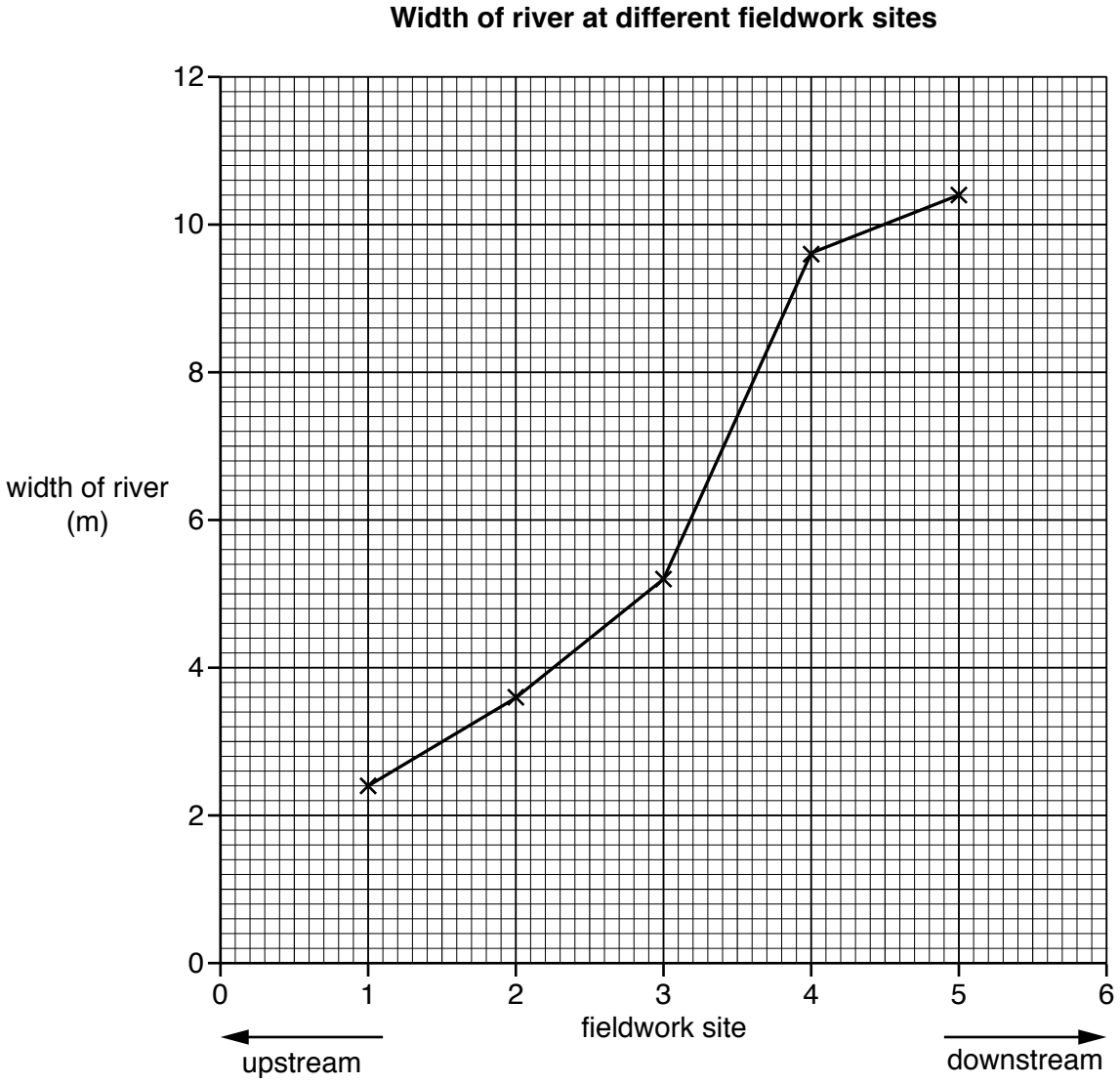

Fig. 1.1

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(iii) Next they measured the depth of the river. In the space below draw an annotated (labelled) diagram to explain how they would do this.

[4]

(iv) At each site the students measured the depth at five points across the channel. The results of their measurements at each site are shown in Table 1.1 (Insert).
The students drew cross sections of the channel at each site. These are shown in Fig. 1.2 opposite. Use the information in Table 1.1 to complete the cross section and shade in the river channel at site 4. [3]

(v) The method used to calculate the area of the cross section at each site is shown below. Insert the correct figures from Table 1.1 in the calculation for site 1 below.

Calculation of the area of the cross section at site 1

Area of the cross section = width of river (metres) × average depth of river (metres)

= .....

= 0.65 sq metres

[1]

(vi) The results of the students' calculations of the area of the cross sections are shown in Table 1.2 (Insert). To what extent do the results support **Hypothesis 1:** *The area of the cross section of the river channel increases downstream*? Circle your decision below and support your decision with evidence from Table 1.2 and Fig. 1.2.

completely partially not at all

.....

.....

.....

.....

.....

.....[3]

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Cross sections of the river channel

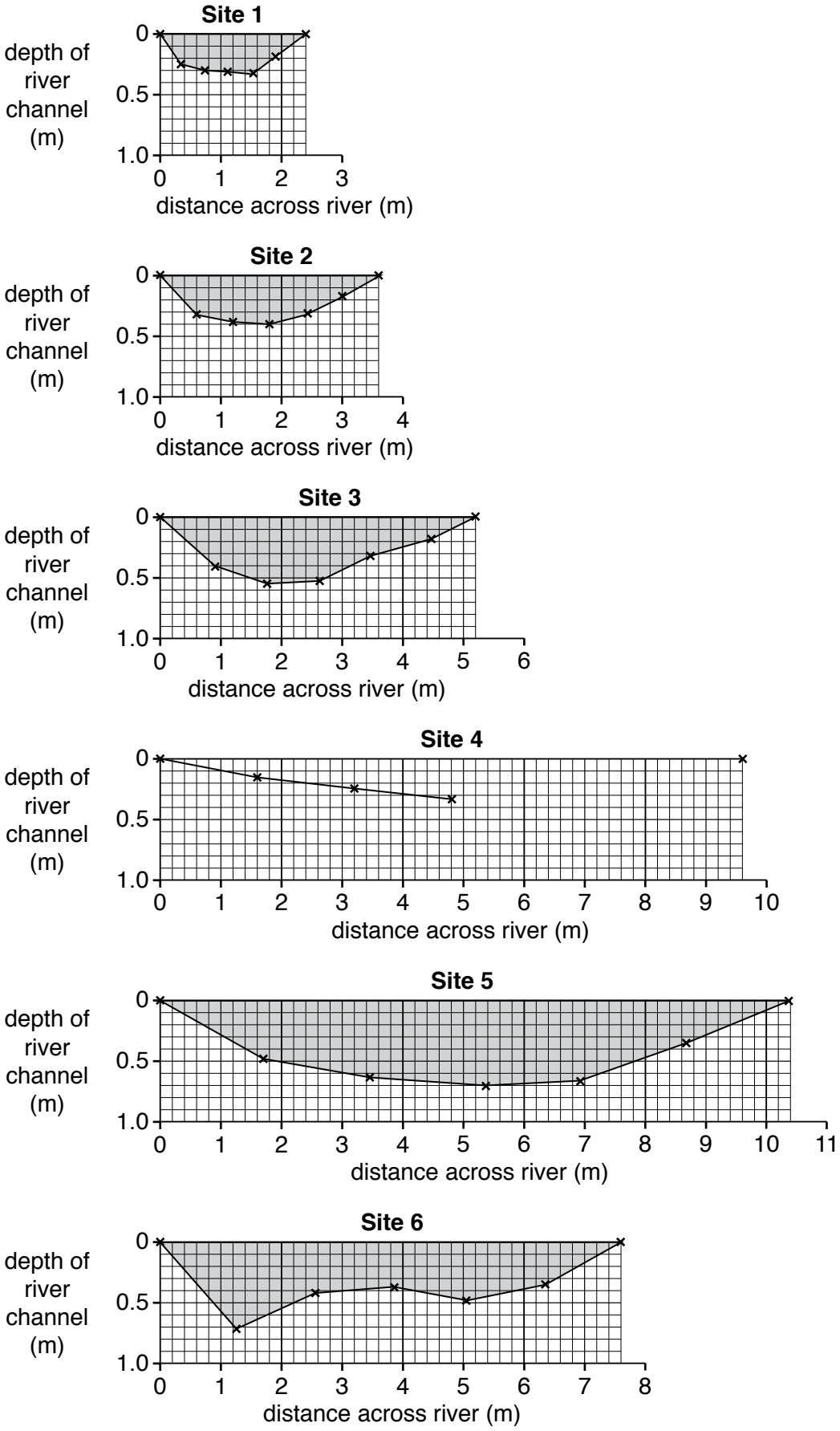

Fig. 1.2

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(c) (i) To investigate **Hypothesis 2:** *Average velocity of river flow increases downstream*, the students measured the velocity at each site using the equipment shown in Fig. 1.3 (Insert). Describe how they measured velocity.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) The students calculated the average velocity of flow at each site. Their results are shown in Table 1.2 (Insert). Plot the result for site 6 on Fig. 1.4 below.

Average velocity at different sites

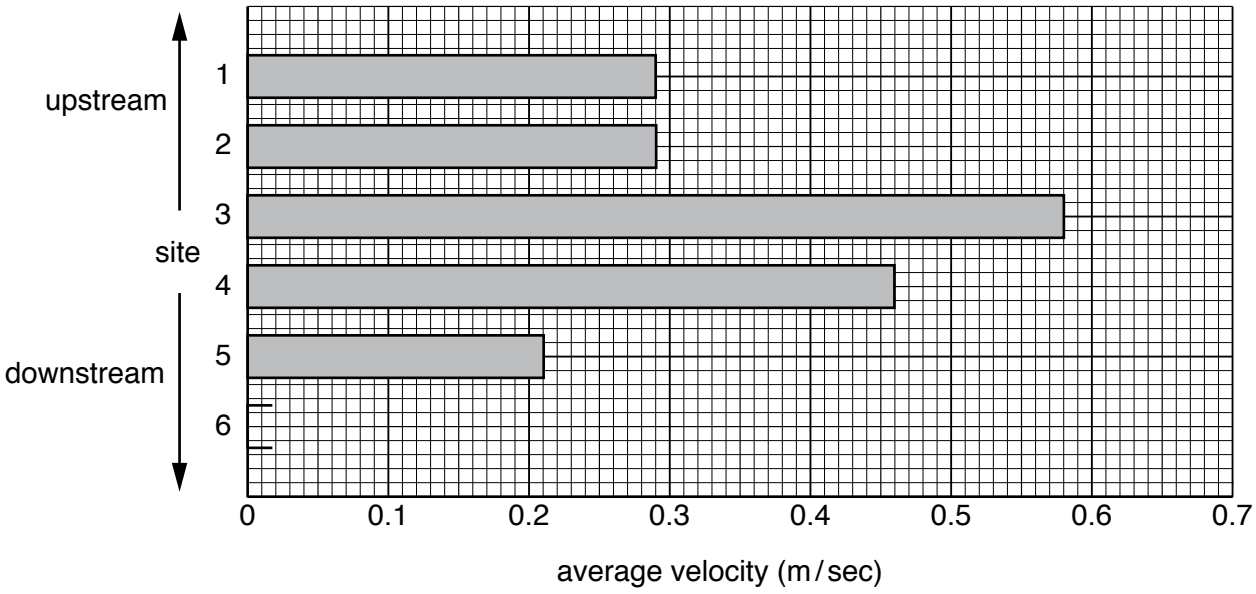

Fig. 1.4

[1]

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(iii) The students' conclusion was that their results did not support **Hypothesis 2:** *Average velocity of flow increases downstream*. Use evidence from Table 1.2 and Fig. 1.4 to explain why they reached this conclusion.

.....

.....

.....

.....

.....

..... [3]

(d) (i) One student wondered if there was any relationship (correlation) between the area of the river channel cross section and average velocity at the six sites. These results are shown in Table 1.2 (Insert). The student plotted these results on a scatter graph, Fig. 1.5 below.

Use the data in Table 1.2 to plot the results of site 6 on Fig. 1.5 below.

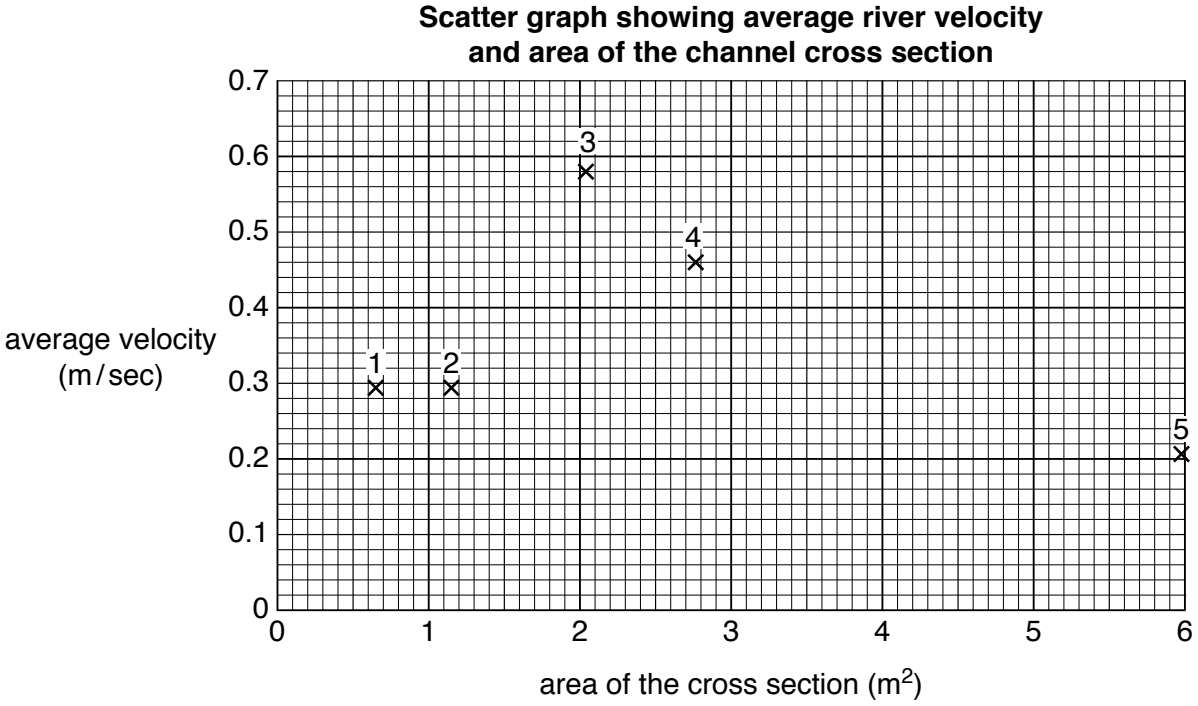

Fig. 1.5

[1]

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(ii) The student decided that there was a partial relationship (correlation) between the area of the river channel cross section and average velocity.
Support this decision with evidence from Table 1.2 and Fig. 1.5.

.....

.....

.....

.....

.....

..... [3]

(iii) Explain why the area of the river channel cross section may affect average velocity.

.....

.....

.....

..... [2]

[Total: 30]

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TURN PAGE FOR QUESTION 2

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2 Students were doing fieldwork in their local town centre. They wanted to find out how the main shopping street had changed and what people who came to shop in the town centre thought about shopping here. They tested the following hypotheses:

Hypothesis 1: *Shops and services on the main shopping street have changed between 1981 and 2012.*

Hypothesis 2: *Most people in the local area have positive opinions about shopping in the town centre.*

(a) First the students completed a land use map along the main shopping street. This map is shown in Fig. 2.1 opposite.

(i) Which **one** of the following shops or services occupies building **X** on Fig. 2.1? Tick your choice.

	Tick (✓)
bookshop	
clothes and shoe shop	
grocery store	
solicitor	
supermarket	

[1]

(ii) On Fig. 2.1, use the key to show a bank at building **Y**. [1]

(iii) What type of shop or service is located 58 metres north of the church?

..... [1]

(iv) Describe the distribution of houses shown on Fig. 2.1.

.....

..... [1]

(v) Identify **one** difference between the distribution of food and specialist non-food shops shown on Fig. 2.1.

.....

..... [1]

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Land use map of town centre in 2012

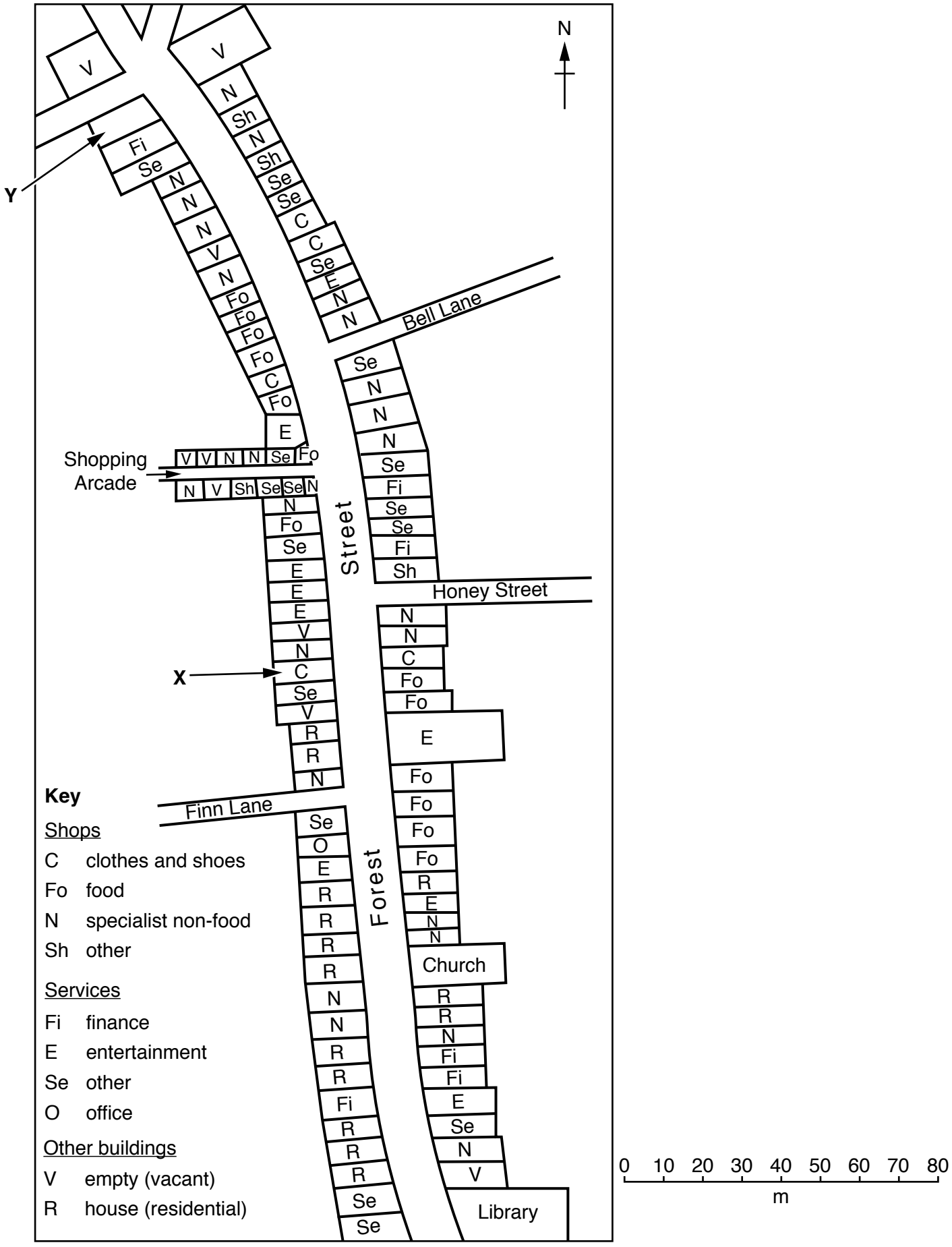

Fig. 2.1

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[Turn over

(b) To compare the different shops and services in 1981 and 2012 the students produced Table 2.1 below.

Table 2.1

Number of shops, services and other buildings located on the main shopping street

Category	1981	2012
Shops		
Clothes and shoes	8	5
Food	20	13
Specialist non-food (including bookshop, wool shop, chemist, mobile or cell phones, gift shop)	29	26
Other shops	3	4
Services		
Finance (including banks)	9	7
Entertainment (including restaurant, café, bar)	5	9
Other services (including doctor's surgery, estate agent, optician, shoe repairs, solicitor)	17	17
Office	2	1
Other buildings		
Empty (vacant) building	4	9
House (residential)	12	14
Total	**109**	**105**

(i) The students obtained the data for 1981 from an old map of the area.
Which **one** of the following is the correct description of this old map?
Tick (✓) your choice.

	Tick (✓)
primary source of data	
secondary source of data	
tertiary source of data	

[1]

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(ii) The students used Table 2.1 to draw the graph, Fig. 2.2, below.
Complete the graph to show the changes in the number of food shops and entertainment services.

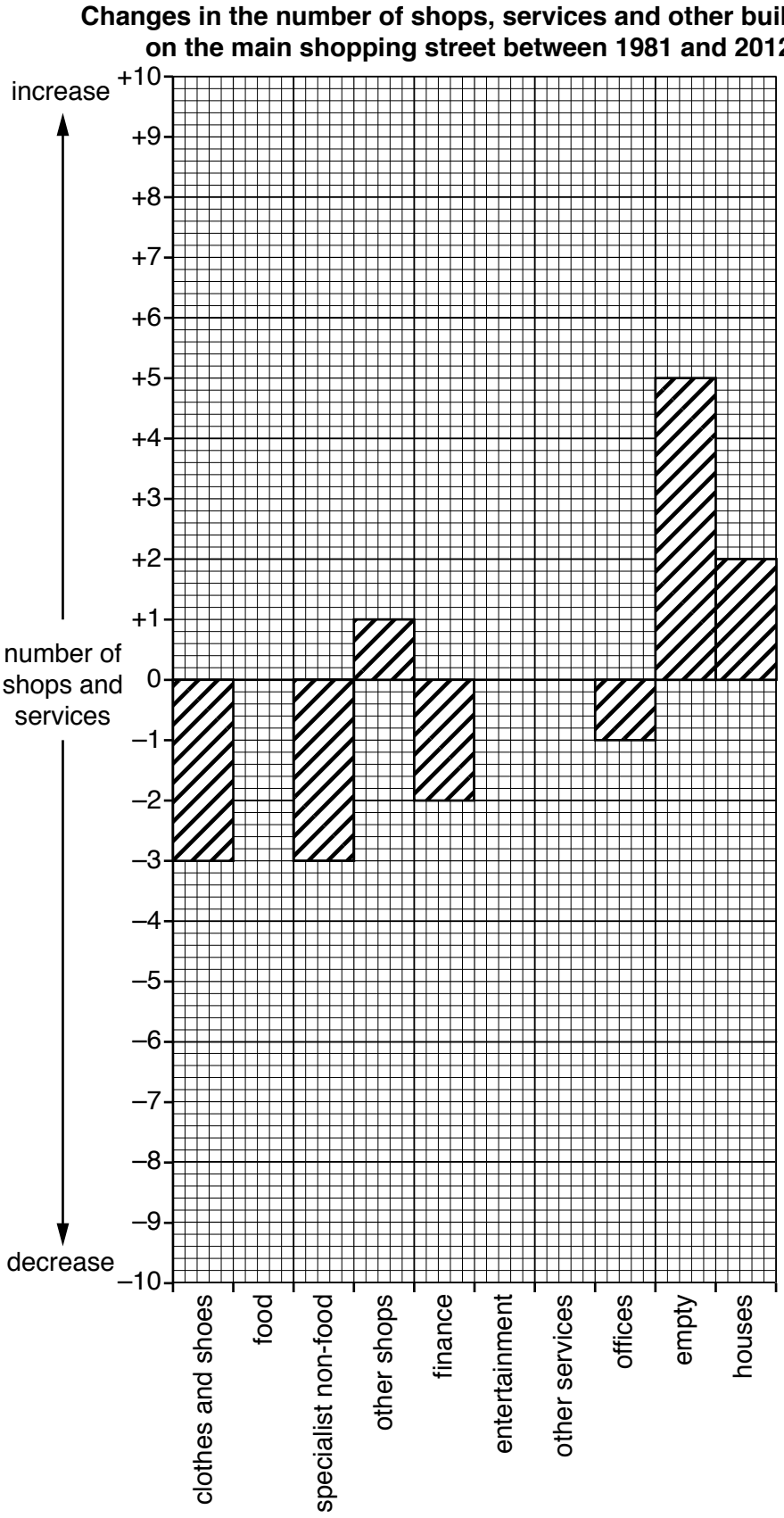

Fig. 2.2

[2]

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(iii) What conclusion would the students make about **Hypothesis 1:** *Shops and services on the main shopping street have changed between 1981 and 2012?* Support your decision with evidence from Table 2.1 and Fig. 2.2.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(c) To investigate **Hypothesis 2:** *Most people in the local area have positive opinions about shopping in the town centre*, the students used a questionnaire with people on the main shopping street. The questionnaire is shown in Fig. 2.3 (Insert).

(i) The students asked people to complete their questionnaire between 10.00 hours and 12.00 hours on a working day. The results of the age group survey are shown in Table 2.2 below.

Table 2.2

Ages of people surveyed

Age group	Number of people completing the questionnaire
under 16	0
16–30	14
31–45	11
46–60	33
over 60	42

Suggest **two** reasons why the number of people in the different age groups varied.

1 .....

.....

2 .....

..... [2]

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(ii) How could the students have got a more even distribution of age groups to survey?

.....

..... [1]

(d) (i) Table 2.3 below shows the results of Question 1 in the questionnaire.

Table 2.3

Results of Question 1: How often do you shop in the town centre?

Frequency	Number of answers
Every day	11
Once a week	52
Once a month	20
Less than once a month	17

Use the results from Table 2.3 and the key below to complete the pie graph, Fig. 2.4, below.

Results of Question 1: How often do you shop in the town centre?

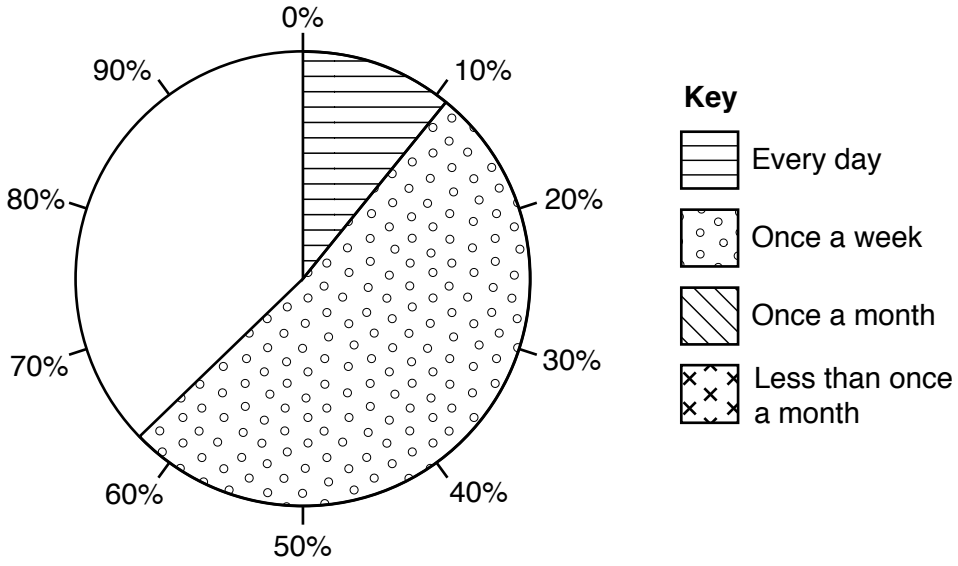

Fig. 2.4

[2]

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(ii) Table 6 below shows the results of Question 2 in the questionnaire.

Table 2.4

Results of Question 2: Where do you usually shop?

Location	Number of answers
Town centre shops	12
Local supermarket	26
Retail park on the edge of town	40
Other town or city	22

Use the results from Table 2.4 and the key below to complete the divided bar graph, Fig. 2.5, below.

Results of Question 2: Where do you usually shop?

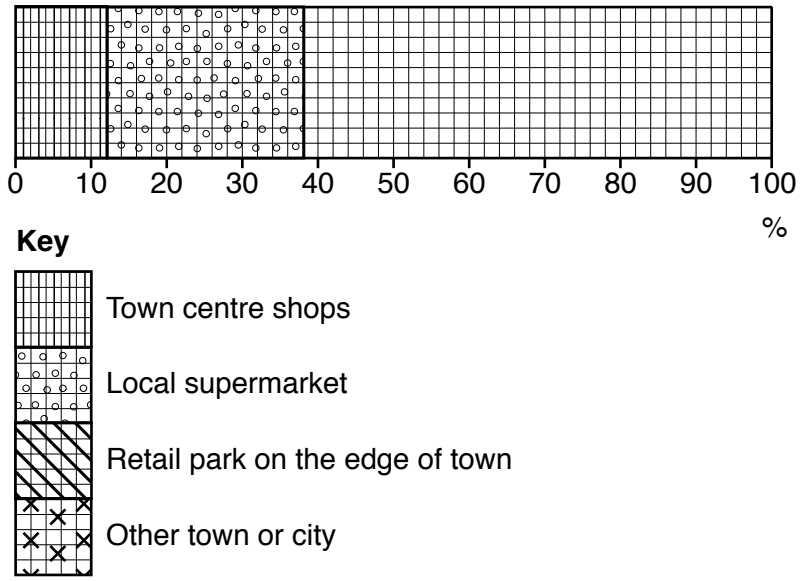

Fig. 2.5

[2]

(iii) The students put the answers to Questions 3 and 4 in the questionnaire into groups. These results are shown in Table 2.5 (Insert).

Under which advantage or disadvantage in Table 2.5 would the following answers be included?

1 I often visit the shop which sells rare books and antiques.

Heading .....

2 I prefer to shop in another city where there are department stores and more shops which sell clothes and jewellery.

Heading ..... [2]

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(iv) The students reached the conclusion that **Hypothesis 2:** *Most people in the local area have positive opinions about shopping in the town centre* was false. Support this conclusion with evidence from the results of the questionnaire.

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..... [4]

(e) Some students also included the question 'Where do you live?' in their questionnaire.

(i) How could they use the answers to this question to extend their fieldwork?

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..... [3]

(ii) Why might people object to being asked this question?

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..... [2]

[Total: 30]

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Additional Pages

If you use the following lined pages to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

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