ANDERSON JUNIOR COLLEGE

JC2 H2 Geography Preliminary Examinations (2017)

H2 GEOGRAPHY **9751/01**

Paper 1 Structured Essay Questions **15 September 2017**

3 hours

Additional Materials: Writing Paper
World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and class in the spaces provided below, and on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Name: _____ **PDG:** _____

Section A	Section B	Section C	Total
Please circle the no. of the attempted question.			
1 / 2	**3 / 4**	**5 / 6**	
32	**32**	**32**	**96**
		Percentage	**100**

This question paper consists of 3 printed pages.

[Turn Over]

Section A - Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the differences in the characteristics of the five main tropical climatic zones in the Köppen-Geiger climate classification system. [12]

(b) Evaluate the relative importance of the Hadley atmospheric circulation cell in influencing distribution of rainfall across the tropics. [20]

2 **(a)** Discuss the various causes of tropical deforestation. [12]

(b) Assess the success of strategies used to manage tropical deforestation. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain why resources may be appraised differently across spatial and temporal scales. [12]

(b) *'The rate at which our world's population is growing today is unsustainable, and we are only creating our own demise.'*

With reference to population and resource theories, evaluate the validity of the above statement. [20]

4 **(a)** Explain the causes of water scarcity. [12]

(b) Assess the relative importance of factors contributing to conflicts in managing transboundary water resources. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain how countries at high levels of development can mitigate and adapt to climate change within their country. [12]

(b) *'Hydropower provides the best alternative energy source once all the earth's fossil fuels have been depleted.'*

With reference to at least one other alternative energy source, assess the validity of the above statement. [20]

6 **(a)** Explain the factors leading to the need for urban reimaging in cities at high levels of development. [12]

(b) Assess the success of strategies adopted to improve the quality of urban living spaces in cities at high levels of development. [20]

ANDERSON JUNIOR COLLEGE

JC2 H2 Geography Preliminary Examination (2017)

H2 GEOGRAPHY 9751/02

Paper 2 Data Response Questions

INSERT **28 August 2017**

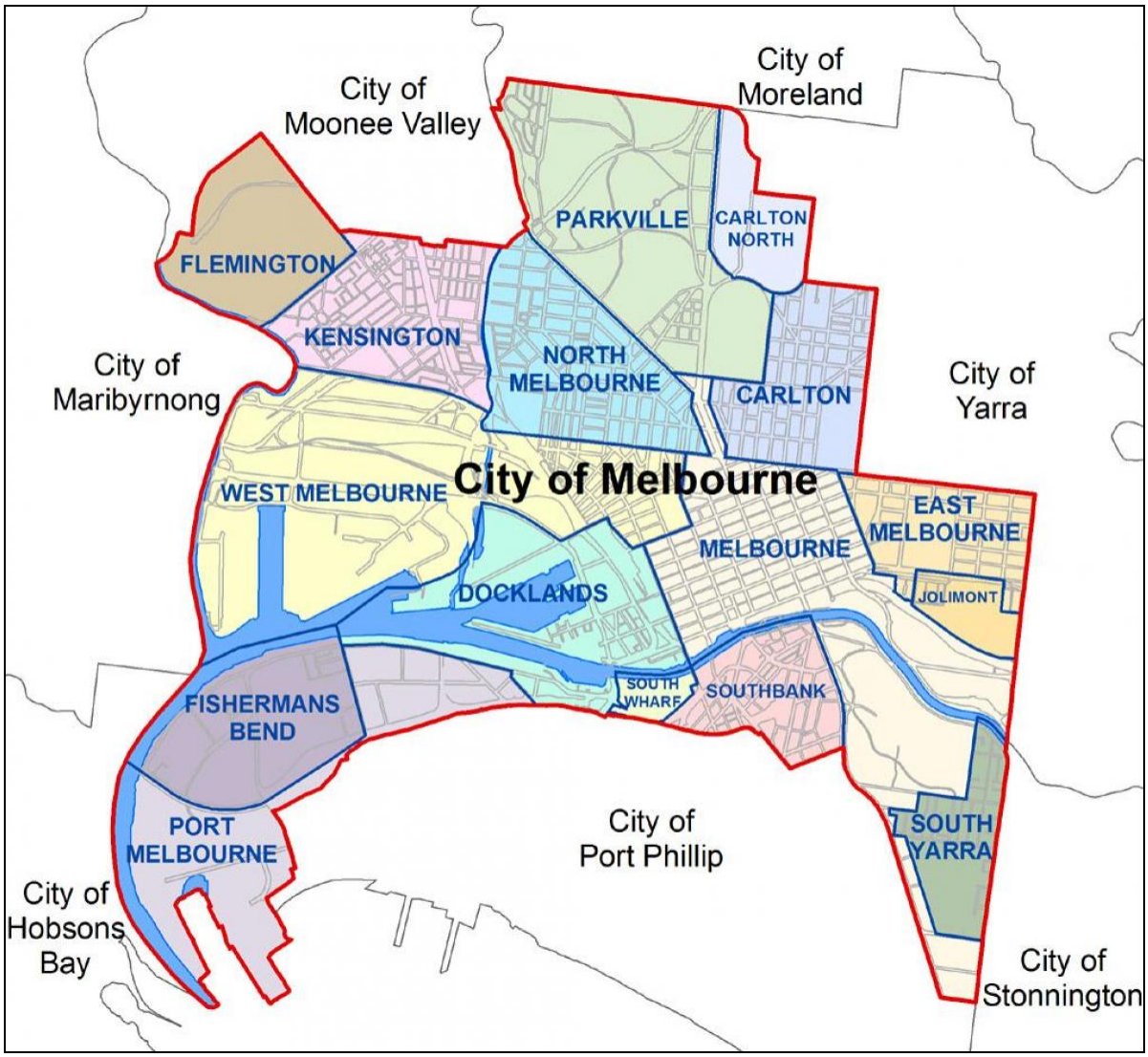
3 hours

READ THESE INSTRUCTIONS FIRST

The Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Map of Melbourne and Surrounding Suburbs



Source: http://maps-melbourne.com/img/1200/map-of-melbourne-suburbs.jpg

Resource 2 for Question 1

Selected Data for Southbank and Kensington

	Southbank	Kensington
Population Number (2015)	18,192	11,002
Population Density (persons / km^2 in 2015)	5 923.7	5 124.4
Median Age (years in 2015)	29.9	32.3
Education Persons with Post School Qualifications - Percentage of total population aged 15 years and over (%)	76.1	71.7
(a) With Postgraduate Degree (%)	11.6	9.4
(b) With Bachelor Degree (%)	33.5	31.7
Annual Income Median total income (excluding Government pensions and allowance) (AU$ in 2013)	52, 197	57, 141
Property Prices Houses – median sale price (AU$ in 2014)	650, 000	709, 000
Overseas Born Population (%)	64.9	37.7
Citizenship of Migrants		
(a) Australian citizen (%)	28.8	56.2
(b) Not an Australian citizen (%)	69.9	42.4
(c) Citizenship not stated (%)	1.3	1.4
English Proficiency of Migrants		
(a) Only English spoken at home (%)	33.6	38.8
(b) Proficient in spoken English (%)	59.3	47.3
(c) Not proficient in spoken English (%)	6.5	13.3
(d) Proficiency not stated (%)	0.6	0.6

Note: Data without the year indicated in the table above are extracted from 2011 Census.

Source: Data extracted from http://stat.abs.gov.au

Resource 3 for Question 1

Top 5 Crime Offence Data

Southbank 2011 to 2015

Crime Offence	2011	2012	2013	2014	2015	2016		
						Q1	Q2	Total
Theft	818	630	745	779	1274	239	310	549
Deception	93	112	304	205	284	315	31	346
Crimes against the person	346	288	270	294	363	82	100	182
Disorderly and offensive conduct	503	365	376	438	452	35	83	118
Property damage	160	148	165	183	242	40	51	91

Kensington from 2011 to 2015

Crime Offence	2011	2012	2013	2014	2015	2016		
						Q1	Q2	Total
Theft	426	377	409	334	496	108	133	241
Burglary/Break and enter	111	146	128	118	181	28	39	67
Crimes against the person	120	115	90	86	136	38	28	66
Property damage	106	80	69	68	120	18	22	40
Breaches of orders	14	24	52	256	44	18	9	27

Resource 4 for Question 2

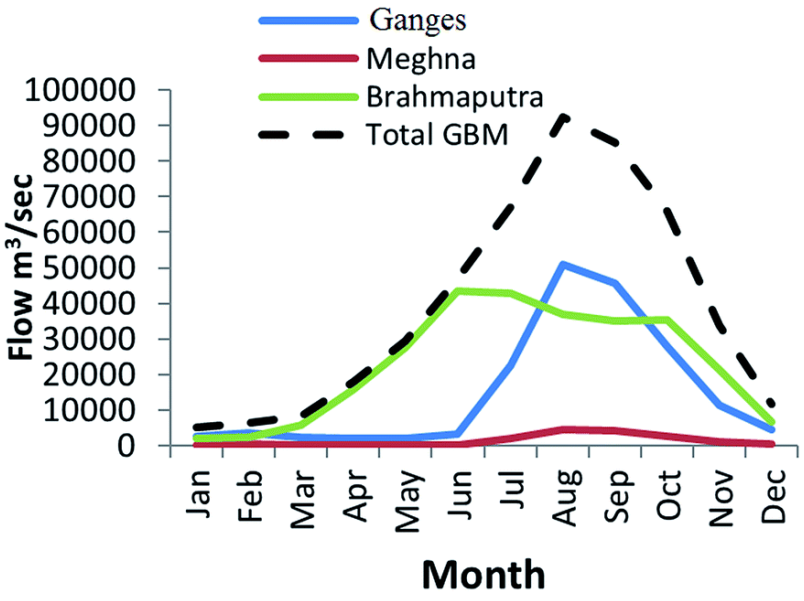
Passage of South Asian monsoon



Source: http://www.bbc.com/news/science-environment-33479507

Resource 5 for Question 2

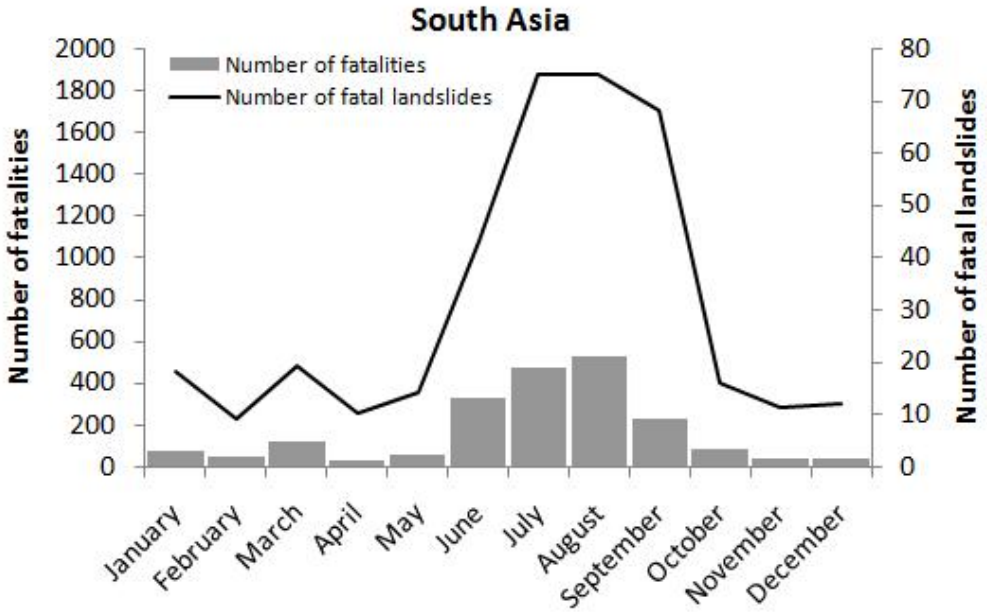
Monthly discharge amounts for rivers Ganges, Meghna, and Brahmaputra in South Asia



Source: http://pubs.rsc.org/en/content/articlelanding/2015/em/c4em00619d#!divAbstract

Resource 6 for Question 2

Landslides in South Asia, 2006 to 2008



Source: *http://blogs.agu.org/landslideblog/2010/02/13/an-analysis-of-fatal-landslides-in-the-asia-pacific-region-for-2006-to-2008/*

Resource 7 for Question 2

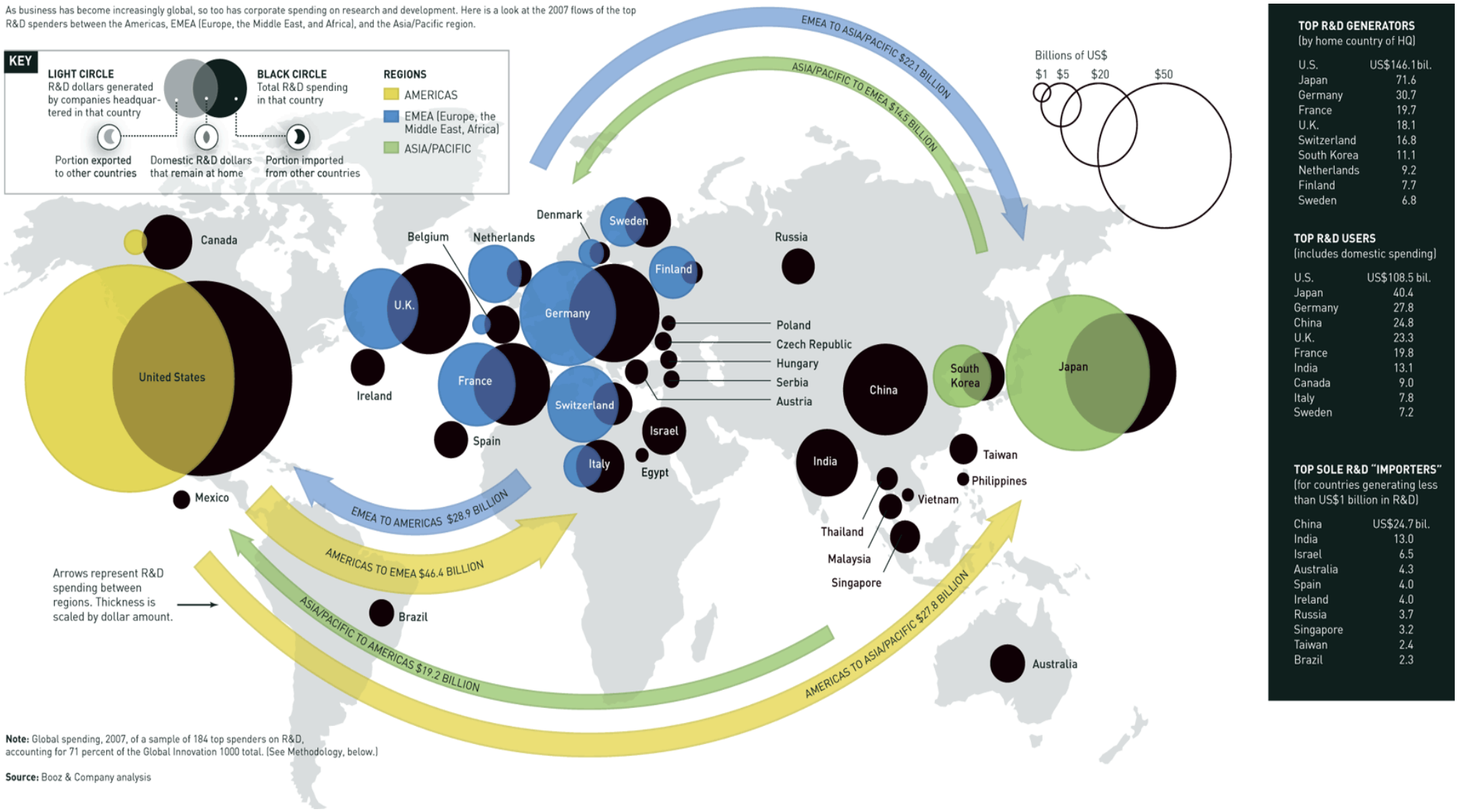
Mass movement in the Himalayan state of Uttarakhand, India, which was struck by torrential monsoon rain in June 2013



Source: *http://edition.cnn.com/2014/12/30/world/asia/nepal-climate-change-himalayas/*

Resource 8 for Question 3

R&D income and expenditure by TNCs and between regions, 2007



TOP R&D GENERATORS
(by home country of HQ)

U.S.	US$146.1 bil.
Japan	71.6
Germany	30.7
France	19.7
U.K.	18.1
Switzerland	16.8
South Korea	11.1
Netherlands	9.2
Finland	7.7
Sweden	6.8

TOP R&D USERS
(includes domestic spending)

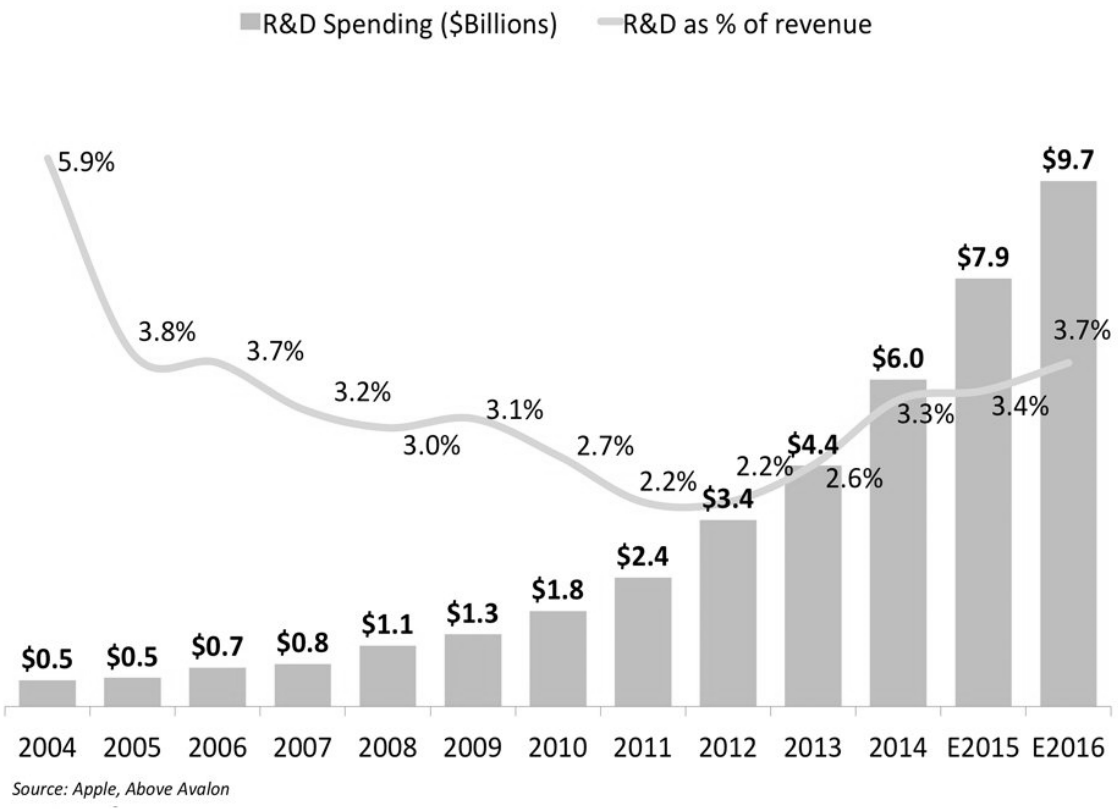
U.S.	US$108.5 bil.
Japan	40.4
Germany	27.8
China	24.8
U.K.	23.3
France	19.8
India	13.1
Canada	9.0
Italy	7.8
Sweden	7.2

TOP SOLE R&D "IMPORTERS"
(for countries generating less than US$1 billion in R&D)

China	US$24.7 bil.
India	13.0
Israel	6.5
Australia	4.3
Spain	4.0
Ireland	4.0
Russia	3.7
Singapore	3.2
Taiwan	2.4
Brazil	2.3

Resource 9 for Question 3

Apple's actual and expected expenditure on R&D, 2004 to 2016



Resource 10 for Question 3

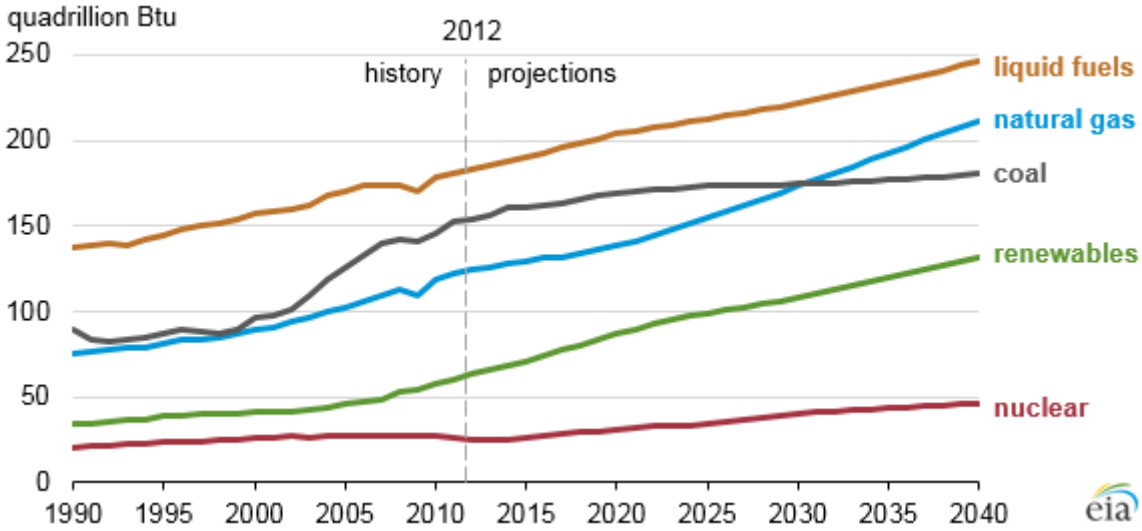
R&D expenditure for some TNCs, 2009

TNC	Location of corporate HQ	Location of main R&D	R&D spending ($US million) (2009)	Sales ($US million) (2009)	R&D Intensity (R&D as a % of sales)
Apple	USA	USA	1 333	42 905	3.1%
Google	USA	USA	2 843	23 651	12.0%
3M	USA	USA	1 293	23 123	5.6%
GE	USA	USA	3 300	155 777	2.1%
Toyota	Japan	Japan	7 822	204 363	3.8%
Microsoft	USA	USA	9 010	58 437	15.4%
P&G	USA	USA	2 044	79 029	2.6%
IBM	USA	USA	5 820	95 759	6.1%
Samsung	South Korea	South Korea, USA, Japan	6 002	109 541	5.5%
Intel	USA	USA	5 653	35 127	16.1%

Adapted from Forbes

Resource 11 for Question 4

World energy consumption by source, 1990 to 2040



Source: https://www.eia.gov/todayinenergy/images/2016.05.12/main.png

Resource 12 for Question 4

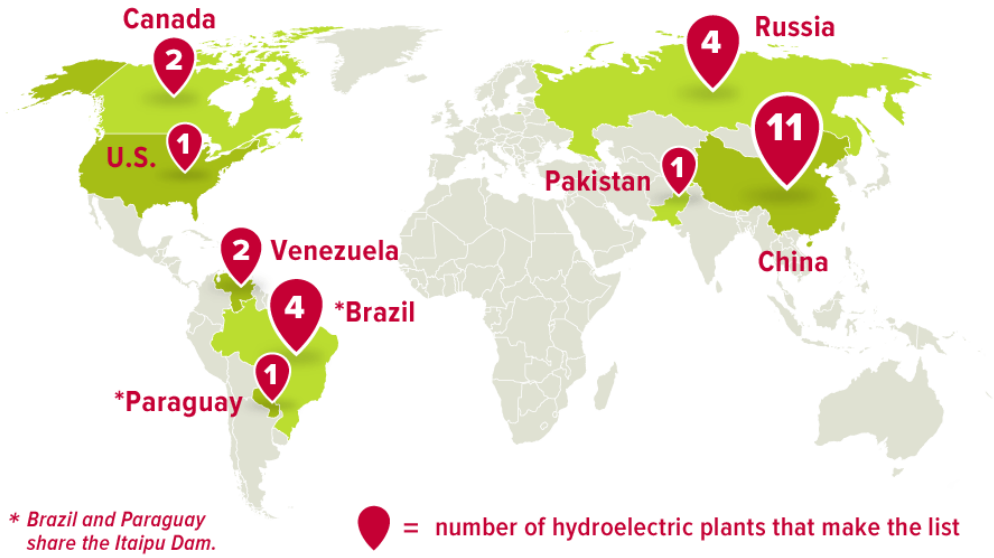
Top 10 Countries with the Highest Carbon Dioxide Emissions

2011 Total Emissions Country Rank	Country	2011 Total Carbon Dioxide Emissions from the Consumption of Energy (Million Metric Tons)	2011 Per Capita Carbon Dioxide Emissions from the Consumption of Energy (Metric Tons of Carbon Dioxide per Person)
1.	China	8715.31	6.52
2.	United States	5490.63	17.62
3.	Russia	1788.14	12.55
4.	India	1725.76	1.45
5.	Japan	1180.62	9.26
6.	Germany	748.49	9.19
7.	Iran	624.86	8.02
8.	South Korea	610.95	12.53
9.	Canada	552.56	16.24
10.	Saudi Arabia	513.53	19.65

Source: http://www.ucsusa.org/global_warming/science_and_impacts/science/each-countrys-share-of-co2.html#.WY7JT-197IU

Resource 13 for Question 4

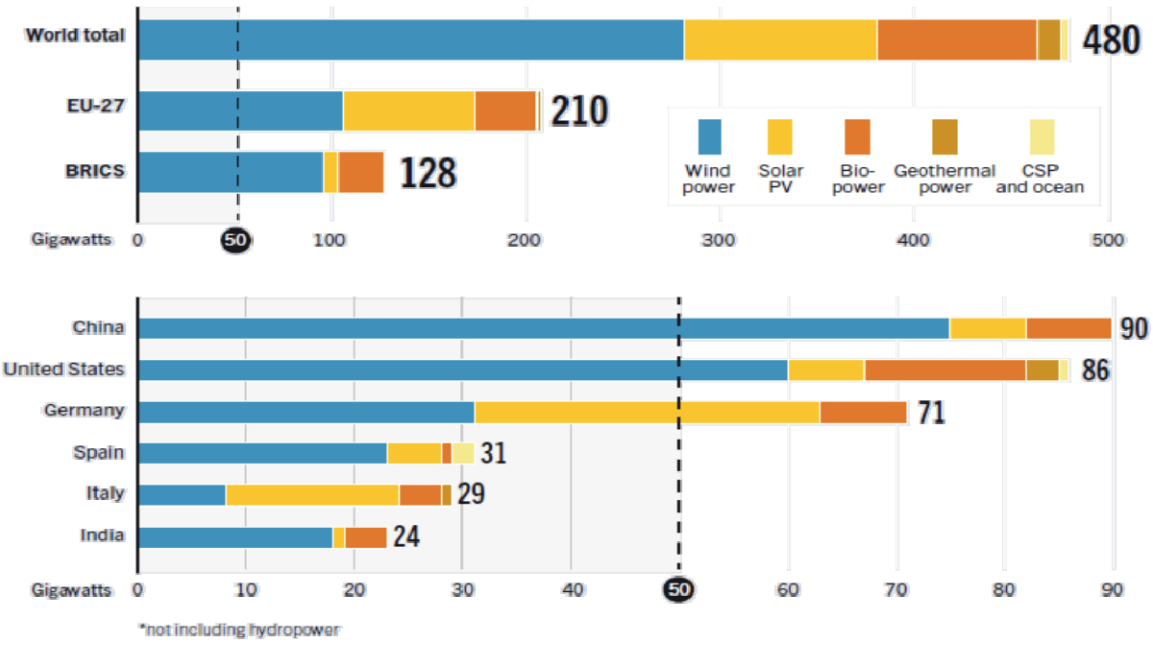
The World's 25 Largest Hydroelectric Plants



Source: http://www.usfunds.com/media/images/frank-talk-images/2014_ft/FT_Jul-Dec/25-Largest-Hydroelectric-Plants-Across-8-Countries-08122014-LG.gif

Resource 14 for Question 4

Renewable Power Capacities* in world, EU-27, BRICs, and top six countries, 2012



Note: Renewable power capacities are based on the energy generated from renewable energy infrastructure.

Source: https://c1cleantechnicacom-wpengine.netdna-ssl.com/files/2013/11/renewable-energy-capacity-leaders-2012.png

ANDERSON JUNIOR COLLEGE

JC2 H2 Geography Preliminary Examinations (2017)

H2 GEOGRAPHY **9751/02**

Paper 2 Data Response Questions **28 August 2017**

3 hours

Additional Materials: Writing Paper
1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and class in the spaces provided below, and on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
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Candidates answer **all** questions.

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The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Name: _____ **PDG:** _____

Section A	Section B			Total
25	25	25	25	100

This question paper consists of 4 printed pages.

[Turn Over]

Section A

Theme 4: Geographical Investigation

1 A group of 24 18 year-old students from the city of Melbourne, in the state of Victoria, Australia wanted to examine liveability in different parts of Melbourne. They selected the neighbourhoods of Southbank and Kensington for their investigation.

Southbank is an inner urban neighbourhood of Melbourne, Victoria, Australia, 1 km south of Melbourne's central business district. Kensington is an inner suburb of Melbourne, Australia, 4 km north-west of Melbourne's central business district. The students had access to census information about the birthplace of the residents, the houses they stay in, their level of education and their monthly income.

The students wanted to gain further information on sports facilities, cultural opportunities, public transport and the quality of roads to gain a fuller picture of liveability. They were allocated three days for field investigation at the beginning, in the middle and at the end of November.

Resource 1 shows a map of Melbourne. Resource 2 shows selected data comparing the population numbers, population densities, median age, levels of education, median income, property prices, percentage of overseas born population, citizenship of migrants and English proficiency of migrants in Kensington and Southbank. Resource 3 shows the top 5 crime offence data in Southbank and Kensington respectively.

(a) With reference to the background information provided and Resource 1, outline why there might be contrasts in liveability between Southbank and Kensington. [2]

(b) Suggest a suitable research question for the students' investigation with reference to Resource 2, and state **two** reasons why the research question is at a suitable scale. [3]

(c) Explain how Resources 2 and 3 can help the students understand liveability in Southbank and Kensington. [6]

(d) For Southbank, sketch one **pie chart** to represent English proficiency of migrants using the information in Resource 2 and one **bar graph** to represent crime offence in 2015 using the information in Resource 3. [5]

(e) Suggest a plan for the students to investigate the quality of public transport. [9]

Section B

Theme 1: Tropical Environments

South Asian Monsoon

2 Resource 4 shows the passage of the monsoon in South Asia. Resource 5 shows monthly discharge amounts for three rivers in South Asia. Resource 6 provides information on landslides in South Asia from 2006 to 2008. Resource 7 shows a mass movement event in the Himalayan state of Uttarakhand, India.

(a) With reference to the map shown in Resource 4, describe the passage of the monsoon across South Asia. [5]

(b) With reference to Resources 4 and 5, account for the relationship between the monsoon and discharge amounts of rivers Brahmaputra and Ganges. [6]

(c) With reference to Resource 6, describe the pattern of landslide occurrence in South Asia. [4]

(d) Identify, and provide evidence for, the type of mass movement shown in Resource 7. [4]

(e) With reference to Resource 7 and your own knowledge, explain how the mass movement in Uttarakhand, India might have occurred. [6]

Theme 2: Development, Economy and Environment

Research and Development by Transnational Corporations

3 Resource 8 shows the breakdown of research and development (R&D) income and expenditure by transnational corporations (TNCs) in 2007, as well as the flow of R&D expenditure between regions. Resource 9 shows Apple's actual and expected expenditure on R&D from years 2004 to 2016. Resource 10 gives a breakdown of R&D expenditure for some TNCs in 2009.

(a) Compare the breakdown of R&D income and expenditure for higher-income and lower-income countries as shown in Resource 8. [4]

(b) Using evidence from Resource 8, identify the region with the highest R&D income generated and suggest **one** reason for the region's amount of R&D income generated. [4]

(c) Describe Apple's changing contribution to R&D as shown in Resource 9. [3]

(d) Account for the locational trends of headquarters (HQs) as shown in Resource 10. [6]

(e) Using Resource 8 and your own knowledge, explain how R&D income and expenditure patterns reflect the core-periphery model. [8]

Theme 3: Sustainable Development

Energy Consumption and Production in the World

4 Resource 11 shows the world energy consumption by source, 1990 to 2040. Resource 12 shows the top ten countries with the highest carbon dioxide emissions. Resource 13 shows the world's 25 largest hydroelectric plants. Resource 14 shows the renewable power capacities of the world, selected regions and countries. Renewable power capacities are based on the energy generated from renewable energy infrastructure.

(a) With reference to Resource 11, describe the trends of world energy consumption. [3]

(b) With reference to Resource 11, account for the trend in nuclear energy consumption from 1990 to 2040. [4]

(c) With reference to Resource 12, explain why a consideration of total carbon dioxide emissions alone provides an inaccurate picture of a country's ecological footprint. [8]

(d) With reference to Resource 13, describe the distribution of the world's largest hydroelectric plants. [3]

(e) With reference to Resource 14 as well as your own knowledge, suggest reasons why the potential for renewable energy consumption varies spatially. [7]

Catholic Junior College

JC2 Preliminary Examinations

Higher 2

GEOGRAPHY 9751/02

Paper 2 **23 August 2017**

3 hours

READ THESE INSTRUCTIONS FIRST

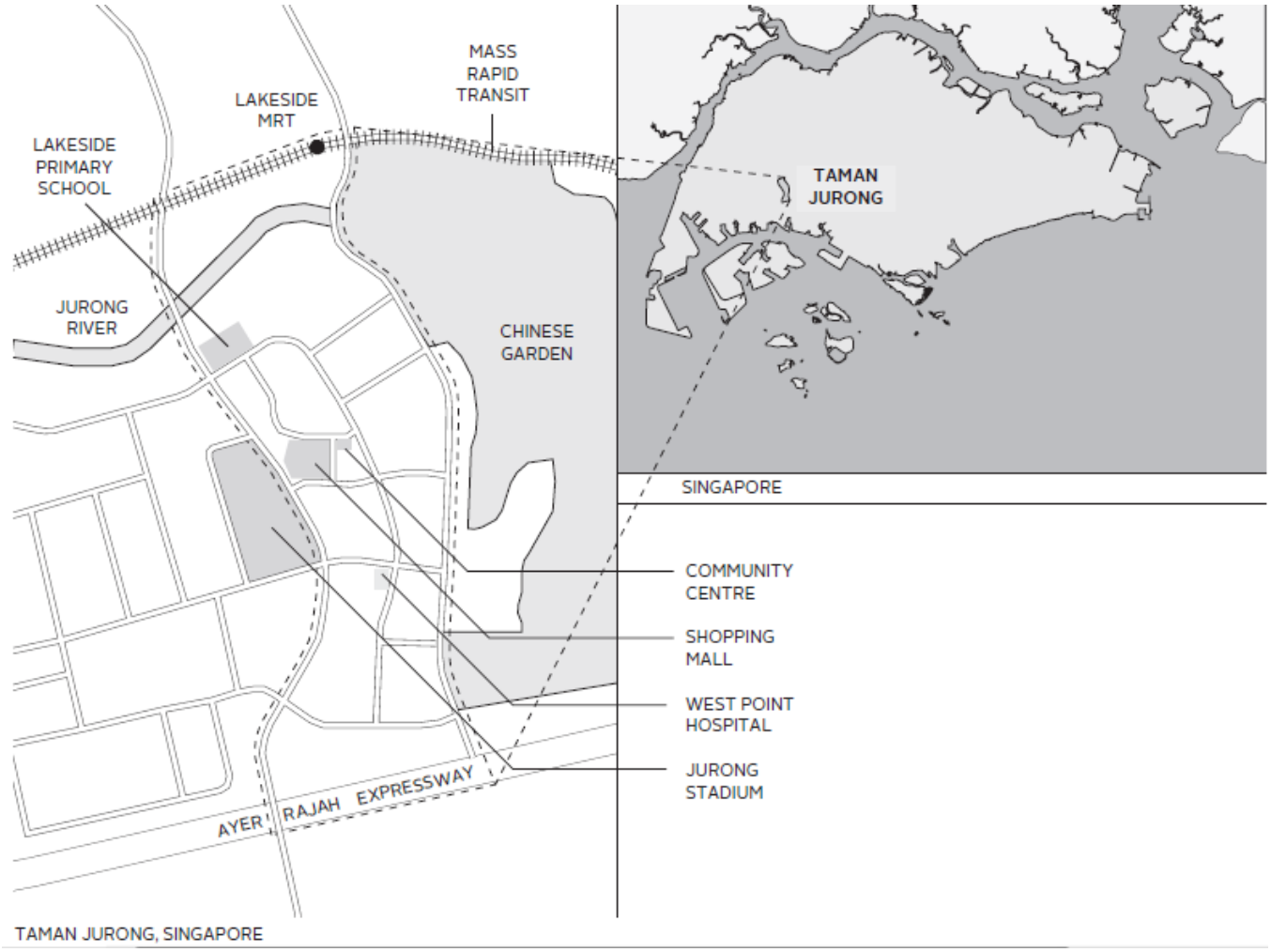
This Insert contains all the Photographs, Table and Figures referred to in the questions.

This document consists of **11** printed pages and **1** blank page.

[Turn over]

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Resource 1 for Question 1
Landuse Map of amenities in Taman Jurong



Resource 2 for Question 1
Profile of Survey Respondents

Length of Stay/Residency	Percentage (%)
Ten years or less	58.1
More than ten years	41.9
Type of Residence	**Percentage (%)**
HDB Public Housing	90
Condominium	6
Landed Property	4
Household Monthly Income	**Percentage (%)**
$2999 and below	37.3
$3000-$4999	16.8
$5000-$6999	12.8
$7000 and above	12.8
Missing data	20.3

Resource 3 for Question 1
Survey Results (General satisfaction with neighbourhood amenities and infrastructure)

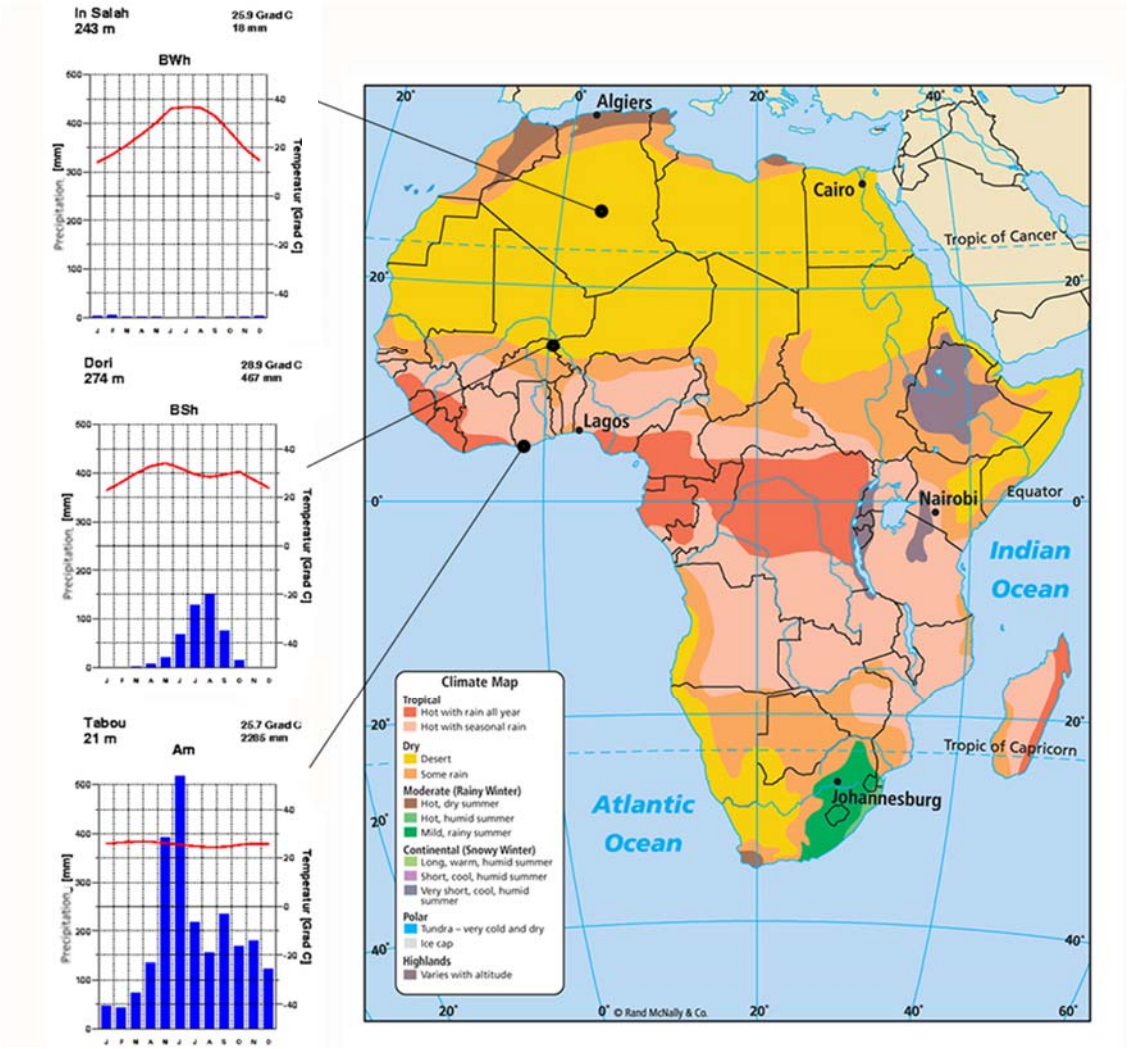
General satisfaction with neighbourhood amenities and infrastructure	Agree and Strongly Agree (%)
There is good access to green space in this neighbourhood.	87.1
There are adequate sports and exercise facilities in this neighbourhood.	63.4
There are enough play areas for children in this neighbourhood.	77.5
The footpaths in this neighbourhood are adequate.	77.1
There are provision shops/wet market(s) in my neighbourhood.	92.3
This neighbourhood is becoming quite an expensive place to live.	65.6
There are affordable educational facilities near my neighbourhood.	62.8

Resource 4 for Question 1
Survey Results (Efficiency of transportation network)

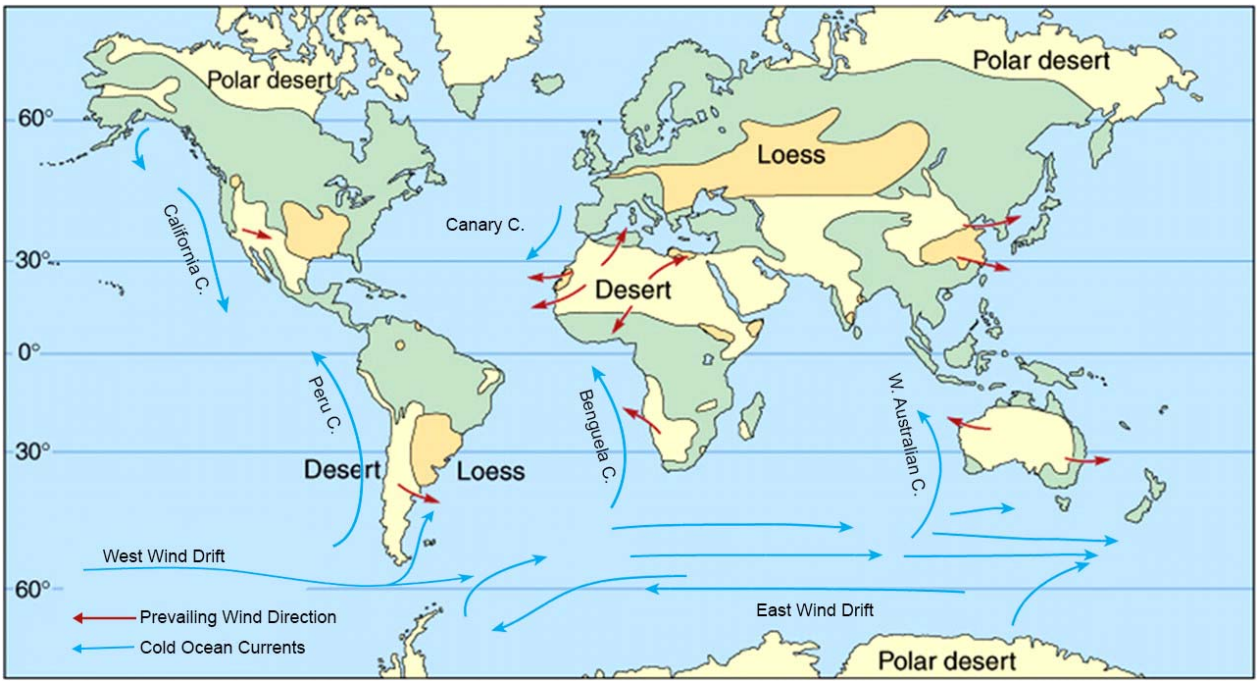
How much time do you spend travelling to your place of employment from your neighbourhood?	Percent
1 – 14 minutes	16.3 %
15 – 30 minutes	40.1 %
31 – 59 minutes	32.5 %
More than 1 hour	11.1 %
Total	100.0 %

How far do you travel to the nearest public transport point (bus-stop, train station)?	Percent
Less than 200 metres	79.2 %
200 – 500 metres	14.4 %
500 metre – 1 kilometre	5.1 %
More than 1 kilometre	1.3 %
Total	100.0 %

Resource 5 for Question 2
Climographs at different locations in Africa



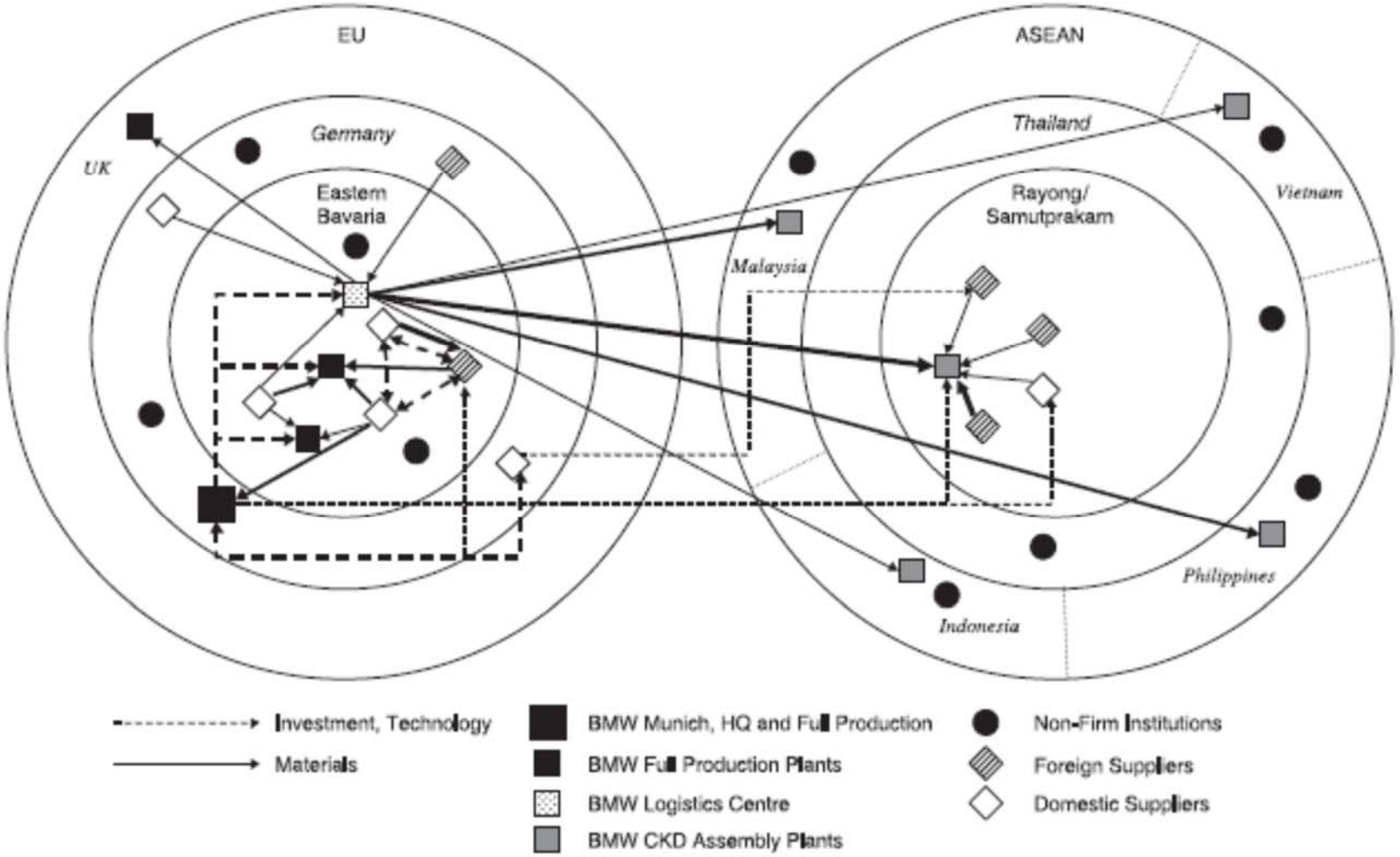
Resource 6 for Question 2
The global distribution of major world's deserts and their associated climatic influence



Resource 7 for Question 2
Landforms in the Sahara Desert

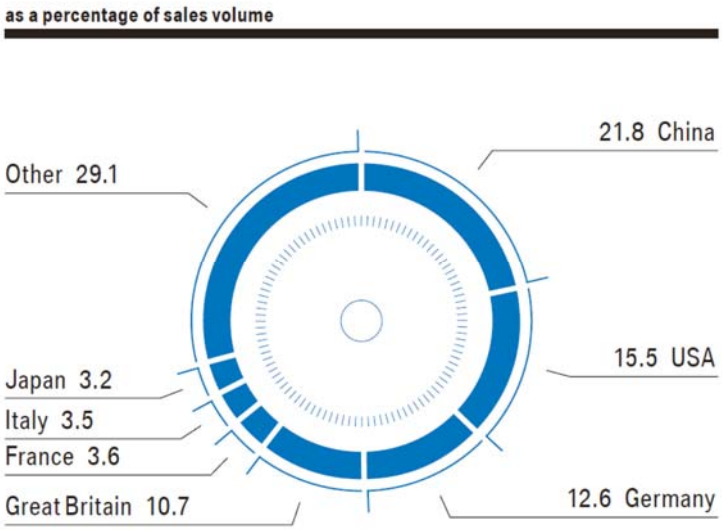


Resource 8 for Question 3
BMW's operations in the European Union (EU) and Association of Southeast Asian Nations (ASEAN) Countries



Source: *Coe, et al., 2004*

Resource 9 for Question 3
BMW's Key Automobile Markets in 2016 and Characteristics of Selected Countries that BMW is Located In

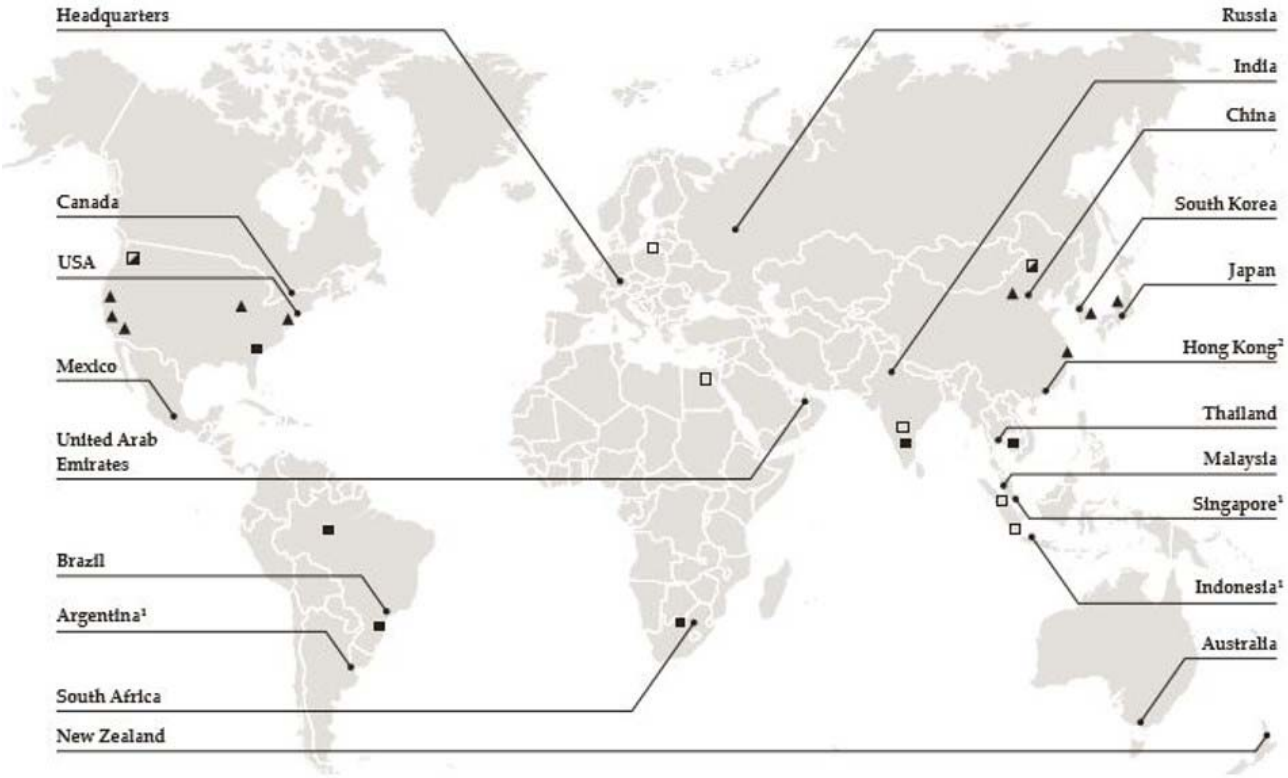


Country	Import Duties on Motor-vehicles in 2015 (%)	Monthly Wages in 2014 (at PPP)	Adult Literacy Rate in 2010 (%)
Brazil	35	1,192	90
China	25	1,336	95
Egypt	90	1,815	93
India	60	550 (2013)	93
Indonesia	33	496	69
South Africa	23	2,972	72
Japan	0	3,216	99
Germany	0	3,818 (2015)	99
Great Britain	0	3,525 (2015)	99

Note: The Adult Literacy Rate refers to the percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life.

Sources: *UNICEF, ILO, WTO*

Resource 10 for Question 3
BMW Group Locations Worldwide



Production outside Europe

- ■ BMW Group plant Araquari, Brazil
- BMW Group plant Chennai, India
- BMW Group plant Manaus, Brazil
- BMW Group plant Rayong, Thailand
- BMW Group plant Rosslyn, South Africa
- BMW Group plant Spartanburg, USA
- ◪ BMW Brilliance Automotive, China (joint venture – 3 plants)
- ◪ SGL Automotive Carbon Fibers (joint operation – 2 plants)

□ Partner plants outside Europe

- Partner plant, Hosur, India
- Partner plant, Jakarta, Indonesia
- Partner plant, Cairo, Egypt
- Partner plant, Kaliningrad, Russia
- Partner plant, Kulim, Malaysia

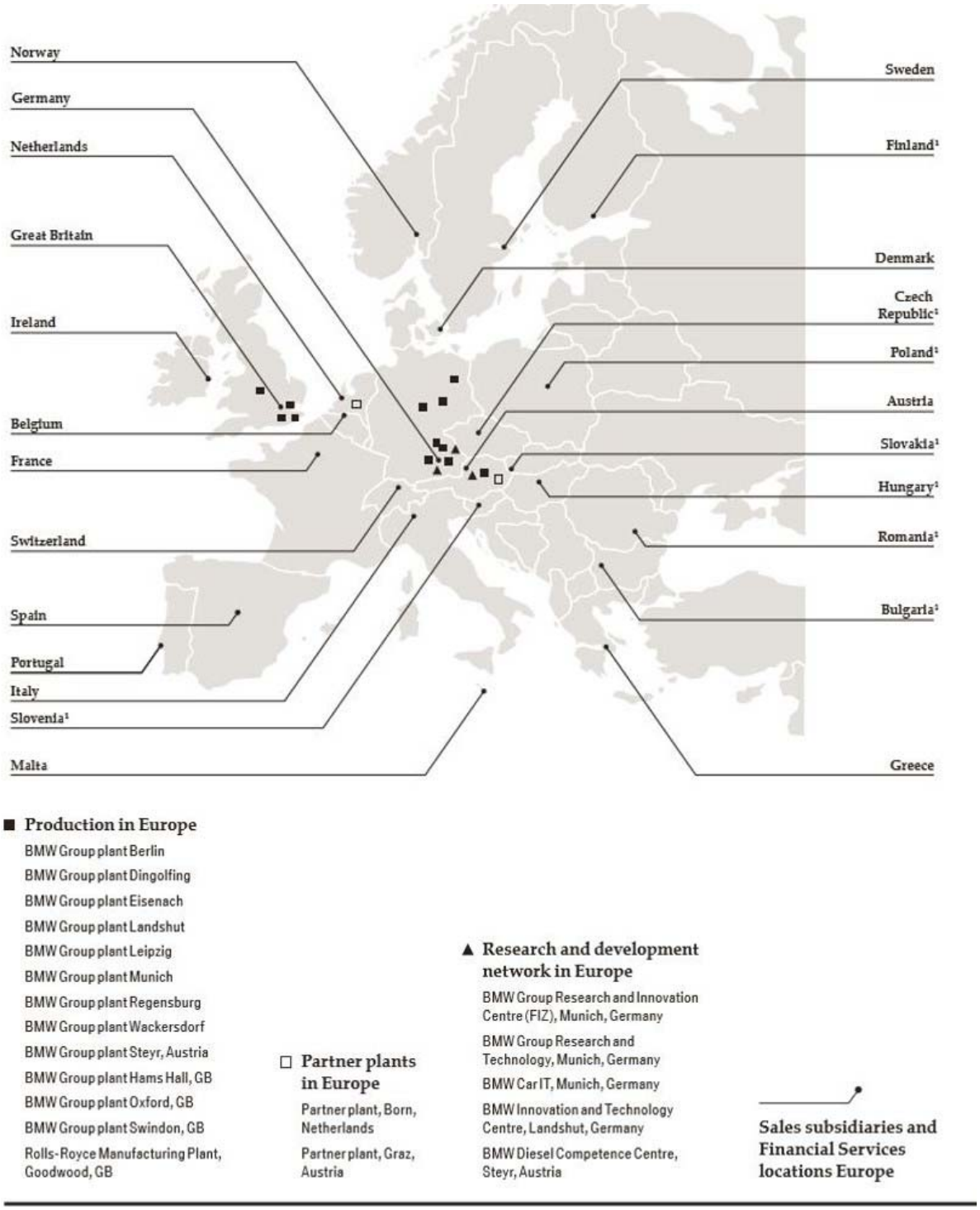
▲ Research and development network outside Europe

- BMW Group Designworks, Newbury Park, USA
- BMW Group Technology Office USA, Mountain View, USA
- BMW Group Engineering and Emission Test Center, Oxnard, USA
- BMW Group ConnectedDrive Lab China, Shanghai, and BMW Group Designworks Studio Shanghai, China
- BMW Group Engineering China, Beijing, China
- BMW Group Engineering Japan, Tokyo, Japan
- BMW Group Engineering USA, Woodcliff Lake, USA
- BMW Technology, Chicago, USA

Sales subsidiaries and Financial Services locations worldwide

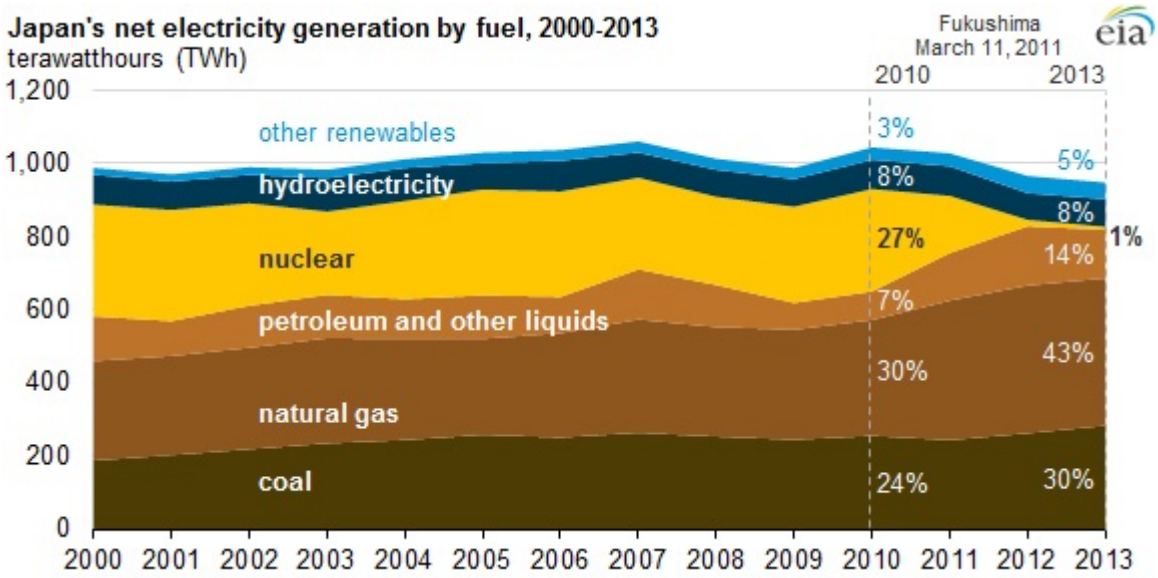
[1] Sales locations only.
[2] Financial Services only.

Resource 11 for Question 3
BMW Group Locations in Europe



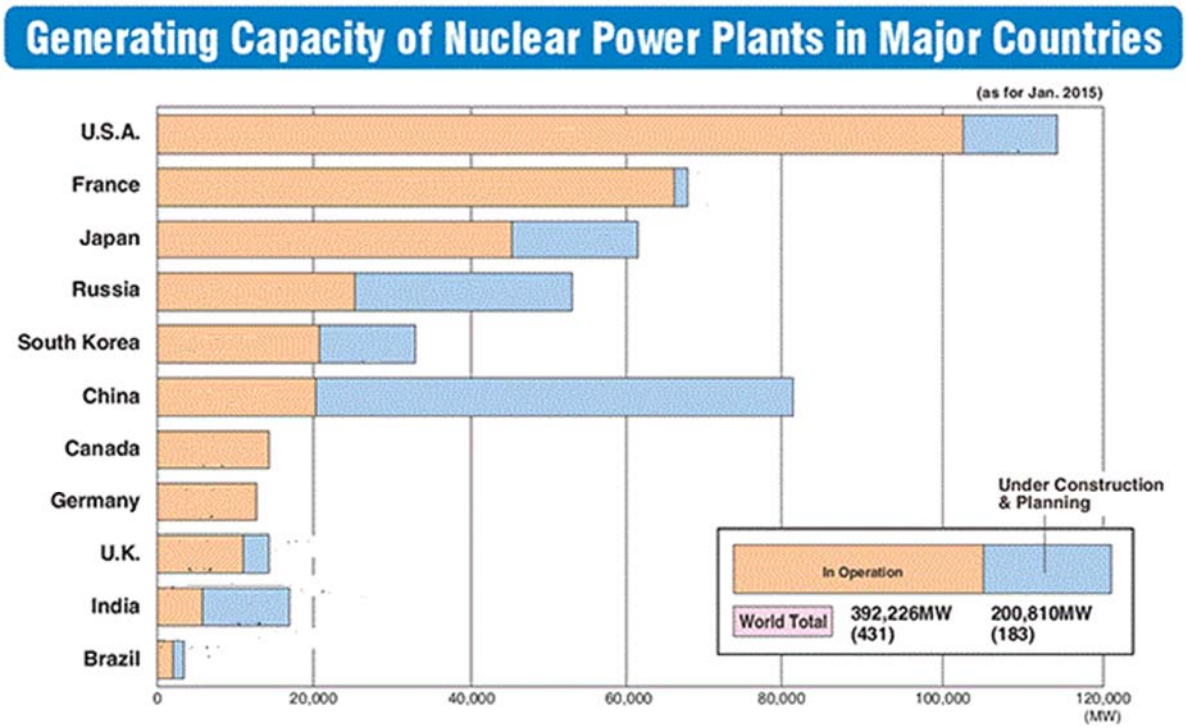
Source: *BMW*

Resource 12 for Question 4
Japan's Net Electricity Generation by Fuel type, 2000-2013



Source: https://www.eia.gov/todayinenergy/detail.php?id=19951

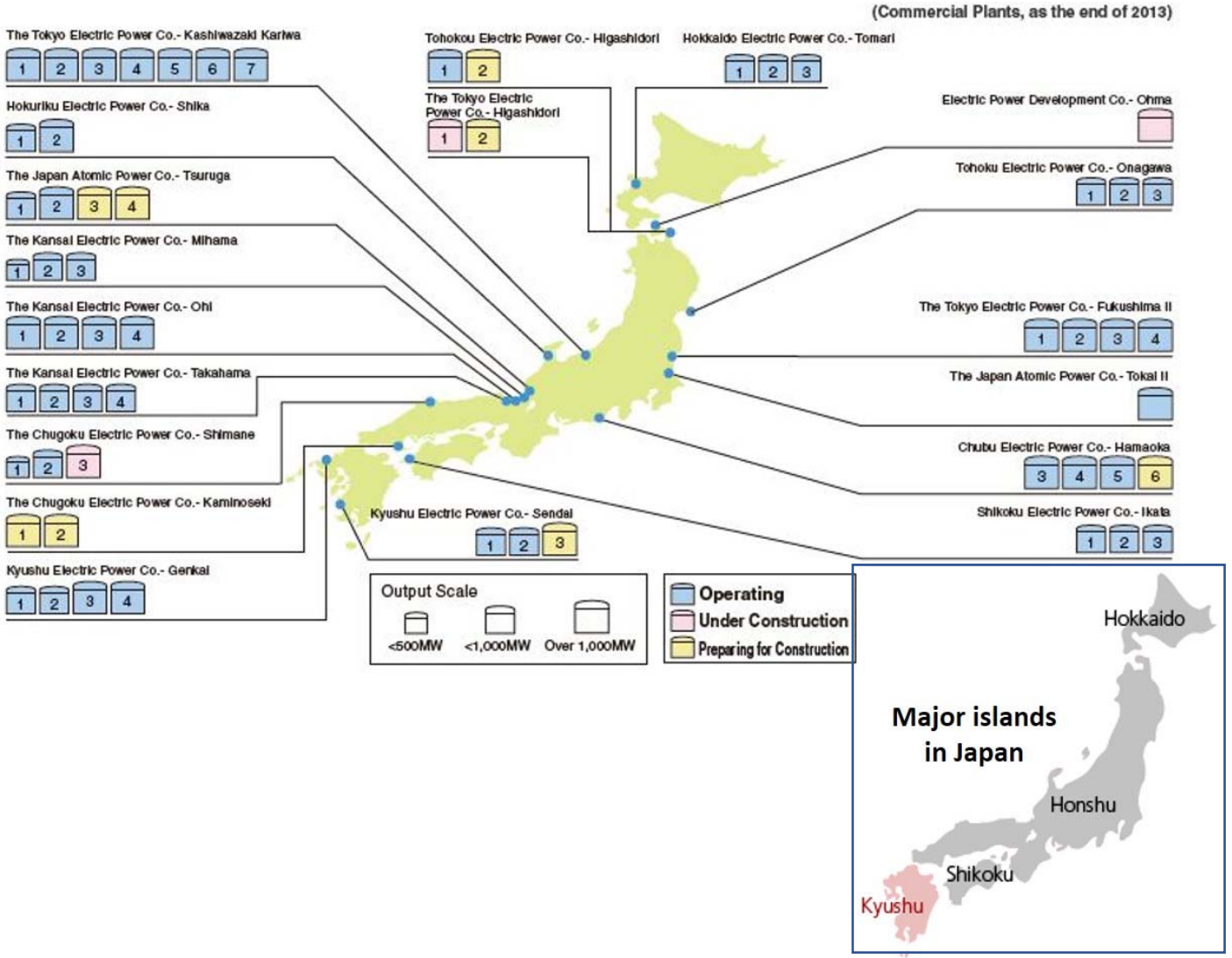
Resource 13 for Question 4
Generating Capacity of Nuclear Power Plants in Major Countries



Note: Numbers in brackets denote number of plants.

Source: http://www.fepc.or.jp/english/nuclear/power_generation/plants/

Resource 14 for Question 4
Distribution of Nuclear Plants in Japan



Catholic Junior College

JC2 Preliminary Examinations

Higher 2

GEOGRAPHY 9751/02

Paper 2 **23 Aug 2017**

3 hours

Additional Materials: Answer Paper
1 Insert

READ THESE INSTRUCTIONS FIRST

Write your class and name on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagram and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

At the end of the examination, you are to hand in **each question separately.**
The number of marks is given in brackets [ ] at the end of each question or part question.

Start each question on a fresh sheet of paper. You will hand in each question separately.

This document consists of 5 printed pages and 1 blank page. [Turn over

BLANK PAGE

Section A

Theme 4: Geographical Investigations

Urban Liveability in Taman Jurong

1 A group of ten 18-year-old students from Singapore wanted to examine liveability of residents in the neighbourhood of Taman Jurong, Singapore. They were allocated two days for their field investigations, which was conducted on a Saturday and a Sunday during the first week of their school holidays in June.

They conducted a questionnaire survey with 40 residents of Taman Jurong and asked questions regarding their satisfaction of their neighbourhood amenities and efficiency of transportation network. The students stood at the entrance of Taman Jurong shopping centre and approached people to take their survey through systematic sampling. Where appropriate, the question items in the survey used an even-point Likert scale. The statements for the Likert sections were perceptual and experiential and respondents were asked to specify their level of agreement or disagreement; there was no neutral option. However, as a few of their respondents were illiterate and only spoke Chinese, the students had to translate the survey questions for them on the spot.

The students also used Google Maps for reference to mark out amenities found in Taman Jurong on a blank map.

Resource 1 shows a landuse map of amenities in Taman Jurong as indicated by the students. Resource 2 shows the profile of survey respondents from Taman Jurong. Resource 3 shows the survey results of the respondents' general satisfaction of their neighbourhood amenities and infrastructure. Resource 4 shows the survey results of the efficiency of transportation network in Taman Jurong.

(a) With reference to Resource 1 and 2, suggest a suitable hypothesis for the students' investigation and state three reasons why the hypothesis is a suitable one. [4]

(b) The group concluded that the data collected for their questionnaire survey may not have been completely reliable and/or accurate. [7]

Explain why this is so and suggest how the data collection process of the students' geographical investigation could be improved.

(c) Identify two potential risks you may encounter while carrying out the investigation and propose suitable ways of minimising these risks. [4]

(d) Suggest two limitations of the data representation method shown in Resource 3 and explain how the data representation method could be improved. [4]

(e) Explain why the questionnaire survey results as shown in Resource 2, 3 and 4 may be insufficient in determining the liveability of residents in Taman Jurong. [6]

Section B

Theme 1: Tropical Environments

2 Resource 5 shows climographs at different locations in Africa. Resource 6 shows the global distribution of major world's deserts and their associated climatic influence. Resource 7 shows a particular landform in the Sahara Desert near in Salah.

(a) Compare the climatic characteristics of In Salah, Dori and Tabou as shown in Resource 5. [4]

(b) With reference to Resource 6, briefly explain the reasons for the aridity of deserts found in the African continent. [4]

(c) With reference to Resources 6, account for the distribution of loess in Africa. [6]

(d) Describe the key features of the landforms shown in Resource 7. [4]

(e) Explain the conditions that are necessary for the formation of the landforms shown in Resource 7. [7]

Theme 2: Development, Economy and Environment

Global Production Network of BMW

3 BMW is a German luxury vehicle, motorcycle, and engine manufacturing company founded in 1916. BMW operates 31 production and assembly facilities in 14 countries and has a global sales network in more than 140 countries.

Resource 8 shows BMW's operations in the European Union (EU) and Association of Southeast Asian Nations (ASEAN) countries. Resource 9 shows BMW's key automobile markets in 2016 and some characteristics of selected countries that BMW is located in. Resource 10 shows BMW group's locations worldwide. Resource 11 shows BMW group's locations in Europe.

(a) With reference to Resource 8, name the country in which BMW's HQ is located. [1]

(b) Compare BMW's operations in Eastern Bavaria, Germany, with their operations in Rayong, Thailand. Support your answer with evidence from Resource 8. [6]

(c) With reference to Resource 9, explain the likely reasons for BMW's production locations outside the EU. [5]

(d) With reference to Resource 9, 10 and 11, explain the 'New International Division of Labour'. [4]

(e) With reference to Resource 9, 10 and 11, to what extent would you consider BMW a 'transnational corporation'? [9]

Theme 3 – Sustainable Development

Alternative Energy in Japan

4 Previously one of the world's largest producers of nuclear-generated electricity, Japan has relied heavily on imported fossil fuels following the meltdown at Fukushima Dai-ichi due to the 2011 Tōhoku earthquake and tsunami.

Resource 12 shows Japan's net electricity generation by fuel type from 2000-2013. Resource 13 shows the generating capacity of nuclear power plants in major countries. Resource 14 shows the distribution of nuclear plants in Japan.

(a) With reference to Resource 12, describe changes in contribution to electricity generation by fossil fuels between 2010 and 2013. [3]

(b) With reference to Resource 12, explain the likely issues that Japan may face if it continues with the energy mix in 2013. [6]

(c) With reference to Resource 13, compare Japan's current nuclear power generation capacity with other developed countries in the world in 2015. [3]

(d) With reference to Resource 14, describe the distribution of operating nuclear plants in Japan. [4]

(e) Using Resource 12, 13, 14 and your own knowledge, recommend whether Japan should continue to invest in nuclear energy. [9]

**** END OF PAPER ****

Name:		Index Number:		Class:	

DUNMAN HIGH SCHOOL
PRELIMINARY EXAMINATIONS
Year 6

HIGHER 2 GEOGRAPHY **9751/01**

Paper 1 Structured Essay Questions

Monday **11 September 2017** **3 hours**

Additional material: World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and class clearly on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or in the classroom, even when such examples and not specifically requested by the question.
Diagrams and sketch maps should be drawn wherever they serve to illustrate an answer.
The outline world map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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

Section A – Tropical Environments

Answer **one** question from this section.

1(a) Explain the occurrence of the types of mass movement in the humid tropical environments. [12]

(b) "Climate is the most important factor influencing hydrological processes of drainage basins in the tropics." Discuss. [20]

2(a) With the aid of an annotated diagram or diagrams, explain how characteristics of flood hydrographs vary in the tropics. [12]

(b) To what extent are hard engineering strategies effective in mitigating fluvial floods in the tropics? [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3(a) Explain how levels of development within a country can be measured. [12]

(b) "The state is the most important actor in governing the global economy."

To what extent do you agree with this view? [20]

4(a) Explain why different parts of the world experience water scarcity. [12]

(b) "International water agreements between riparian states is an effective strategy in managing tranboundary water resources and their resultant conflicts."

To what extent do you agree with this view? [20]

Section C – Sustainable Development

Answer **one** question from this section.

5(a) With reference to examples, explain why the management of non-hazardous solid waste vary between countries of varying levels of development. [12]

(b) Discuss the effectiveness of strategies to address slum housing and transport congestion to improve urban liveability in cites of low levels of development. [20]

6(a) With reference to countries of low levels of development, explain how the effects of human induced climate change can affect the sustainable development of these countries. [12]

(b) "The poorest developing countries will be hit earliest and hardest by climate change even though they have contributed little to causing the problem". (Stern Review 2006)

To what extent can countries of low levels of development manage the impacts of human induced climate change? Discuss. [20]

Name:		Index Number:		Class:	

DUNMAN HIGH SCHOOL
PRELIMINARY EXAMINATIONS
Year 6

HIGHER 2 GEOGRAPHY **9751/02**

Paper 2 Data Response Questions
INSERT

Tuesday **19 September 2017** **3 hours**

READ THESE INSTRUCTIONS FIRST

This insert contains all the Resources referred to in the question paper.

Resource 1 for Question 1

Breakdown of how much of the TNCs' ''finished good'' come from domestic suppliers in terms of percentage of the total product cost

	Singapore Based TNCs	% of total product
1	Flextronics	10
2	Creative	8
3	Razer Inc	30
4	Broadcom	25
5	Carousell	40
	Average	**22.6**
	Foreign-Owned TNCs	
1	Accent Asia Tech	10
2	Amphenol	17
3	Ascendas-Singbridge	18
4	Adeka Asia	25
5	Acer	2
	Average	**14.4**

Resource 2 for Question 1

Number of components that were required to assemble a "finished good" and how many of these components were provided by domestic suppliers in percentages

	Singapore Based TNCs	Total number of components for "finished good"	Number of components that were provided by domestic suppliers	% of total product
1	Flextronics	350	17	4.9
2	Creative	200	16	8
3	Razer Inc	100	70	70
4	Broadcom	100	50	50
5	Carousell	50	20	40
	Average	**800**	**21.6**	**34.6**
	Foreign-Owned TNCs	**Total number of components for "finished good"**	**Number of components that were provided by domestic suppliers**	**% of total product**
1	Accent Asia Tech	200	10	5
2	Amphenol	200	17	8.5
3	Ascendas-Singbridge	100	25	25
4	Adeka Asia	100	35	35
5	Acer	350	1	0.3
	Average	**950**	**9.2**	**14.8**

Resource 3 for Question 1

Collated results from face to face interview with the managerial staff from the 10 TNCs

No.	Question:	Very significant links	Significant Links	Insignificant Links	No Response
1	How intensive is your TNC's link with the domestic suppliers	6	6	4	4
		More than 10 years	1 to 10 years	Not applicable	No Response
2	How long were these links with domestic suppliers established in terms of the number of years?	5	7	4	4
		Cheaper to get components from domestic suppliers	They provide the necessary components	Other reasons or not applicable.	No Response
3	What is the most important reason why you choose to use domestic suppliers?	9	7	6	0

Total number of respondents: 20

Resource 4 for Question 1

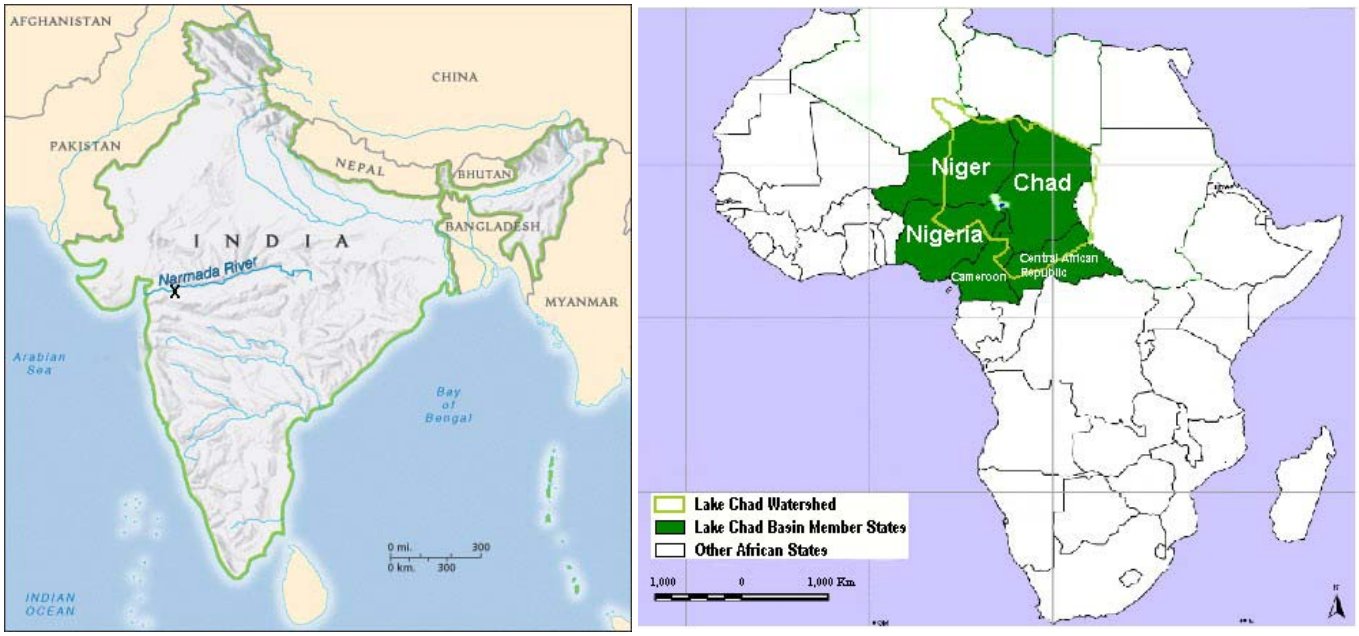
Characteristics of selected Singapore Owned TNCs and Foreign Owned TNCs

	Singapore Owned TNCs	Global Manpower	2010 Revenue in US$ in million
1	Flextronics	200,000	25000
2	Creative	800	116
3	Razer Inc	350	400
4	Broadcom	8,500	4307
5	Carousell	23	200
	Foreign-Owned TNCs	**Global Manpower**	**2010 Revenue in US$ in million**
1	Accent Asia Tech	300	10
2	Amphenol	150	25
3	Ascendas-Singbridge	120	50
4	Adeka Asia	150	8
5	Acer	8,000	10,000

Source: Adapted from Singapore Economic Development Board 2005

Resource 5 for Question 2

Locations of the Narmada River (India) and the Chad Basin (Africa)



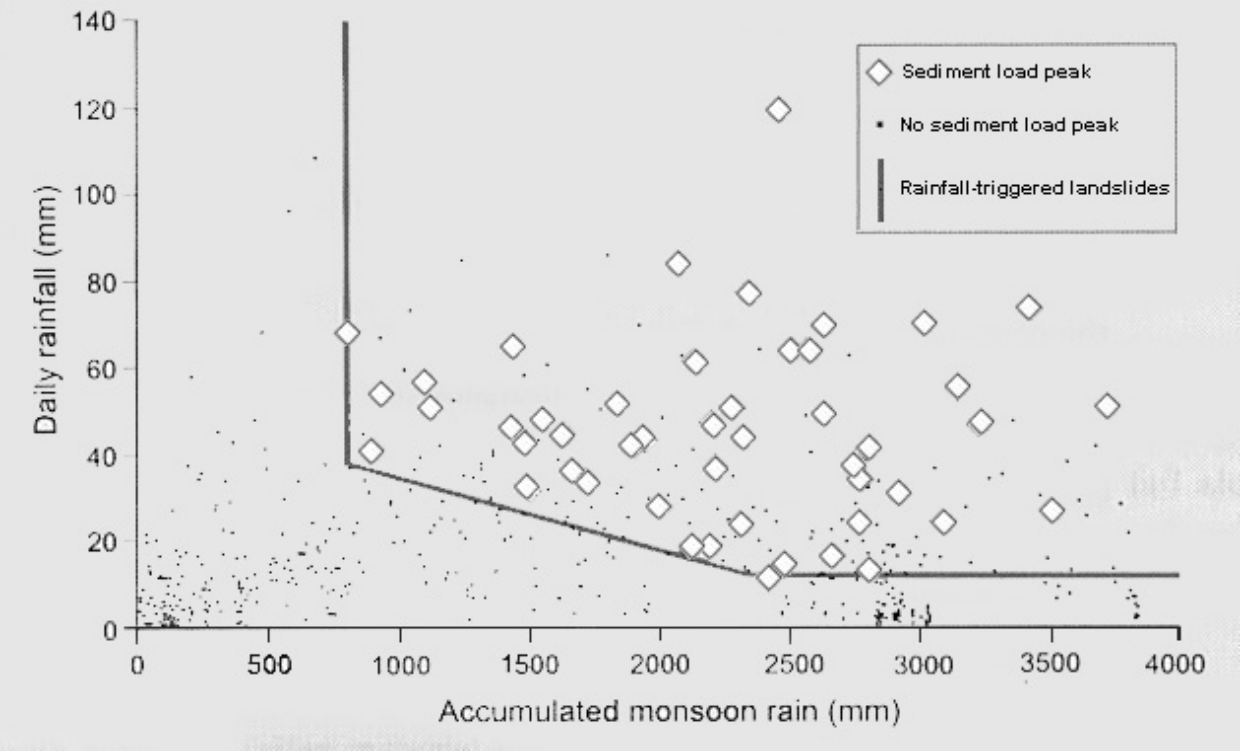
Resource 6A for Question 2

Landslide during the wet monsoon in the Narmada drainage basin



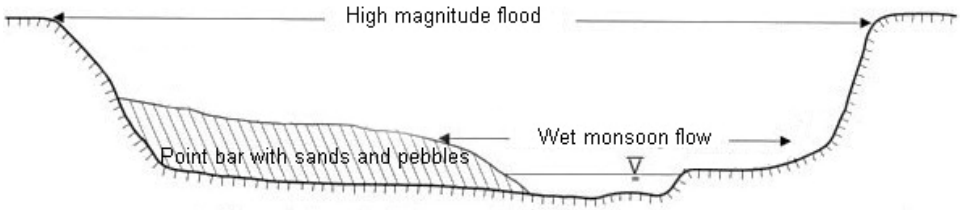
Resource 6B for Question 2

Role of rainfall in triggering landslides in the Narmada drainage basin

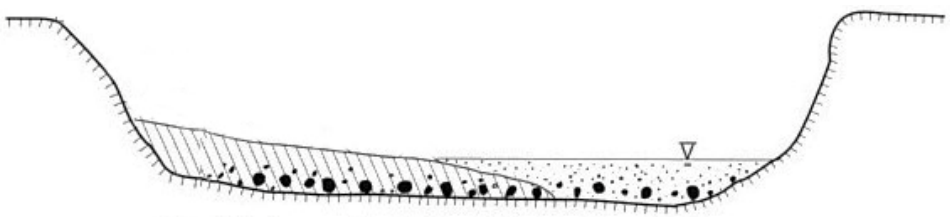


Resource 7 for Question 2

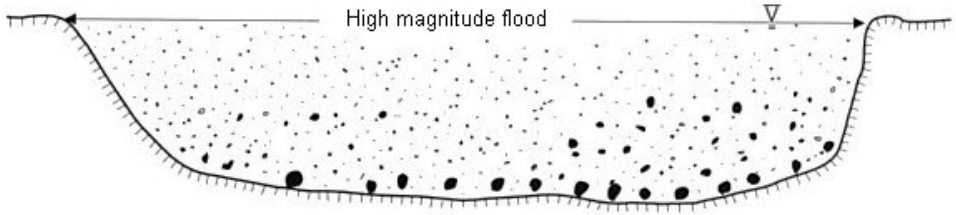
Changes in channel morphology at location X during the wet monsoon season



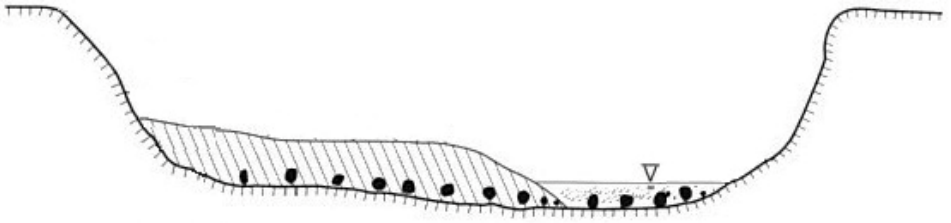
Complete set of channel forms



1. Wet monsoon flow



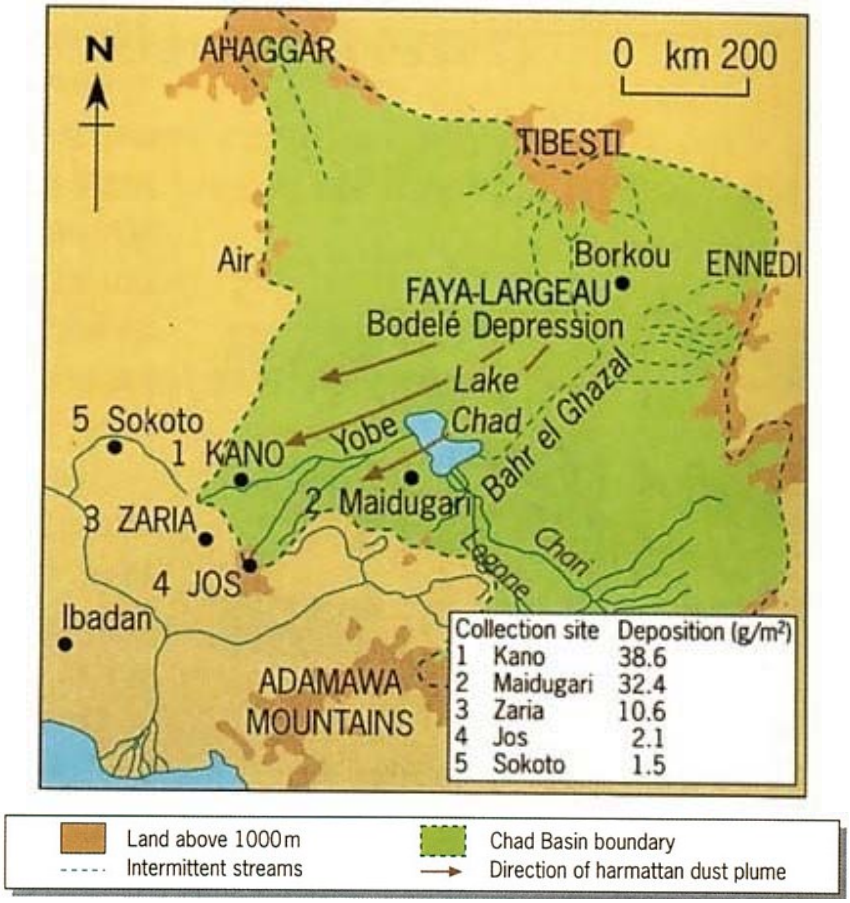
2.Wet monsoon high magnitude flood stage



3. End of wet monsoon

Resource 8 for Question 2

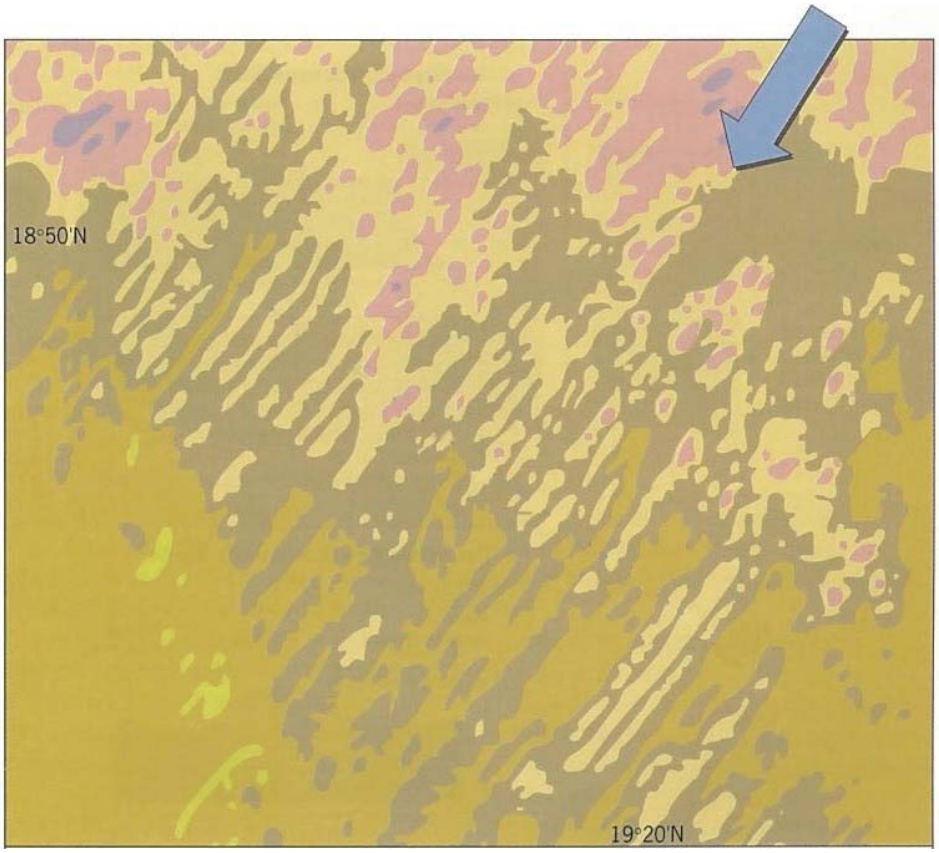
Dust deposition in the Chad Basin during the harmattan season*



*The harmattan season occurs in Africa between the end of November and the middle of March, and is characterized by dry and dusty northeasterly trade wind.

Resource 9 for Question 2

Yardang landscape in northern Chad

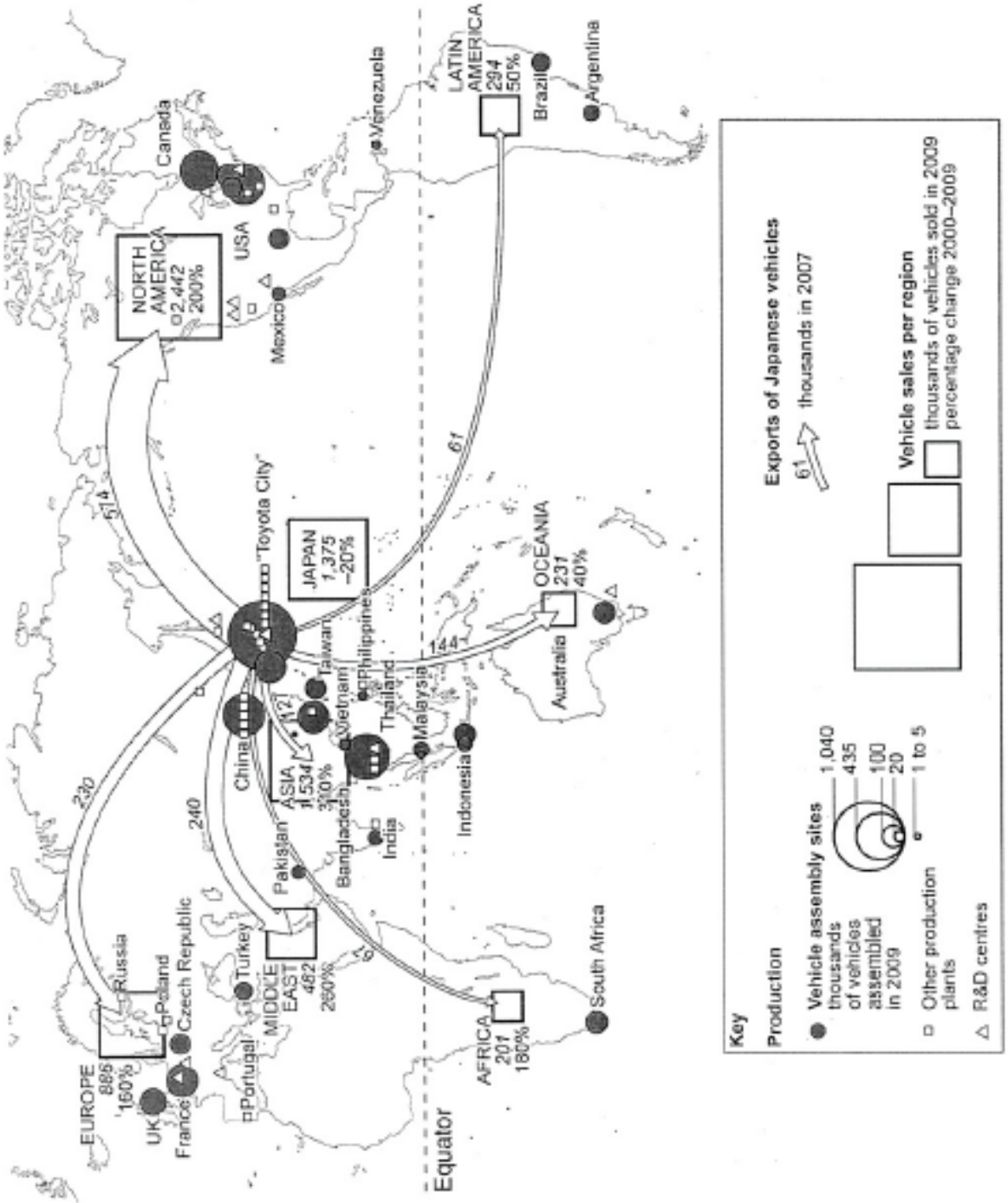


Height in metres (m)



Resource 10 for Question 3

Spatial Structure of Toyota's Vehicle production, export and sales.



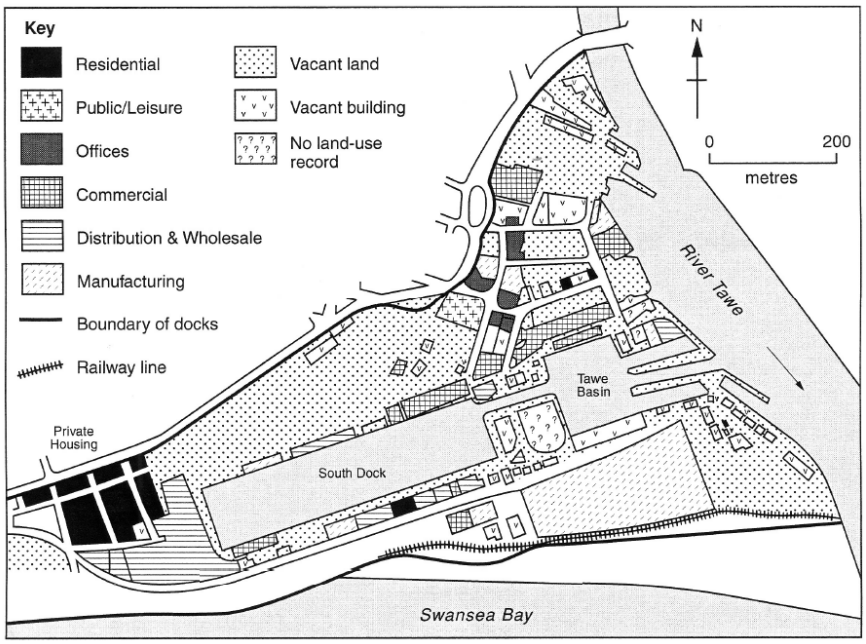
Resource 11 for Question 3

Brazil factfile

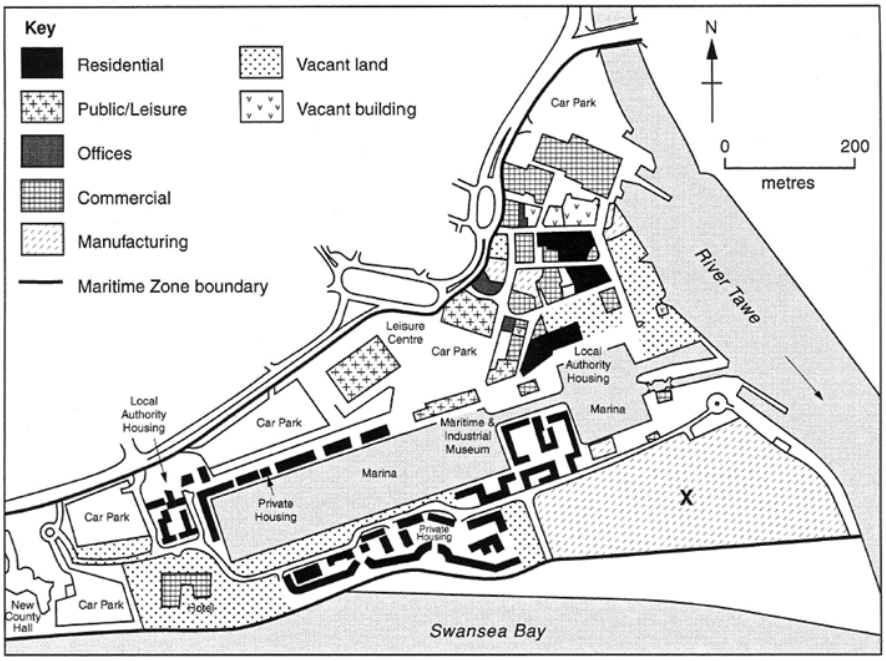
Year	2005	2010	2014
Total population (millions)	186	193	202
Rate of natural increase (%)	2.9	1.1	0.9
GDP per person (US$)	4 739	10 978	11 208
Employment in manufacturing (%)	13.2	17.4	21.6

Resource 12 for Question 4

Swansea Dock Area in the United Kingdom before and after urban renewal



Before urban renewal



After urban renewal

Resource 13 for Question 4

Landuse in Shanghai, China



Resource 14 for Question 4

Possible development proposals for the site in the foreground of Resource 13

Proposal 1	Proposal 2
Flagship retail project	**Cultural heritage centre**
• Shopping mall • On-site car park • Food outlets	• An exhibition of the cultural heritage of Shanghai / China • Green open space, landscaping with trees, grass and seating • Play area • Food outlet / cafe

Name:		Index Number:		Class:	

DUNMAN HIGH SCHOOL
PRELIMINARY EXAMINATIONS
Year 6

HIGHER 2 GEOGRAPHY **9751/02**

Paper 2 Data Response Questions

Tuesday **19 September 2017** **3 hours**

Additional materials: 1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and class clearly on **all** the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or in the classroom, even when such examples and not specifically requested by the question.
Diagrams and sketch maps should be drawn wherever they serve to illustrate an answer.
The outline world map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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

Section A

Theme 4: Geographical Investigation

1 A group of 18 18 year-old students in Singapore wanted to conduct a study of inter-firm linkages of Singapore owned TNCs and Foreign-owned TNCs in the local electronics industry to ascertain the extent of inter-firm linkages between these TNCs and their domestic suppliers.

The students collected data from the Economic Development Board which highlighted that there were 1580 TNCs in the electronics and electronics-related industry in operation in Singapore for the year 2010. Based on this data, the students randomly selected 10 TNCs; 5 of the randomly selected TNCs were Singapore owned and the other 5 were foreign owned. The students then contacted these TNCs on the possibility of gaining access to information regarding the extent of the inter-firm linkages between the TNCs and the domestic suppliers as well as how intensive these inter-firm linkages are. However, only 3 of the 10 TNCs, all Singapore owned TNCs, provided information and granted interviews to the students.

The students divided themselves into 6 groups of 3 interviewers. Each group thereafter interviewed either 1 or 2 TNCs. The students then started contacting the TNCs from the list provided by the Economic Development Board, starting in alphabetical order until they were able to interview and collect information from the 10 TNCs. The interview and surveys were carried out from February to August 2017 during working hours. Students were able to personally conduct face to face interview for 7 of the 10 TNCs and the remaining 3 interviews were conducted by phone and email.

At the selected TNCs, the following investigation was carried out:

- The students interviewed 2 members of the staff: the human resource manager and the public relations manager.
- The interviewees were asked by a close survey the following questions,
    - “How intensive is your TNC’s link with the domestic suppliers?”
    - “Why did you choose to use domestic suppliers?” and
    - “What is the most important reason why you choose to use domestic suppliers?”
- The students requested for the number of components that were required to assemble a “finished good” and how many of these components were provided by domestic suppliers
- The students requested for a breakdown of how much of the TNCs’ #‘’finished good’’ come from domestic suppliers in terms of percentage of the total product

#‘Finished Good’ refers to the process where a good purchased as a "raw material" goes into the manufacture of a product. A good only partially completed during the manufacturing process is called "work in process". When the good is completed as to manufacturing but not yet sold or distributed to the end-user, it is called a "finished good".

Resource 1 shows the breakdown of how much of the TNCs' "finished good'' come from domestic suppliers in terms of percentage of the total product breakdown in percentages. **Resource 2** shows the number of components that were required to assemble a "finished good" and how many of these components were provided by domestic suppliers in percentages. **Resource 3** shows the collated results from the face to face interview with the managerial staff from the 10 TNCs. **Resource 4** shows the characteristics of the selected Singapore Owned TNCs and Foreign Owned TNCs.

(a) With reference to Resources 1 and 2, suggest a suitable hypothesis for the group's investigation. [1]

(b) Explain how the group may overcome ethical concerns they may face in their collection of primary data for this investigation. [4]

(c) Your group concluded that the data collected may not be completely reliable and accurate.

Explain how the process of data collection could be improved. [6]

(d) Draw 1 histogram to represent data from Question 1 of Resource 3 and 1 pie chart to represent data from Question 2 of Resource 3. [5]

(e) With reference to Resources 1, 2, 3 and 4 and of your own understanding, evaluate the usefulness of the data in helping to ascertain the extent of inter-firm linkages between TNCs and their domestic suppliers. [9]

Section B

Theme 1: Tropical Environments

Geomorphic and hydrologic processes in the tropics

2 Resource 5 shows the locations of the Narmada River (India) and the Chad Basin (Africa). Resources 6A and 6B show respectively the occurrence of a typical landslide and a generalized study of the role of rainfall in triggering landslides within the Narmada drainage basin during the wet monsoon season. A large part of the sediment load in the Narmada River is derived from slope processes within the basin. Resource 7 shows the typical wet monsoon flow regime of the Narmada River and the likely changes in the channel morphology at location X of the river course shown in Resource 5. Resource 8 shows the dust deposition at five collection points in the Chad Basin during a harmattan season. Resource 9 shows a yardang landscape in northern Chad.

(a) With reference to the characteristics of the slope materials shown in Resource 6A, suggest the likely nature of the weathering processes operating in this locality. [4]

(b) With reference to Resource 6B only, explain how the changes in slope failure occurrence and sediment load peak can be explained by the rainfall characteristics during the wet monsoon season. [5]

(c) Apart from rainfall characteristics, suggest three other environmental factors that can facilitate slope failure within the Narmada drainage basin. [3]

(d) With reference to Resources 6 and 7, explain how changes in discharge and sediment load during the wet monsoon season can affect the channel morphology at location X of the Narmada River shown in Resource 5. [6]

(e) With reference to Resources 8 and 9 and your own knowledge, explain how the environments shown have been influenced by wind action and the surface characteristics of these environments. [7]

Theme 2: Development, Economy and Environment

Toyota Vehicle Production

3 Resource 10 shows the spatial structure of Toyota's vehicle production in 2009, exports in 2007 and sales from 2000 to 2009. Resource 11 is a factfile about Brazil.

(a) With reference to Resource 10, describe the spatial distribution of Toyota's vehicle assembly sites. [4]

(b) Outline, and suggest reasons for, the location of Toyota's R&D centres shown in Resource 10. [5]

(c) Explain the percentage change in vehicle sales in Asia shown in Resource 10. [3]

(d) Using evidences from Resource 11, suggest **two** reasons why Toyota's vehicle production in Brazil continued to operate in 2014. [4]

(e) Using Resource 10 and your own knowledge, recommend whether Toyota should prioritise investment in Africa or Asia and justify your decision. [9]

Theme 3: Sustainable Development

Urban Reimaging in Cities

4 Resource 12 shows the Swansea Dock area in the United Kingdom before and after urban renewal. Resource 13 shows landuse in Shanghai, China. Resource 14 shows the possible development proposals for the site in the foreground of the photograph shown in Resource 13.

(a) Compare landuse patterns in Resource 12 before and after urban renewal in the Swansea Dock area. [5]

(b) With reference to Resource 12, suggest a brief explanation for changes to the transport system in the Swansea Dock area. [3]

(c) Suggest how the land use seen in Resource 13 could indicate the urban processes taking place in Shanghai. [4]

(d) With reference to Resources 12 and 13 and your own knowledge, explain how changes in the landuse of the sites shown can improve the quality of the urban living space. [6]

(e) Imagine you are the chief planning officer for Shanghai with overall responsibility for planning decisions in the area shown in Resource 13. Using Resources 13 and 14, outline your considerations in reaching a decision about which proposal to approve. [7]

HWA CHONG INSTITUTION
JC2 Preliminary Examination
Higher 2

CANDIDATE NAME		**CT GROUP**	
CENTRE NUMBER		**INDEX NUMBER**	

GEOGRAPHY 9751/01

Additional Materials: Answer Paper **4 September 2017**

3 hours

READ THESE INSTRUCTIONS FIRST

Write your name and CT class clearly on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Submit your answers in <u>three separate sets</u>:
1. **Question 1**
2. **Question 2**
3. **Question 3**

If you have not attempted any of the questions, you are to submit a piece of writing paper with your name, CG and question number written on it.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Compare and explain the drainage basin water balance in the humid and arid tropics. **[12]**

(b) To what extent does the drainage basin water balance influence channel morphology? **[20]**

2 **(a)** Explain the main causes of deforestation in less developed countries. **[12]**

(b) Assess the extent to which the nature and scale of impacts of deforestation influence the success of management strategies. **[20]**

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain the factors that have led to the emergence of a new international division of labour (NIDL). **[12]**

(b) With reference to specific examples, assess the impact of transnational corporations (TNCs) on host economies in developing countries. **[20]**

4 **(a)** With reference to specific examples, explain the challenges of managing natural resources and extractive industries in developing countries. **[12]**

(b) Assess the effectiveness of strategies used to manage transboundary water resources. **[20]**

[Turn over

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** With reference to specific examples, explain how the effects of climate change on sustainable development are likely to be uneven. **[12]**

(b) 'The compatibility between alternative energy sources and sustainable development far outweighs the issues surrounding their use.'

Discuss with reference to specific examples. **[20]**

6 **(a)** Fig. 1 shows an example of an iconic building used in urban renewal.

With the aid of Fig. 1 and/or other examples, explain the aim(s) of flagship projects used for urban renewal in high income countries. **[12]**

(b) With reference to specific examples, assess the effectiveness of various strategies to achieve liveability in cities. **[20]**

[Turn over

Fig. 1 for Question 6
The Guggenheim Museum, Bilbao, Spain



HWA CHONG INSTITUTION
JC2 Preliminary Examination
Higher 2

CANDIDATE NAME		**CT GROUP**	
CENTRE NUMBER		**INDEX NUMBER**	

GEOGRAPHY

9751/01

Data Response Questions

15 September 2017

INSERT

3 hours

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Location of Panasonic Singapore in Bedok



Resource 2 for Question 1

Selected businesses within 500m from Panasonic Singapore

Nature of business	Name of business	Distance from Panasonic Singapore (m)	% of customers who are employees of Panasonics Singapore	% of customers who have business relations with Panasonic Singapore
Hawker centre stall	Tian Lai Fishball Noodles	390	35	5
Hawker centre stall	Best Chicken Rice	374	27	7
Supermarket	NTUC Fairprice	460	12	2
Minimart	Kim Joo Minimart	247	56	6
Fast food	MacDonald's	476	5	2
Coffee shop	KSL Eatery	230	47	9

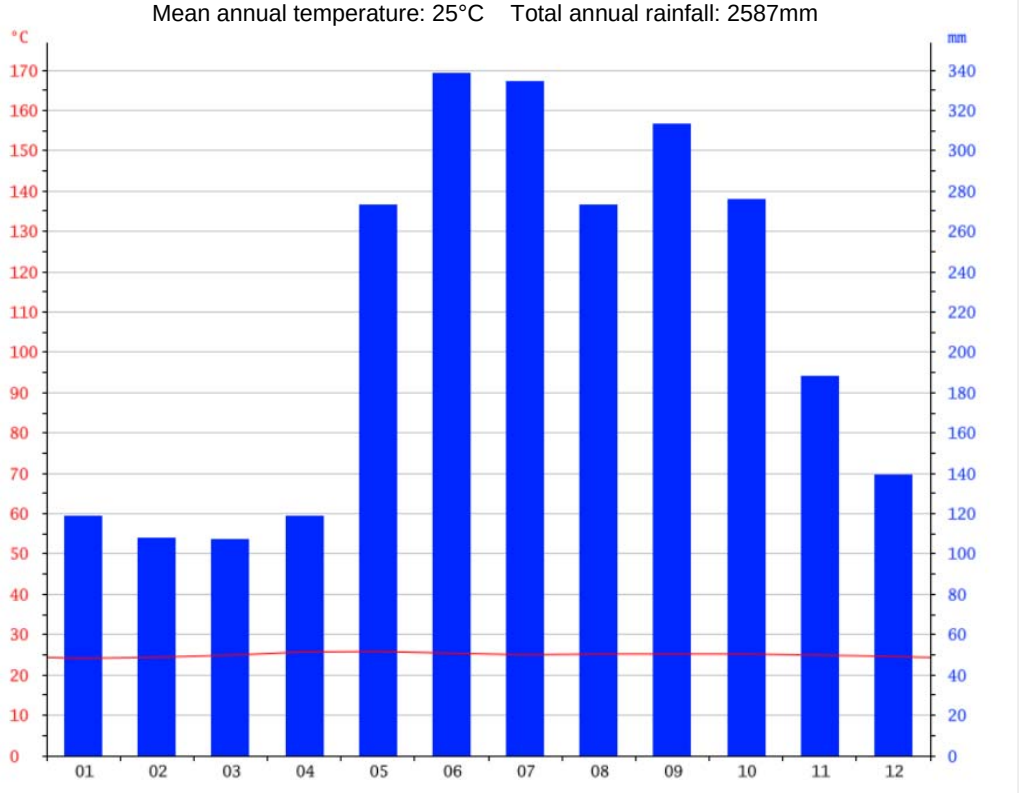
[Turn over

Resource 3 for Question 2

Map of Mindanao in the Philippines, the Province of Bukidnon and its climograph



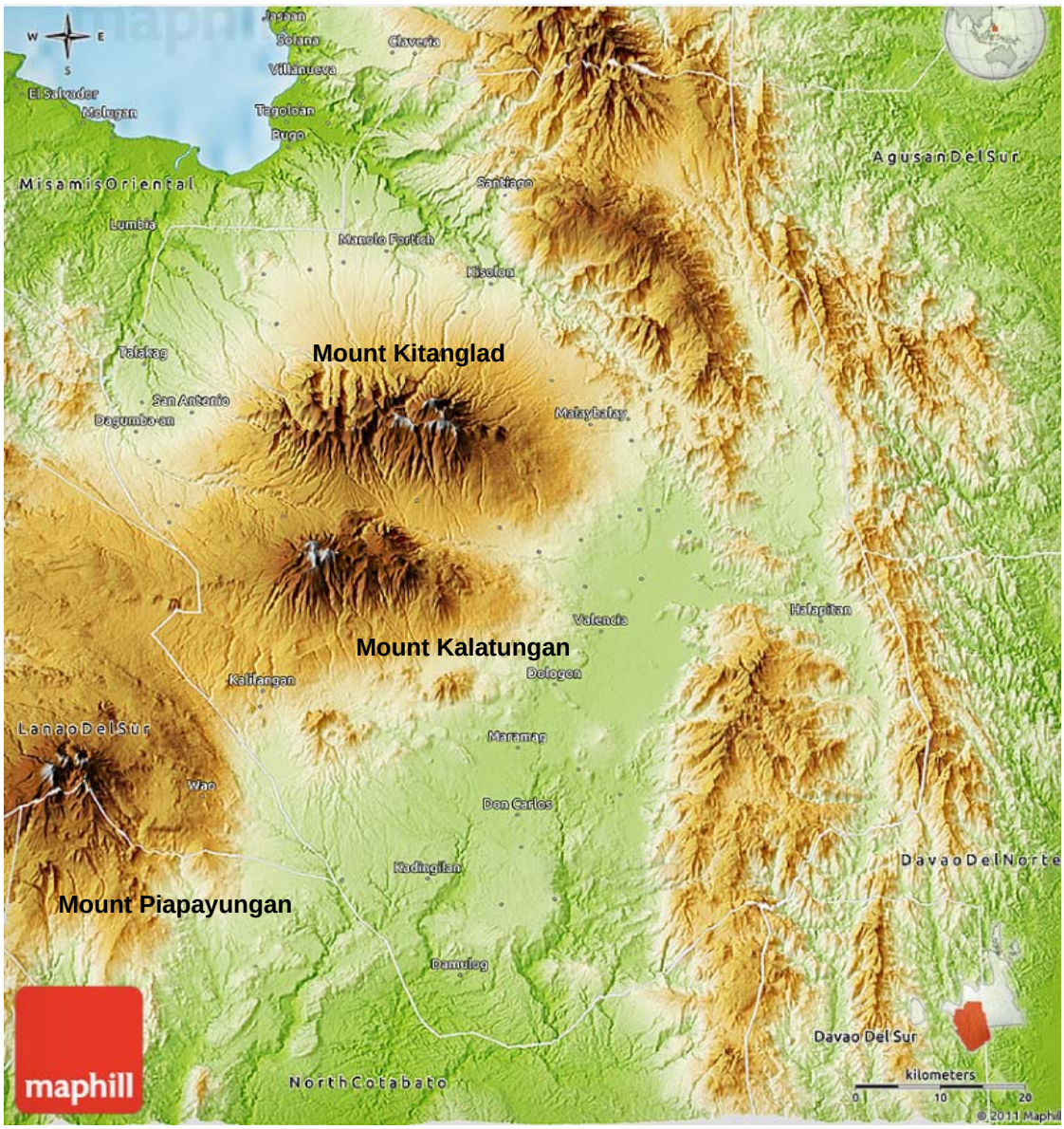
Mean annual temperature: 25°C Total annual rainfall: 2587mm



[Turn over

Resource 4 for Question 2

Topography of the Bukidnon and the highest mountains



Altitude: > 2400m | 900 - 1200 m | <600m

Bukidnon is a landlocked province and is subdivided into three topographical zones which comprise:

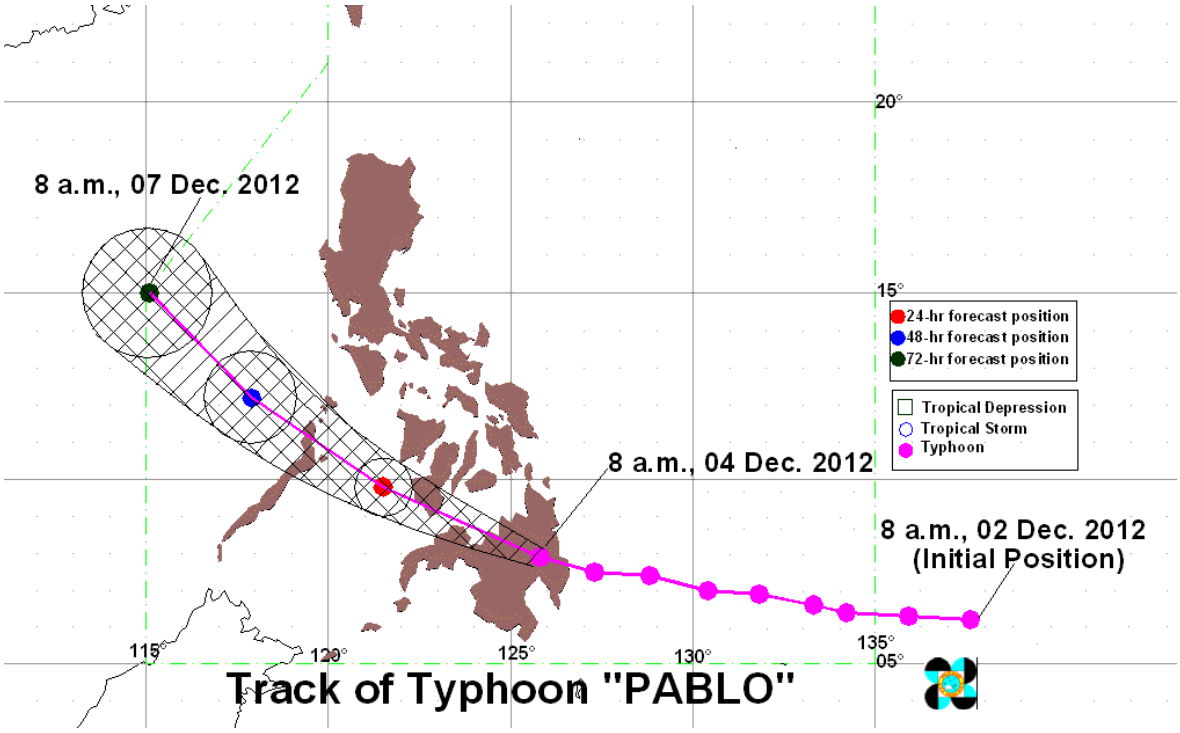
- the volcanic mountain zone of Mt. Kitanglad (2,899 m) and Mt. Kalatungan (2880m) and the Central Cordillera of Eastern Bukidnon at elevations from 1,200-2,950 m above sea level,
- the high altitude volcanic plains, terraces and footslopes surrounding Mt. Kitanglad and Mt. Kalatungan with elevations ranging from 600-1,200 m,
- the low altitude volcanic plains, terraces and hills with elevations < 600 m.

Note that Mt. Kitanglad is classified as an active volcano and Mt. Kalatungan is classified as a potentially active volcano.

[Turn over

Resource 5 for Question 2

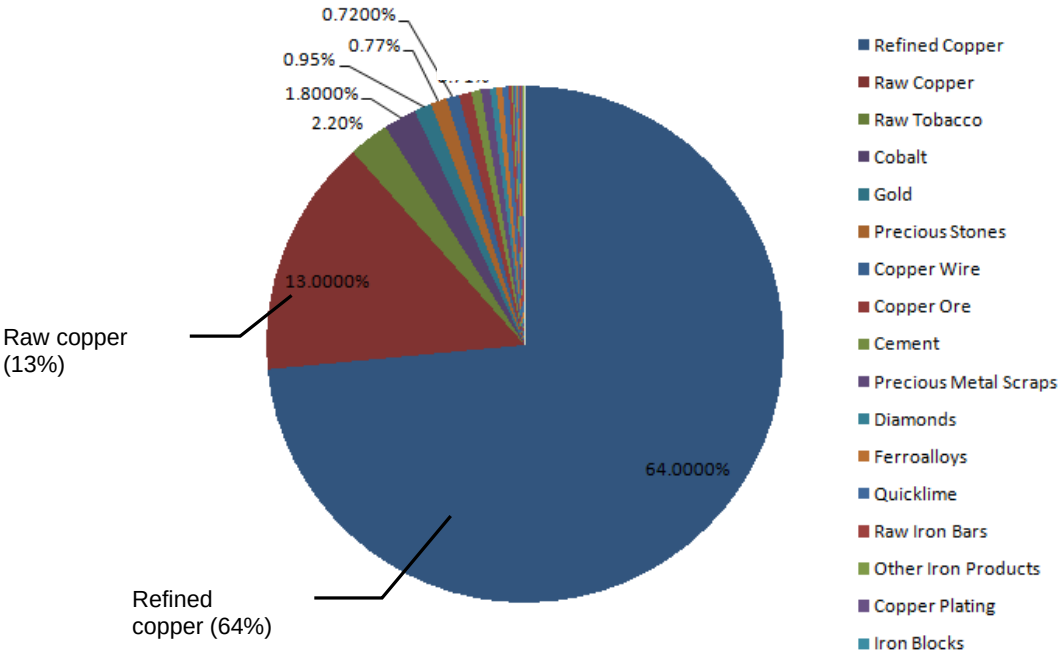
The track of Typhoon Pablo across the island of Mindanao in 2012



[Turn over

Resource 6 for Question 3

Zambia's major mineral exports

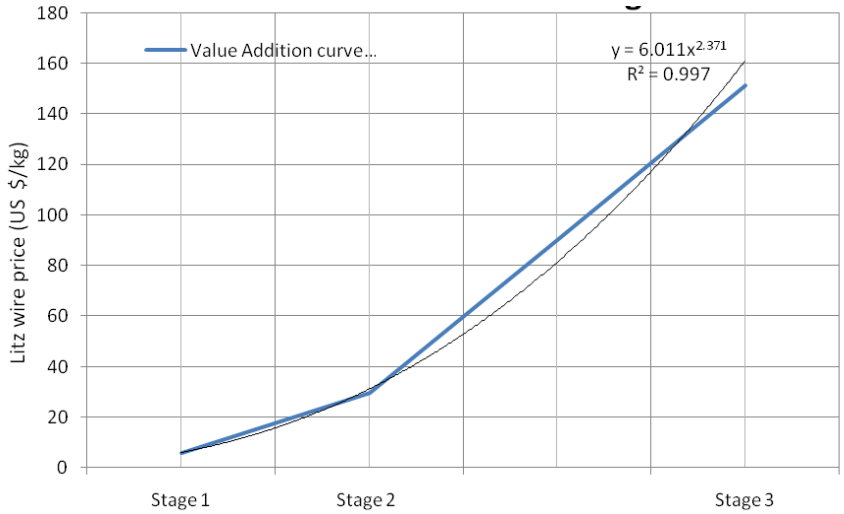


Resource 7 for Question 3

(A) Value addition of copper

Mineral	Stage 1 value (Refined Copper)	Stage 2 value (Litz wire)	Intra stage 2 (Litz wire Inductor coil)	Stage 3 value (Litz wire Inductor coil music speaker)
Copper	$ 5.80/ kg	$ 29.94/ kg	$ 90.14/ kg	$151.40/ each

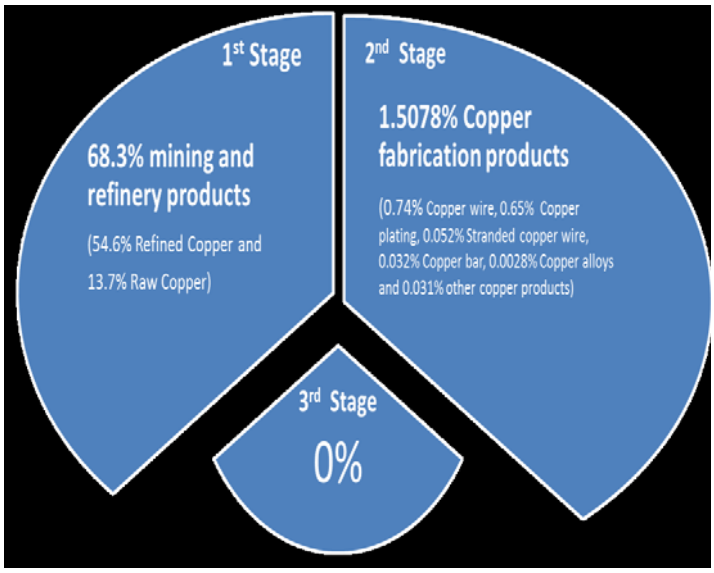
(B) Value addition of copper across stages from refined copper to Litz wire music speaker



[Turn over

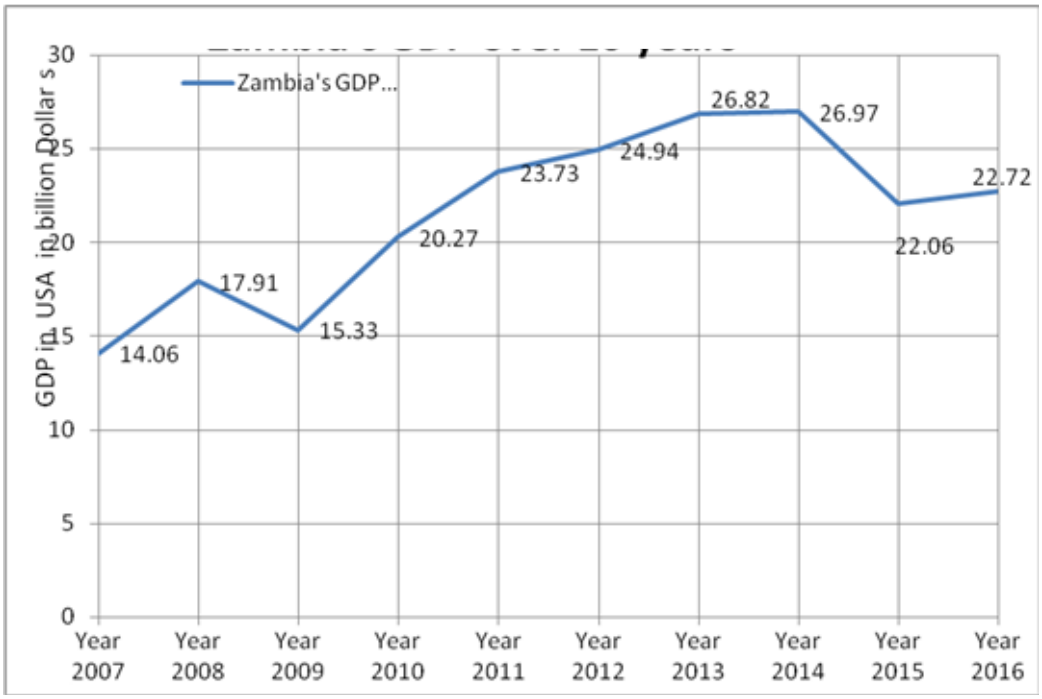
Resource 8 for Question 3

Zambia's participation in the copper mineral conversion stages



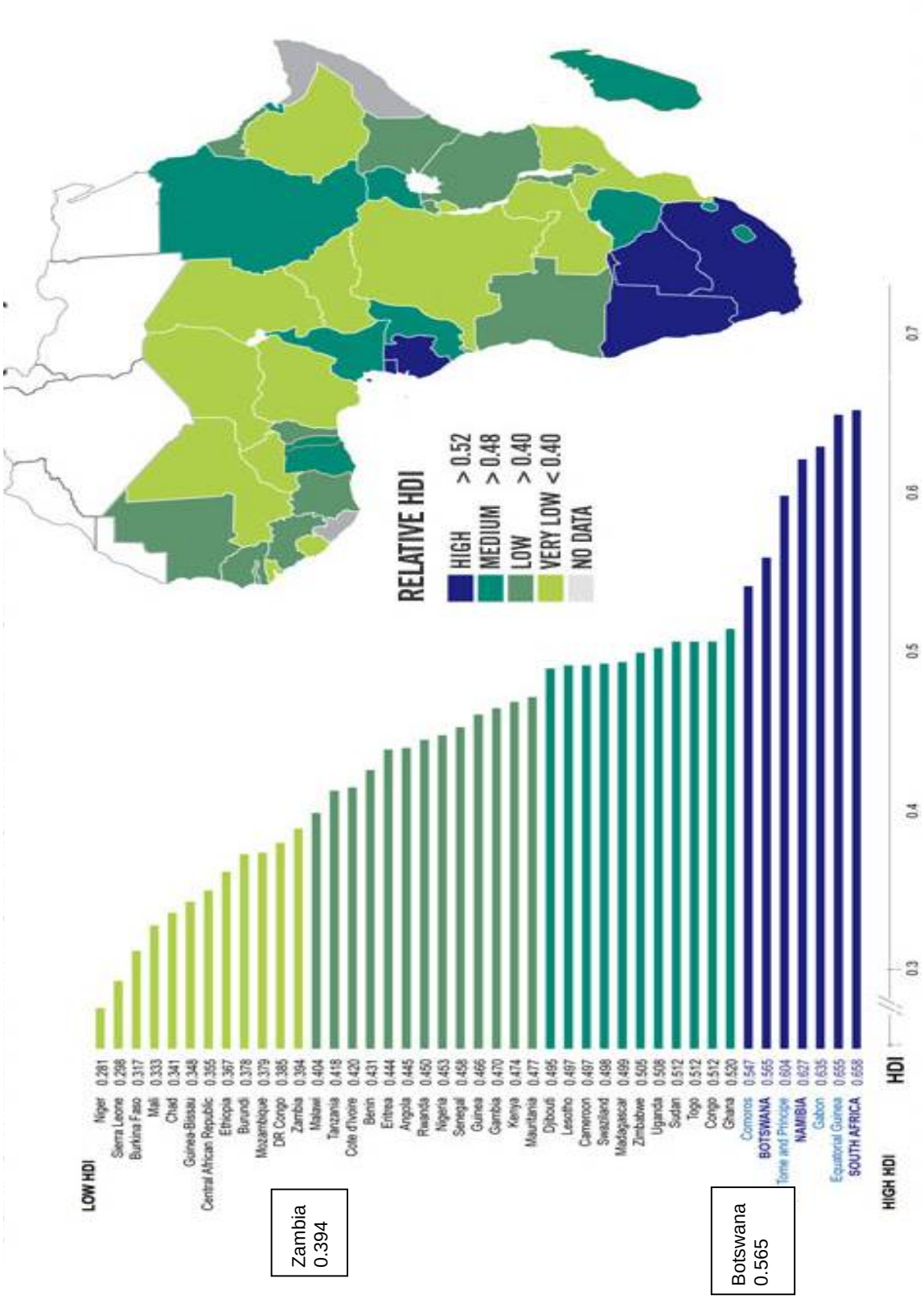
Resource 9 for Question 3

Zambia's GDP over the past 10 years



[Turn over

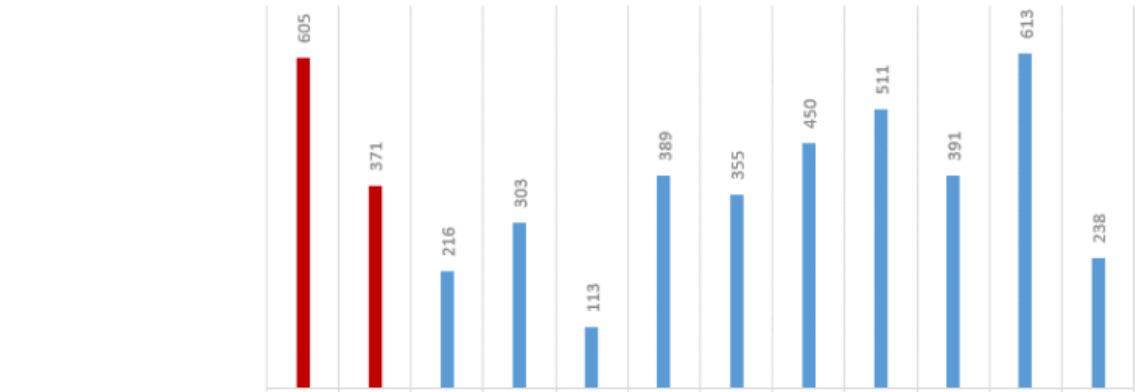
Resource 10 for Question 3
Relative Human Development Index (HDI) values of some African countries (2005)



[Turn over

Resource 11 for Question 4

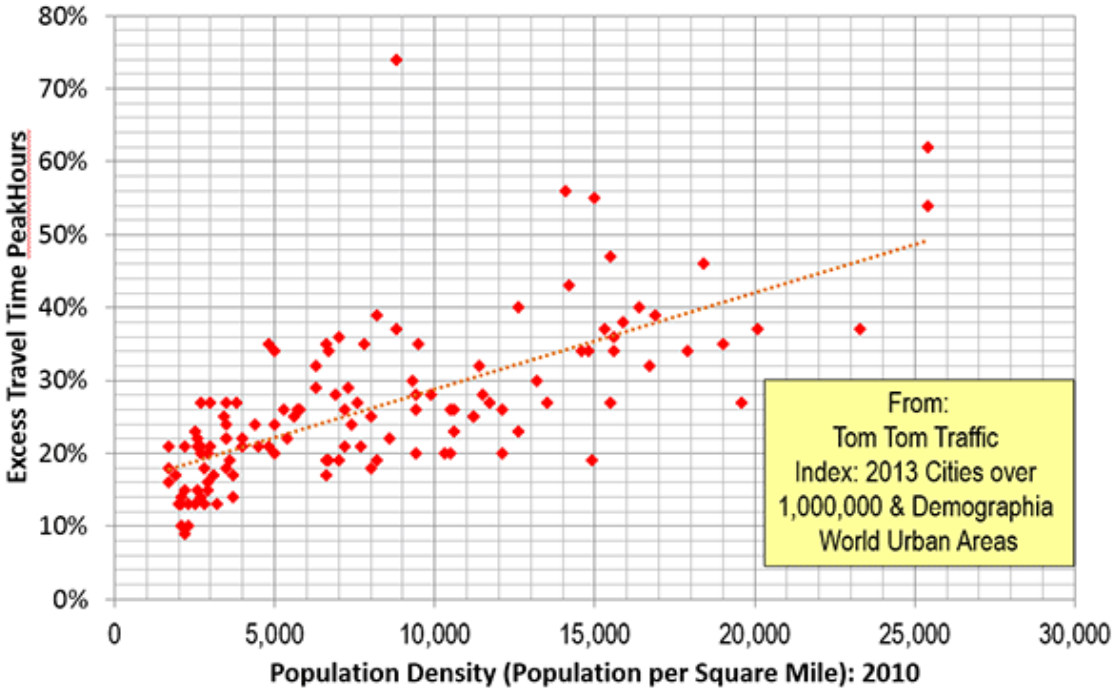
Vehicles per 1000 population in selected cities



	Bangkok City (2014)	Bangkok Metro Area (2014)	Inner London (2014)	Greater London (2014)	Singapore (2014)	Paris (2010)	Berlin (2012)	Oslo (2008)	Brussel (2011)	Stockholm (2011)	Los Angeles (2014)	Tokyo (2014)
Cars per 1,000 population	605	371	216	303	113	389	355	450	511	391	613	238

Resource 12 for Question 4

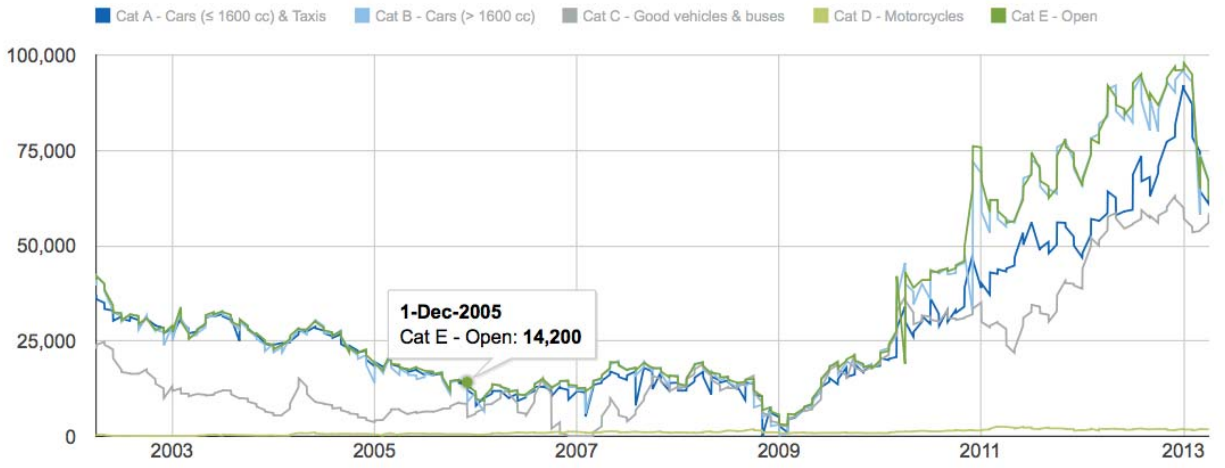
Urban densities and Average peak hour traffic congestion



[Turn over

Resource 13 for Question 4

Prices of Certificate of Entitlement (COE) 2003 – 2013



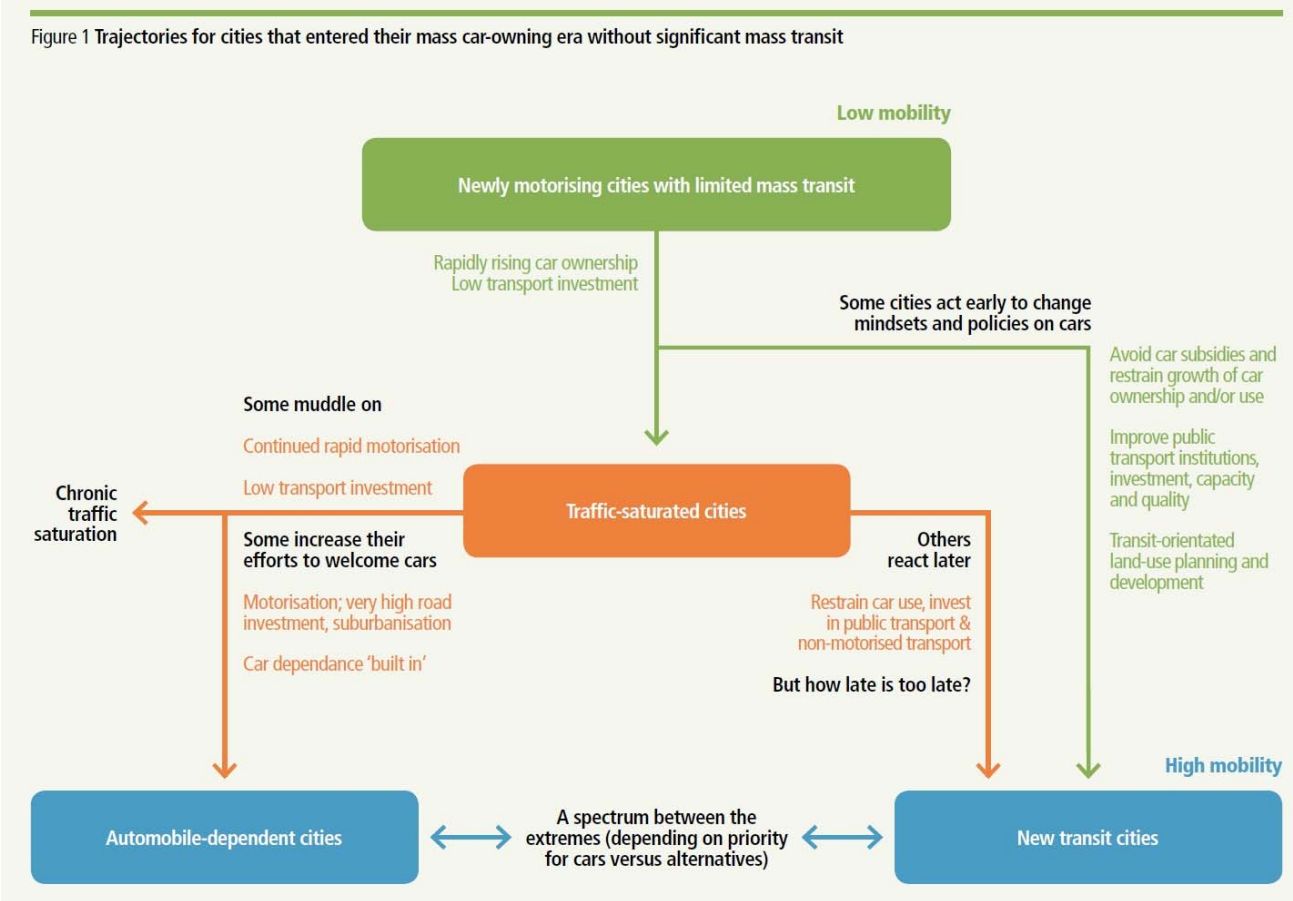
* The prefix 1 in the months (eg 1-Jun-2006) indicates the first COE bid for the month, while a 2 prefix (2-Jun-2006) indicates the second bid for the month.
** Chart starts from the April 2002 bidding exercise. That was when the COE Open bidding system - where bidders are allowed to track the prevailing strike price "live" - fully replaced the Closed bidding system.

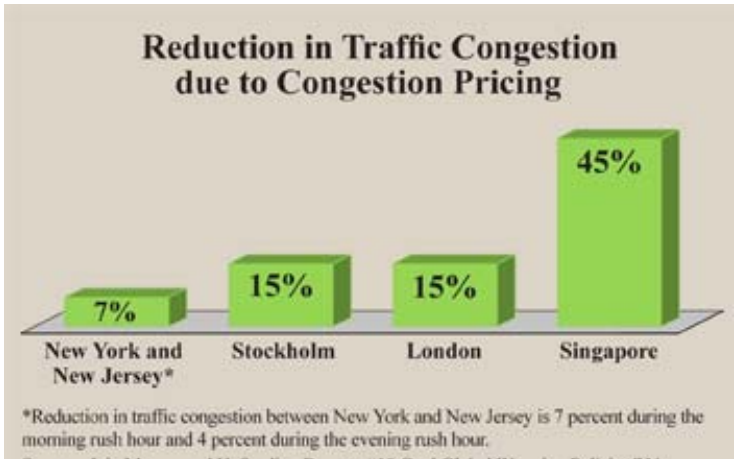
Data Source: Land Transport Authority
Graphics: Derrick Ho | Last Updated: Mar 27, 2013 16:05hrs

[Turn over

Resource 14 for Question 4

(A) Trajectories for cities that entered a mass car ownership era without significant mass transit and (B) the effect of congestion pricing on traffic congestion in 4 cities





[Turn over

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Question 1 Resource 1	*© https://en.climate-data.org/region/1897/*
Question 2 Resource 3	*© http://www.maphill.com/philippines/*
Question 2 Resource 4	*© http://www.maphill.com/philippines/*
Question 2 Resource 5	*© http://bagyo.ph/page/21/*
Question 3 Resources 6 – 9	*© International Journal of Science and Research (ISSN 2319 – 7064)*
Question 3 Resource 10	*© UNDP (2005)*
Question 4 Resource 11	*© Intro to Regional Planning (2015)*
Question 4 Resource 12	*© Tom Tom Traffic Index Report*
Question 4 Resource 13	*© Land Transport Authority*
Question 4 Resource 14	*© The State of Asian and Pacific Cities (2015), http://www.edf.org/page.cfm?tagID-6241*

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JC2 Preliminary Examination
Higher 2

CANDIDATE NAME		**CT GROUP**	
CENTRE NUMBER		**INDEX NUMBER**	

GEOGRAPHY 9751/02

Additional Materials: Answer Paper
1 Insert
World outline map

15 September 2017
3 hours

READ THESE INSTRUCTIONS FIRST

Write your name and CT class clearly on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Submit your answers in <u>two separate sets</u>:
1. **Questions 1 and 2**
2. **Questions 3 and 4**

If you have not attempted any of the questions, you are to submit a piece of writing paper with your name, CG and question number written on it.

Section A

Theme 4 - Geographical Investigation

1 A group of 18 year old students were tasked with undertaking a fieldwork exercise on the impact of the electronics industry on a local community in Singapore. They selected Panasonic Singapore's operations in Bedok, a residential area in eastern Singapore, for their investigation. Panasonic is a Japanese transnational corporation which has operated in Singapore for 45 years and has seen changes in its operations from assembly line production to R&D centres in Singapore.

The group was divided into four teams of three students each to collect data from:

(i) the employees and management staff of Panasonic Singapore
(ii) businesses within 500 metres from the site
(iii) residents within 500 metres from the site

The data collected from employees included:

(i) nature of employment (e.g. engineers/administrative/production workers)
(ii) nature of employees (Singaporeans/Permanent residents/foreign workers)
(iii) salary
(iv) residential location of employees
(v) location of businesses visited
(vi) expenditure at individual businesses
(vii) access to private transport

The data collected from businesses in the vicinity included:

(i) sales to Panasonic Singapore employees
(ii) timing of sales to Panasonic Singapore employees
(iii) other impacts such as noise, littering

The teams decided to take turns to visit the site to collect data from employees outside the premises during after work hours at 5.00 to 6.30 pm on five weekdays in May as well from businesses and residents within 500m from the site. They, however, were unable to access information from the management staff.

Resource 1 shows the location of Panasonic Singapore in Bedok. Resource 2 shows selected businesses located within 500m from Panasonic Singapore.

(a) Suggest a research question for the investigation and explain how it is clearly defined. [2]

(b) Explain an appropriate method for collecting primary data in the area as represented in Resource 1. [6]

(c) With reference to the context provided, suggest two appropriate ways in which the students could collect data from the management staff. [4]

(d) Evaluate the usefulness of the data shown in Resource 2 in ascertaining the impact of industrial activity on Bedok. [6]

(e) Suggest and assess solutions to the possible challenges and risks that the students may face when conducting the investigation. [7]

[Turn over

Section B

Theme 1 - Tropical Environments

Influence of climate on geomorphic processes in Bukidnon Province in Mindanao, Philippines

2 Bukidnon is one of the five provinces of Northern Mindanao in the Philippines, with a total land area of 8,294 km^2, extending geographically from 7°N to 8°N. Resource 3 shows a map of Mindanao, showing the Province of Bukidnon and its climograph. Resource 4 shows the topography of the Bukidnon and the highest mountains. Resource 5 shows the track of Typhoon Pablo across the island of Mindanao in 2012.

(a) With reference to Resource 3, identify and describe the climatic zone in Bukidnon. [3]

(b) Explain the climatic characteristics represented in Resource 3. [4]

(c) Suggest how the climate of Bukidnon may influence soil formation processes and soil type. [5]

(d) With reference to Resource 5 and other information, explain the occurrence of Typhoon Pablo in the Philippines. [6]

(e) With reference to Resources 4 and 5 and any other information, explain the types of mass movement that could possibly occur in Bukidnon. [7]

[Turn over

Theme 2 - Development, Economy and Environment

Copper Production in Zambia

3 Resource 6 shows Zambia's major mineral exports. Resource 7 shows the value addition of copper. With respect to copper, the three main stages involved in conversion of raw minerals to final products include:

- Stage 1 – Mining and refinery processes
- Stage 2 – Metal fabrications such as stranded copper wires, copper plating and copper bars production
- Stage 3 – Final finished products such as electrical gadgets and appliances, instruments, machinery and equipment

Resource 8 illustrates Zambia's participation in the copper mineral conversion stages. Resource 9 shows Zambia's GDP over the past 10 years. Resource 10 depicts the relative Human Development Index (HDI) values of some African countries in 2005.

(a) With reference to Resource 6, describe the structure of Zambia's economy. [3]

(b) Describe the changes in value addition along the production chain of copper using Resource 7 and identify the most profitable type of copper products. [3]

(c) With reference to Resource 8, make two recommendations to improve Zambia's participation in the value addition of copper. [4]

(d) To what extent is the resource curse thesis valid? Justify your position with reference to Resource 9, Resource 10 as well as your own knowledge. [9]

(e) Suggest what other data might be required to explain why the relative HDI of Botswana is higher than that of Zambia as shown in Resource 10. [6]

[Turn over

Theme 3 : Sustainable Development

Sustainable Transportation in urban areas

4 Resource 11 shows the number of vehicles per 1000 population in major cities of the world. Resource 12 shows the relationship between urban densities and traffic congestion. Resource 14 shows the variations in COE prices in Singapore from 2003 – 2013.

Resource 14 shows the various trajectories for cities that entered a mass car ownership era without significant mass transit and the effect of congestion pricing on traffic congestion in 4 cities.

(a) With reference to Resource 11, describe the differences in the number of cars per 1000 population across the different cities. [2]

(b) Identify two possible reasons for the differences in vehicles per 1000 population in various major cities of the world shown in Resource 11. Explain one consequence resulting from such differences. [4]

(c) With reference to Resources 12 and 13, suggest two possible reasons for traffic congestion in major cities of the world. [4]

(d) With reference to Resource 14, explain how it might be possible to manage urban traffic congestion. [6]

(e) With reference to Resource 14 and your own knowledge, assess the challenges faced in managing urban traffic congestion. [9]

Acknowledgements:

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Question 1 Resource 1 *© https://en.climate-data.org/region/1897/*
Question 2 Resource 3 *© http://www.maphill.com/philippines/*
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INNOVA JUNIOR COLLEGE
JC2 MID YEAR EXAMINATIONS
in preparation for General Certificate of Education Advanced Level
Higher 2

GEOGRAPHY **9751/01**

Paper 1 Structured Essay Questions **24th August 2017**

3 hours

Additional Materials: Answer Paper
World outline map (upon request)

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

At the end of the examination, fasten the 3 sections separately.
The number of marks is given in brackets [ ] at the end of each question or part question.

MAXIMUM MARK : 96

This document consists of **3** printed pages and **1** blank page.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the occurrence of tropical cyclones in the tropics. [12]

(b) Evaluate the effectiveness of hard- and soft-engineering strategies in the management of floods. [20]

2 **(a)** Explain the weathering processes in countries with high rainfall. [12]

(b) To what extent is climate the most important factor in the formation of karst landscapes in the humid tropics? [20]

Section B – Development, Economy and Environment

Answer **one** question from this section

3 **(a)** Explain how economic growth will change the structure of the economy in high income countries. [12]

(b) "I don't think anyone sets out to malign poor people but certainly that's what we do through organisations such as the World Bank and the International Monetary Fund". – Bob Geldof

Critically evaluate the role of the state given the rise of Global Financial Institutions (GFIs). [20]

4 **(a)** Explain the factors influencing the appraisal of resources in different countries. [12]

(b) How far is international water agreements the most effective strategy to manage transboundary sources of water supply. Justify your argument with relevant examples. [20]

Section C – Sustainable Development

Answer **one** question from this section

5 **(a)** Explain the effects of global warming on people living in countries of different socio-economic status. [12]

(b) Evaluate the extent to which anthropogenic activities may be the major cause for global warming? [20]

6 **(a)** Explain how urban liveability in cities are measured. [12]

(b) "Thanks to Slumdog Millionaire, thousands of children will be better off", says Marie Staunton.

Evaluate the effectiveness of strategies to improving the lives of slum dwellers. [20]

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INNOVA JUNIOR COLLEGE
JC2 MID YEAR EXAMINATIONS
in preparation for General Certificate of Education Advanced Level
Higher 2

GEOGRAPHY **9751/02**

Paper 2 Data Response Questions **11th Sept 2017**

3 hours

INSERT

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in this questions.

INSERT

Resource 1 for Question 1

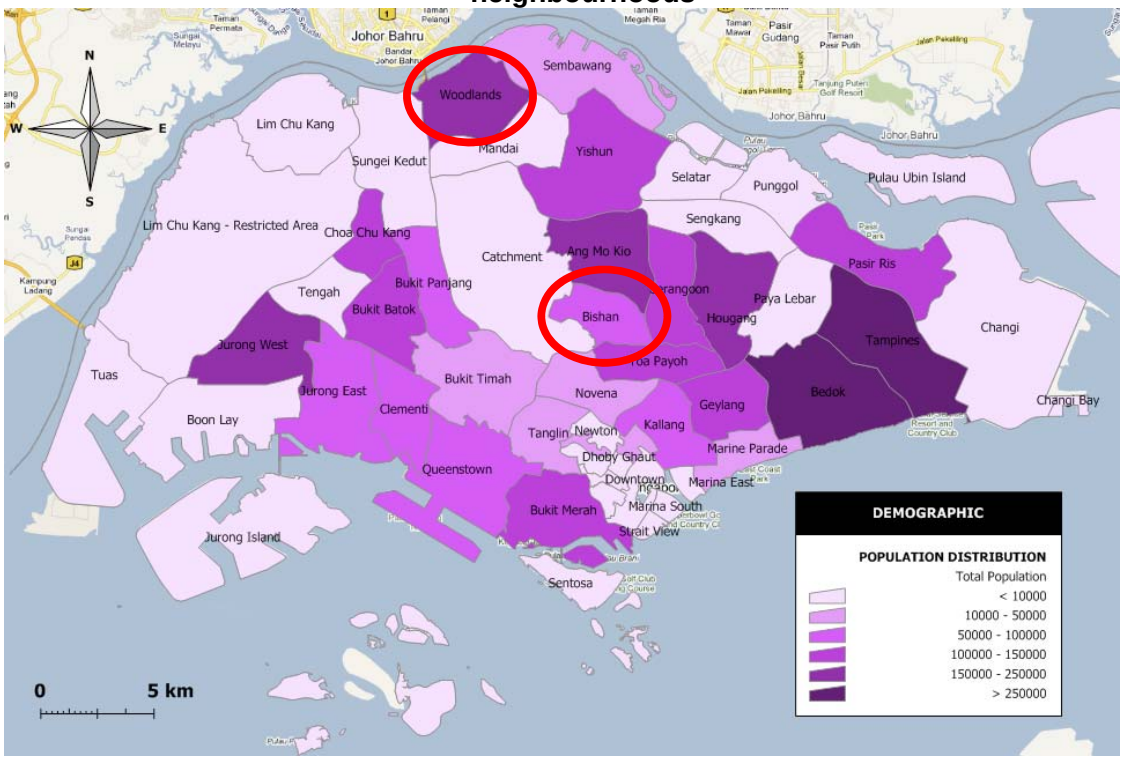
Median rent for Bishan and Woodlands

	3-room	4-room	5-room	Executive
Bishan	$1900	$2300	$2500	*
Woodlands	$1500	$1800	$1900	$2500

*indicates that the median rent is not shown because there are less than 20 subletting transactions in the quarter for that particular town and flat type.

Resource 2 for Question 1

Population density, housing types and amenities in Bishan and Woodlands neighbourhoods



Population density and Housing types

	Population density (people/km^2)	HDB dwellings	Condominium and other apartments	Landed Property
Bishan	11897	75%	13%	12%
Woodlands	18000	95%	4.8%	0.2%

	Amenities
Bishan	Bishan MRT, Bus interchange, Bishan Junction 8 shopping centre, Bishan Community Library, Bishan Stadium, Bishan Swimming Complex, Bishan Sports Hall, Bishan Depot
Woodlands	Woodlands MRT, (temporary) bus interchange, Causeway point shopping centre, Woodlands Civic Centre, Woodlands Square, Vista Point, Triple 8 (888) Plaza

Resource 3 for Question 1

Bishan's Junction 8 shopping centre



Woodlands' Causeway Point shopping centre

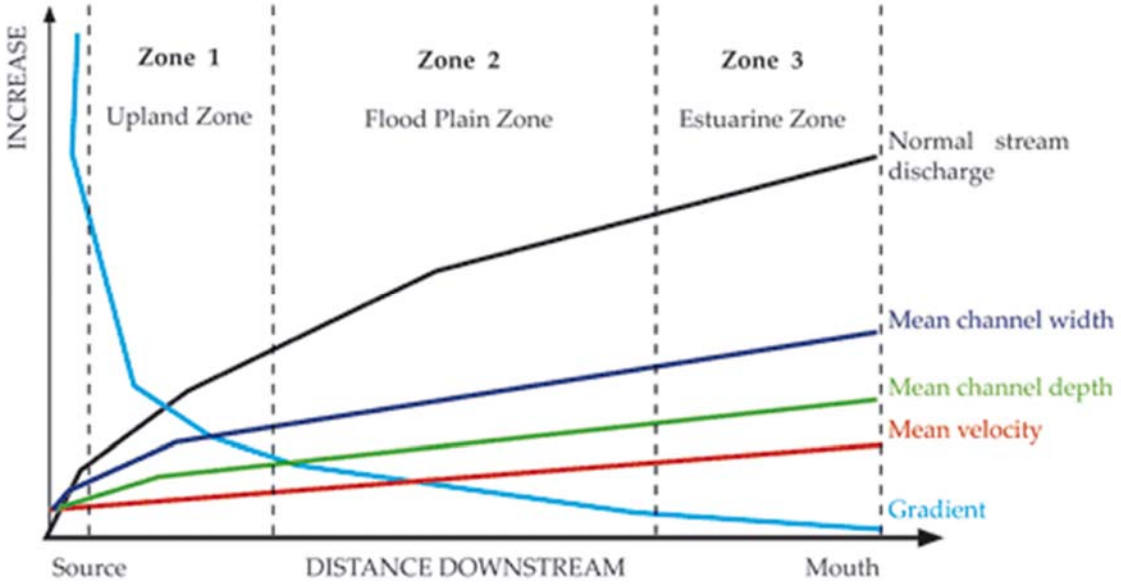


Resource 4 for Question 1
Data collated on the level of satisfaction with the public transport of two neighbourhoods

	Total number	Excellent	Good	Satisfactory	Poor	Very poor
Bishan	200	88	54	52	3	3
Woodlands	200	56	45	87	6	6

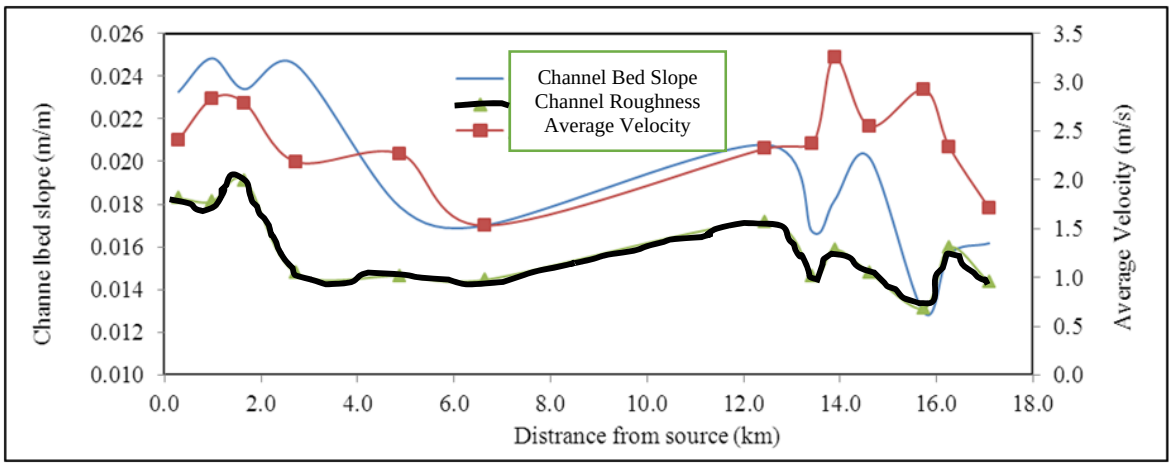
Resource 5 for Question 2

Idealised Model of Channel Variables along the Sutlej River in North India



Resource 6 for Question 2

Changes to Channel Morphology of the Sutlej River



Source: Field survey

Resource 7 for Question 2

Load size in the Sutlej River

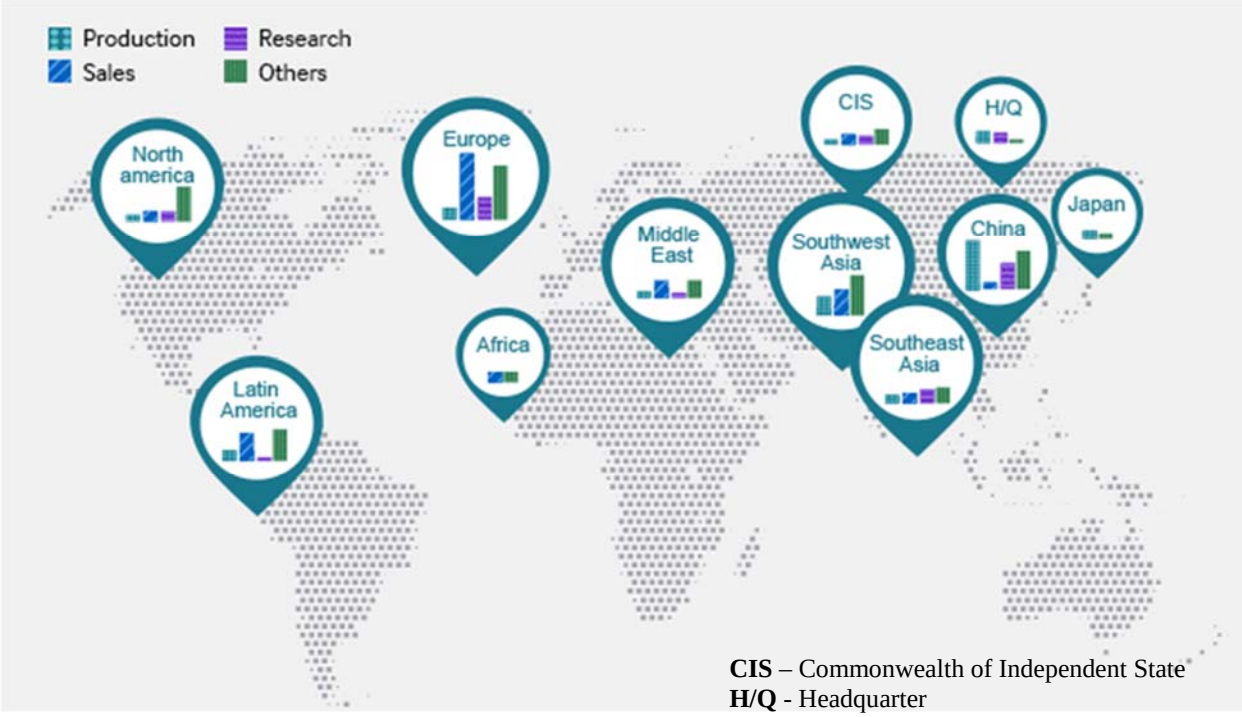
Classification	Particle size (diameter)
Boulder	Above 256 mm
Cobble	64–256 mm
Pebble	4–64 mm
Gravel (or Granule)	2–4 mm
Very coarse sand	1–2 mm
Coarse sand	0.5–1 mm
Medium sand	0.25–0.5 mm
Fine sand	0.125–0.25 mm
Very fine sand	0.062–0.125 mm
Silt	0.004–0.062 mm
Clay	Less than 0.004 mm

Resource 8 for Question 2

Width and Depth measurements of River Sutlej in India.

Sites	Distance from Source	Width(cm)	Depth(cm)
1	0	180	4.5
2	0.03	160	5.3
3	0.05	200	9.5
4	0.57	200	11.8

Resource 9 for Question 3
Samsung's global network.



CIS – Commonwealth of Independent State
H/Q - Headquarter

Resource 10 for Question 3

The global smartphone vendor shipments and market share in 2014 and 2015.

Global Smartphone Vendor Shipments (Millions of Units)	Q4 '14	2014	Q4 '15	2015
Samsung	74.5	317.2	81.3	319.7
Apple	74.5	192.7	74.8	231.5
Huawei	24.1	74.1	32.6	107.1
Lenovo-Motorola	24.7	92.7	20.2	73.9
Xiaomi	17.0	61.1	19.5	72.0
Others	165.3	545.7	176.1	637.5
Total	380.1	1283.5	404.5	1441.7

Global Smartphone Vendor Marketshare (%)	Q4 '14	2014	Q4 '15	2015
Samsung	19.6%	24.7%	20.1%	22.2%
Apple	19.6%	15.0%	18.5%	16.1%
Huawei	6.3%	5.8%	8.1%	7.4%
Lenovo-Motorola	6.5%	7.2%	5.0%	5.1%
Xiaomi	4.5%	4.8%	4.8%	5.0%
Others	43.5%	42.5%	43.5%	44.2%
Total	100.0%	100.0%	100.0%	100.0%

Total Growth: Year-over-Year (%)	31.0%	29.6%	6.4%	12.3%

Resource 11 for Question 3

Samsung's plan after the discontinuation of Galaxy Note 7

ENVIRONMENTAL DISASTER

A Samsung spokesperson told Motherboard they will not fix, refurbish or resell the devices, but has 'a process in place to safely dispose of the phones'.

However, experts warn that we have yet to devise a proper method for disposing of the devices.

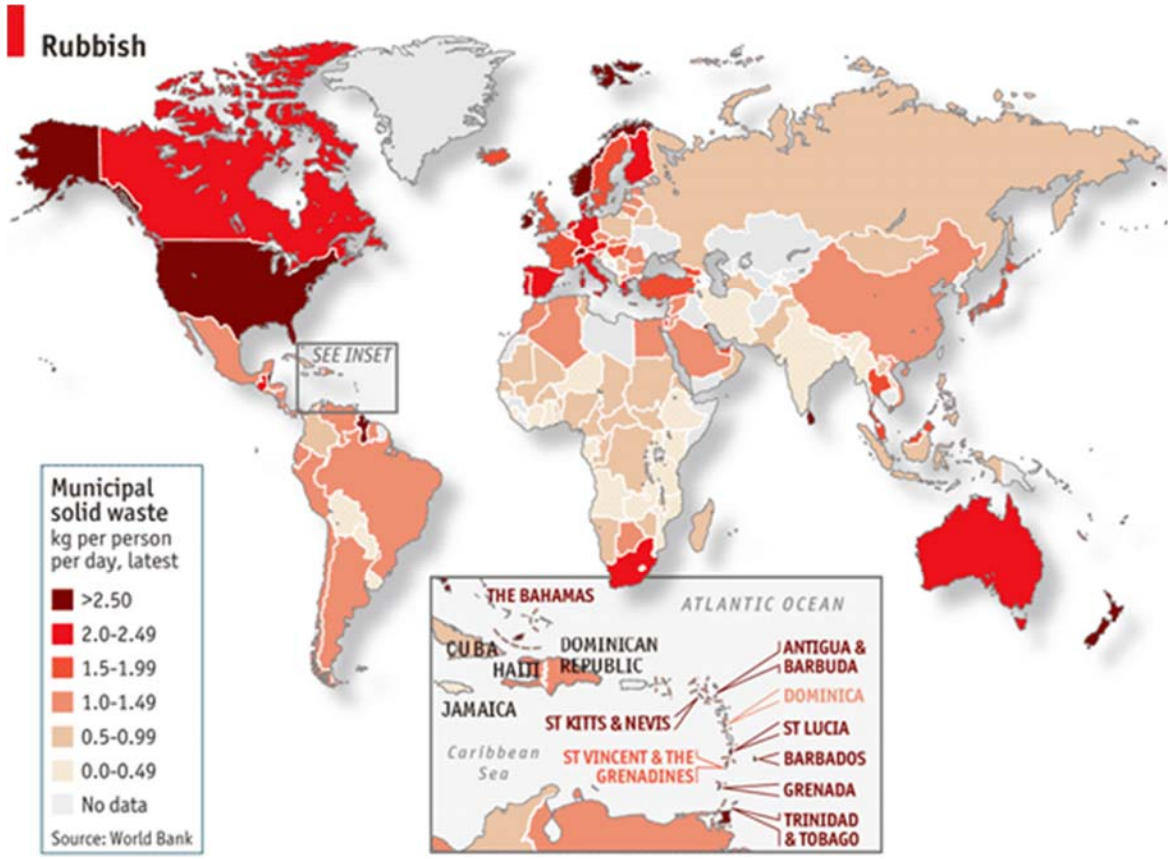
Dumping them in landfills contaminates water supplies and the soil.

Although many believe recycling is the way to go, all of the raw materials cannot be recovered.

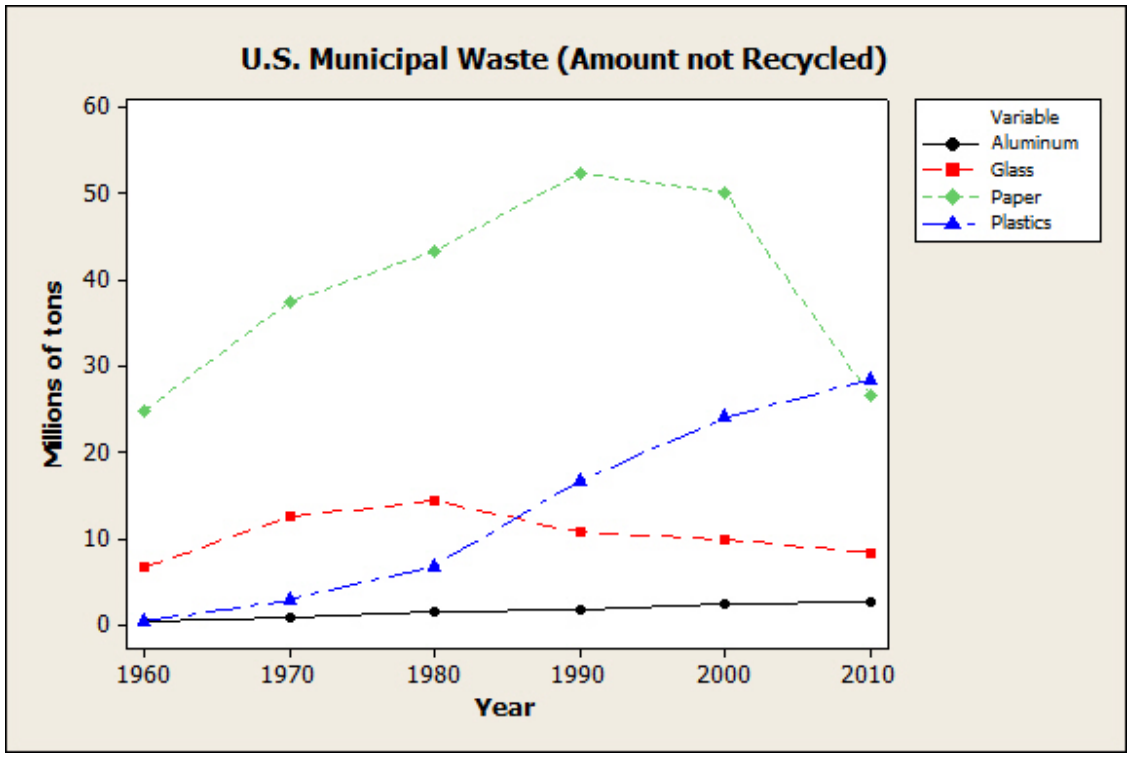
Experts suggest the best method we have is to fix and refurbish, which many firms choose as they can continue to make money with the same device.

Resource 12 for Question 4

Global distribution of Municipal solid waste



Resource 13 for Question 4



Resource 14 for Question 4

Photograph of Smokey Mountain, Tondo in The Philippines



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INNOVA JUNIOR COLLEGE
JC2 MID YEAR EXAMINATIONS
in preparation for General Certificate of Education Advanced Level
Higher 2

GEOGRAPHY **9751/02**

Paper 2 Data Response Questions **11th Sept 2017**

3 hours

Additional Materials: Answer Paper
World outline map (optional)

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Candidates answer **all** questions.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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 document consists of **4** printed pages.

Section A

Theme 4 – Geographical Investigation

1 A group of 24 18 year-old students from Singapore, wanted to examine liveability in two urban neighbourhoods - Bishan and Woodlands. They have access to census information about the population density, the housing types and the median rent of the two neighbourhoods.

The students wanted to gather further information on the leisure facilities, public transport to gain a fuller picture of liveability. They were allocated three days for field investigation at the beginning, in the middle and at the end of November.

Resource 1 shows the median rent for flats in Bishan and Woodlands. Resource 2 shows the population density, housing types and amenities in Bishan and Woodlands neighbourhoods. Resource 3 show two photographs, one of Bishan's Junction 8 shopping centre and one of Woodlands' Causeway Point shopping centre. Resource 4 shows the data collated on the level of satisfaction with the public transport of the two neighbourhoods.

(a) With reference to Resource 1, outline why there might be contrasts in liveability between Bishan and Woodlands. [2]

(b) Suggest a suitable research question for the students' investigation with reference to Resource 2 and state three reasons why the research question is at a suitable scale. [4]

(c) Explain how Resources 1 and 2 can help the students to understand liveability in Bishan and Woodlands. [6]

(d) Suggest a plan for the students to investigate pedestrian count at the Bishan Junction 8 Shopping Centre and Woodlands Causeway Point, shown in Resource 3. In your plan, consider how some possible challenges of conducting the pedestrian count at the 2 locations can be overcome. [8]

(e) Sketch one diagram to represent the level of satisfaction with the public transport in the two neighbourhoods in Resource 4. Explain your choice of presentation. [5]

Section B

Theme 1 : Tropical Environments

Channel Morphology in India

2 Resource 5 shows an idealized model of change in channel variables along the Sutlej River in North India. Resource 6 shows the changes to the channel morphology of the Sutlej River. Resource 7 shows the load size in the same river. Resource 8 shows the width and depth measurement of 4 sites in the Sutlej River basin.

(a) With reference to Resource 5, describe the channel morphology at the upstream end of the channel. [4]

(b) Using Resource 5, account for the relationship between gradient and mean velocity. [4]

(c) With the help of Resource 5 and your own knowledge, suggest reasons for the disparity, from the norm, between channel roughness and average velocity as the river flows from 12km to 18km as seen in Resource 6. [5]

(d) With reference to Resource 7, explain how load size affects the transportation processes. [5]

(e) With reference to Resource 8, explain which site shows greater efficiency of the river. [7]

Theme 2 : Development, Economy and Environment

Samsung's global production network

3 Resource 9 shows Samsung's global network. Resource 10 shows the global smartphone vendor shipments and market share in 2014 and 2015. Resource 11 shows Samsung's plan after the discontinuation of Galaxy Note 7.

(a) With reference to Resource 9, describe the spatial distribution of Samsung's production bases. [2]

(b) Outline and suggest reasons for, the locations of Samsung's Research centres shown in Resource 9. [4]

(c) With reference to Resource 9 and your own knowledge, recommend whether Samsung should prioritise investment in Southeast Asia or China and justify your answer. [9]

(d) Apple is Samsung's biggest competitor. Using Resource 10 and your own knowledge, recommend how Apple can maintain its global market share and justify your answer. [5]

(e) Using evidence from Resource 11 and your own knowledge, explain why TNC's environmental impact on the host countries may be of concern. [5]

Theme 3 : Sustainable Development

Management of solid waste

4 Resource 12 shows how much Municipal Solid Waste (MSW) each urban-dweller produces per country (figures are for 2012, the latest year for which data is available).
The World Bank defines MSW as including 'non-hazardous waste generated in households, commercial and business establishments, institutions, and non-hazardous industrial process wastes, agricultural wastes and sewage sludge. In practice, specific definitions vary across jurisdictions.'
Resource 13 shows US municipal waste (not recycled) between 1960-2010. Resource 14 is a photograph of the Smokey Mountain at Tondo, The Philippines.

(a) With reference to Resource 12, describe the global distribution of MSW. [4]

(b) Outline, and suggest reasons for, the generation of MSW shown in Resource 12. [5]

(c) Explain how Resource 13 illustrate the linear nature of urban metabolism. [4]

(d) Explain why some people in the low-income countries continue to live near/on the waste disposal sites as shown in Resource 14. [3]

(e) Using the resources 12 and 13 and your own knowledge, evaluate the effectiveness of two strategies to manage non-hazardous solid waste in developed countries. [9]

JURONG JUNIOR COLLEGE
JC2 GEOGRAPHY

Preliminary Examination 2017

GEOGRAPHY

9751

Higher 2

Paper 1

Tuesday 29 August 2017 3 Hours

Name: _____ Class: _____

INSTRUCTIONS TO CANDIDATES

Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use paper clips, highlighters, glue or correction fluid.

Answer **three** questions in total. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, eve where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
You are reminded of the need for good English and clear presentation in your answers.
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.

At the end of the examination, please attach your answers to the cover page provided.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **3** printed pages and **1** blank page.

Section A – Tropical Environments

Answer **one** question from this section.

1

(a) Using the concepts of *shear stress* and *shear strength*, explain how different factors affect slope stability in the tropical environment. [12]

(b) Discuss the factors that influence the occurrence of different types of mass movement. [20]

2

(a) Explain the conditions necessary for the development of a tropical cyclone. [12]

(b) To what extent do humans and human activities contribute to the devastating impacts of tropical cyclones? [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3

(a) Explain how international organisations have influenced developing countries through Structural Adjustment Programmes (SAPs). [12]

(b) 'The state is no longer needed in the global economy.'

Evaluate this statement with reference to the other actors in the global economy. [20]

4

(a) Explain why resource-rich countries can perform poorly economically. [12]

(b) 'Good strategies are all that are needed for countries to avoid the resource curse.'

Discuss the validity of this statement. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5

(a) Explain the impacts of climate change on developing countries. [12]

(b) 'Alternative energy sources are the way forward in mitigating climate change.'

How far do you agree with this statement? [20]

6

(a) Outline the problems associated with transport in urban areas in developed countries. [12]

(b) Discuss the extent to which strategies used to manage transport problems in urban areas in developed countries have been successful. [20]

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JURONG JUNIOR COLLEGE

JC2 GEOGRAPHY

Preliminary Examination 2017

GEOGRAPHY **9751**

Higher 2

Paper 2

Thursday 14 September 2017 3 Hours

Name: _____ Class: _____

INSERT 1

This Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Sites where infiltration rates were measured

Site A



Site B



Site C



Resource 2 for Question 1

Data collected for infiltration rates at all 3 sites

Reading	Site A	Site B	Site C
1	1.2mm/s	2.8mm/s	2.4mm/s
2	1.3mm/s	2.7mm/s	2.5mm/s
3	1.3mm/s	2.6mm/s	2.6mm/s

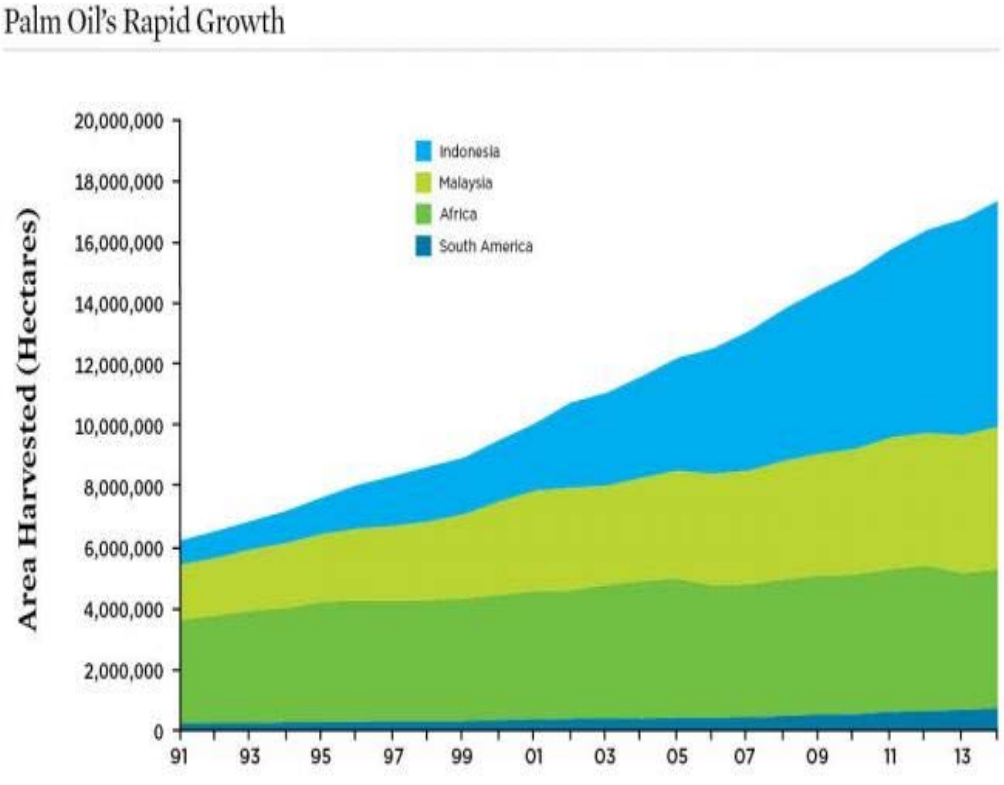
Resource 3 for Question 2

Main drivers of deforestation in Brazil, Malaysia, Indonesia, Bolivia, Paraguay and Papua New Guinea

Country	Total Area deforested (Million Hectares)	Percentage land deforested due to Commercial Agriculture (%)	Illegal Agro conversion (%)	Illegal Agro conversion (exported) (%)
Brazil	30.6	90	79	30
Malaysia	4.7	87	43	86
Indonesia	15.5	80	80	75
Bolivia	2.8	75	90	66
Paraguay	2.4	79	42	80
Papua New Guinea	0.6	50	90	100

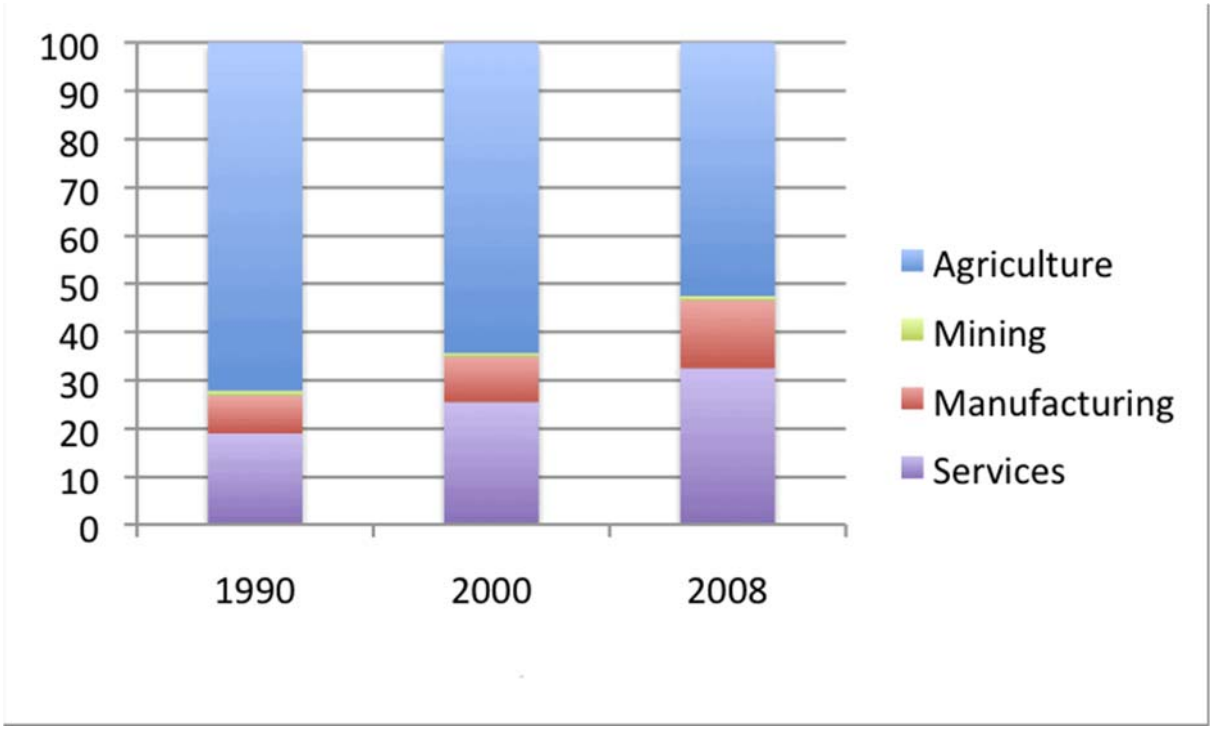
Resource 4 for Question 2

Area of oil palm harvested across Indonesia, Malaysia, Africa and South America



Resource 5 for Question 3

Distribution of employment in economic sectors in Vietnam, 1990-2008



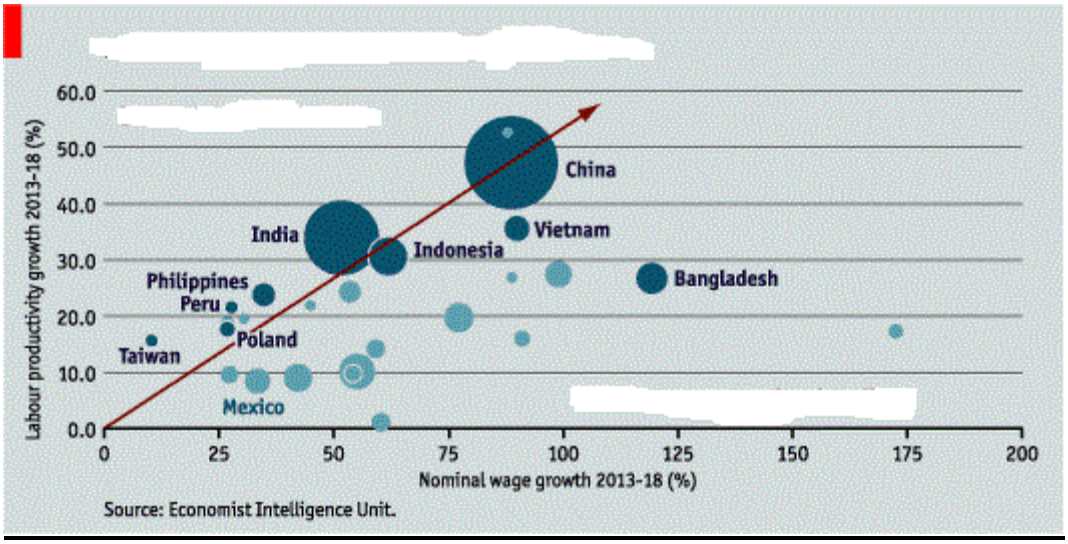
Resource 6 for Question 3

Selected socioeconomic data of Vietnam in 1990 and 2015

	1990	2015
Population (millions)	66	93.4
Life expectancy at birth (years)	65.6	75.9
Population, ages 65 and older (% of total)	5.7	6.7
Adult literacy rate (ages 15 and older, %)	87.8	94.5
Gross national income (GNI) per capita (US$)	1410	5335

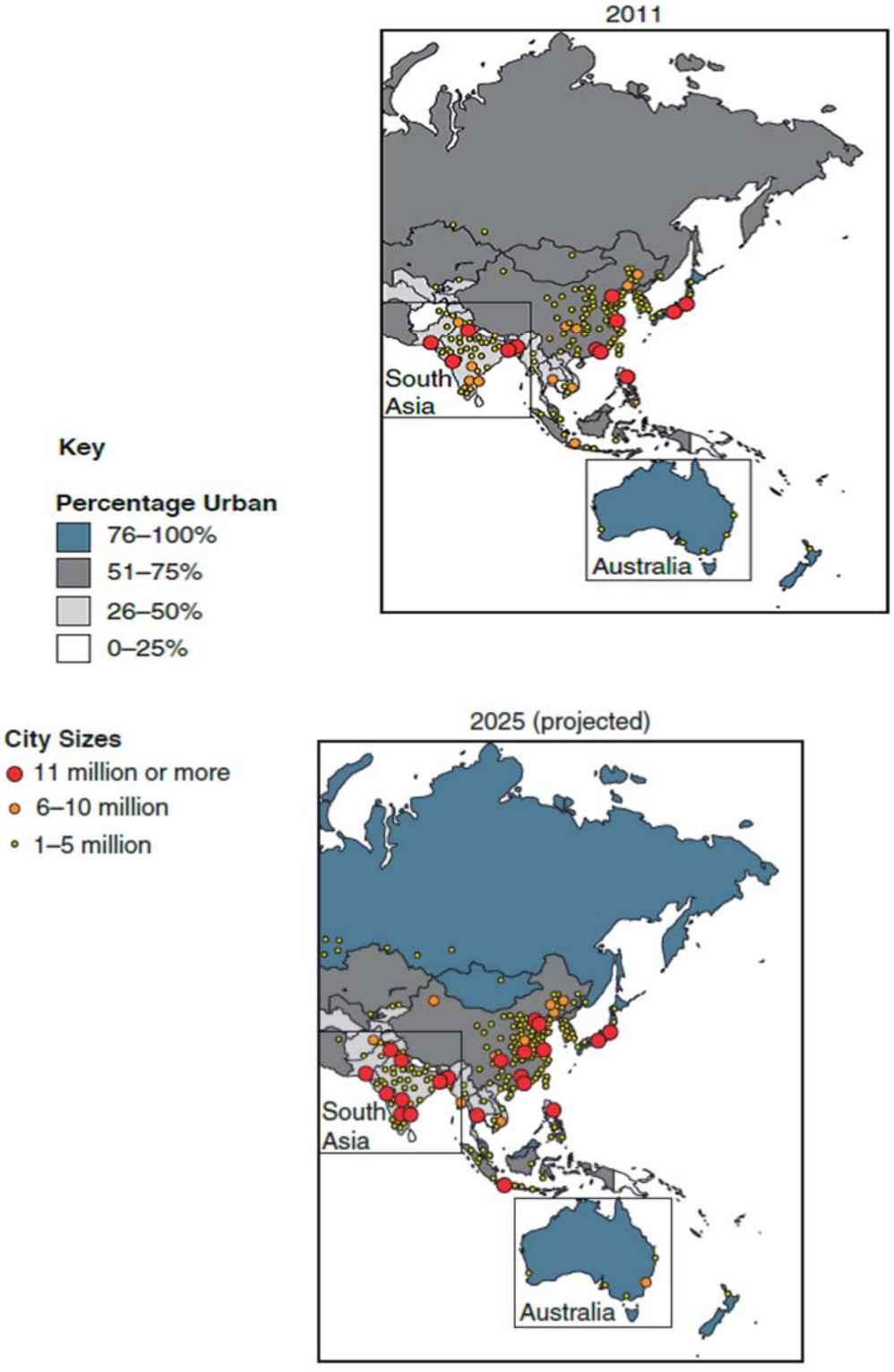
Resource 7 for Question 3

Labour productivity growth and nominal wage growth in selected countries, 2013-2018



Resource 8 for Question 4

Percentage urban population and city sizes in Asia and Oceania, 2011 and 2025 (projected).



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JURONG JUNIOR COLLEGE
JC2 GEOGRAPHY

Preliminary Examination 2017

GEOGRAPHY

9751

Higher 2

Paper 2

Thursday 14 September 2017 3 Hours

Name: _____ Class: _____

INSTRUCTIONS TO CANDIDATES

Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use paper clips, highlighters, glue or correction fluid.

Answer **four** questions in total.

Candidates answer **all** questions.

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At the end of the examination, please attach your answers to the cover page provided.
The number of marks is given in brackets [ ] at the end of each question or part question.

Section A

Theme 4: Geographical Investigation

1. You and a group of classmates were tasked with undertaking a fieldwork exercise on 3 different terrains to ascertain the relationship between infiltration rates and the nature of the land use associated with the terrain.

The group was divided up into teams of four to measure the infiltration rates associated with each site. One site (Site A) was a site in an area undergoing construction. The other site (Site B) was located within a park. The last site (Site C) was located in a farmland area. The infiltration rate is calculated by finding out the time it takes for water level in the cylinder to fall by 2cm. The rate is calculated as mm/s.

Your team took measurements on all 3 sites on a Monday morning (Site A), noon (Site B) and late afternoon at 4pm (Site C). Heavy rain was experienced at (Site C) the night before.

Teams were each given the following equipment to gather primary data on infiltration rates:

- Milo Tin
- Ruler
- Stop watch
- Water

The time taken for the water level to drop by 2cm was defined using a ruler and personal observation. At site A, the group found difficulty placing milo tin in the ground as the site they have chosen was compacted and had many rock and concrete debris. Nevertheless they found a suitable spot to put in the milo tin near to newly ploughed earth where the site digger had just finished digging. The data collected was recorded using a data collection sheet. (Resource 2).

Resource 1 shows the land use associated with each site (Sites A, B & C). Resource 2 shows the data collected by your team to calculate the infiltration rates associated with each site.

(a) With reference to Resource 1, suggest a suitable hypothesis and explain the rationale for your investigation. [2]

(b) Explain the safety considerations your group will take at each respective site. [4]

(c) Suggest **three** other pieces of information that may be useful in understanding infiltration rates at all sites. [6]

(d) Explain how the way data collected might render the investigation unfair. [8]

(e) Assess the usefulness of the infiltration data in Resource 2 in helping to determine the flood risk at the different sites. [5]

Section B

Theme 1: Tropical Environments

Tropical Deforestation

2. Resource 3 shows the main drivers of deforestation in Brazil, Malaysia, Indonesia, Bolivia, Paraguay and Papua New Guinea. Resource 4 shows the area of oil palm harvested across Indonesia, Malaysia, Africa and South America.

(a) With reference to Resource 3, compare the total land deforested and the drivers of deforestation due to commercial agriculture across the different tropical countries. [4]

(b) Using Resource 3, compare the percentage of illegal agro conversion and illegal agro conversion exported. [4]

(c) Using Resource 4, describe the changes in the area of oil palm harvested amongst the different regions from 1991 to 2014. [3]

(d) Using Resources 3, 4 and your own knowledge, discuss why tropical deforestation continues unchecked in developing countries. [9]

(e) Explain the possible consequences of tropical deforestation. [5]

Theme 2: Development, Economy and Environment

Economic Structure in Vietnam

3. Resource 5 shows the distribution of employment in the economic sectors of Vietnam from 1990 to 2008. Resource 6 shows selected socioeconomic data of Vietnam in 1990 and 2015. Resource 7 shows labour productivity growth and nominal wage growth in selected countries during the period 2013-2018.

(a) With reference to Resource 5, describe the changes in Vietnam's distribution of employment from 1990 to 2008. [4]

(b) With the help of Resource 6, suggest how employment in services in Vietnam may have changed by 2015 and explain why. [7]

(c) With reference to Resource 7, describe the relationship between labour productivity growth and nominal wage growth for the period 2013-18. [4]

(d) With the help of Resources 6, 7 and your own knowledge, discuss whether Vietnam can have strong economic development for the period 2013-2018. [6]

(e) Suggest **two** other pieces of information not seen in Resources 5, 6 and 7 that can help understand economic development in Vietnam better and explain why. [4]

Theme 3: Sustainable Development

Urban Growth in Asia and Oceania

4. Resource 8 shows the percentage urban population and city sizes in South Asia and Oceania, 2011 and 2025 (projected).

(a) With reference to Resource 8, describe the percentage urban population and city sizes in South Asia and Oceania. [5]

(b) Identify the **two** types of data representation method shown in Resource 8 and suggest the benefits and limitations of these methods. [5]

(c) Suggest how the varied growth within South Asia may be explained. [6]

(d) Describe some of the problems South Asia will face in relation to its urban population and city sizes. [4]

(e) Suggest solutions to help South Asia in relation to the problems identified in (d). [5]

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Name: _____ Admission No: Class:

millennia institute

2017 Promotional Examination II

Pre-University 2

GEOGRAPHY (HIGHER 2) **9751/01**

Paper 1 Structured Essay Questions **20 September 2017**

3 Hours

Additional Materials: Answer Booklet/Paper
1 Insert

INSTRUCTIONS TO CANDIDATES

Write your name, admission number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions.

You should make reference to appropriate examples studied in the field or classroom, even where such examples are not specifically requested by the question.
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You are reminded of the need for good English and clear presentation in your answers.

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.

Answer **three** questions.

Section A – Tropical Environments

1 **(a)** Explain the similarities and differences in climatic characteristics between tropical monsoon (Am) climate and tropical desert (BWh) climate. [12]

(b) 'Strategies to manage tropical deforestation have been successful'.

How far do you agree with the statement? [20]

2 **(a)** Explain the similarities and differences of weathering and erosional processes that occur in the humid and arid tropics. [12]

(b) Assess the extent to which climate is essential in the development of karst landscapes in the humid tropics. [20]

Section B – Sustainable Development

3 **(a)** Explain how sustainable urban development can be measured in cities. [12]

(b) Evaluate the success of urban re-imaging strategies in cities. [20]

4 **(a)** Explain the concept of sustainable development at different levels of development [12]

(b) 'The strategies used to cater to the needs of the different social groups in cities are ineffective.'

[20]

Discuss.

- End of Paper -

Class | Adm No

Candidate Name: _____

H

millennia institute

2017 Promotional Examination II

Pre-University 2

GEOGRAPHY (HIGHER 2) **9751/02**

Paper 2 Data Response Questions

INSERT

12 September 2017

3 hours

INSTRUCTIONS TO CANDIDATES

This insert contains all the Resources referred to in the questions.

This insert consists of 12 printed pages.

Resource 1 for Question 1

State-led efforts to improve liveability in Kallang, Singapore



Resource 2 for Question 1

State-led efforts to improve liveability in Punggol, Singapore



Resource 3 for Question 1

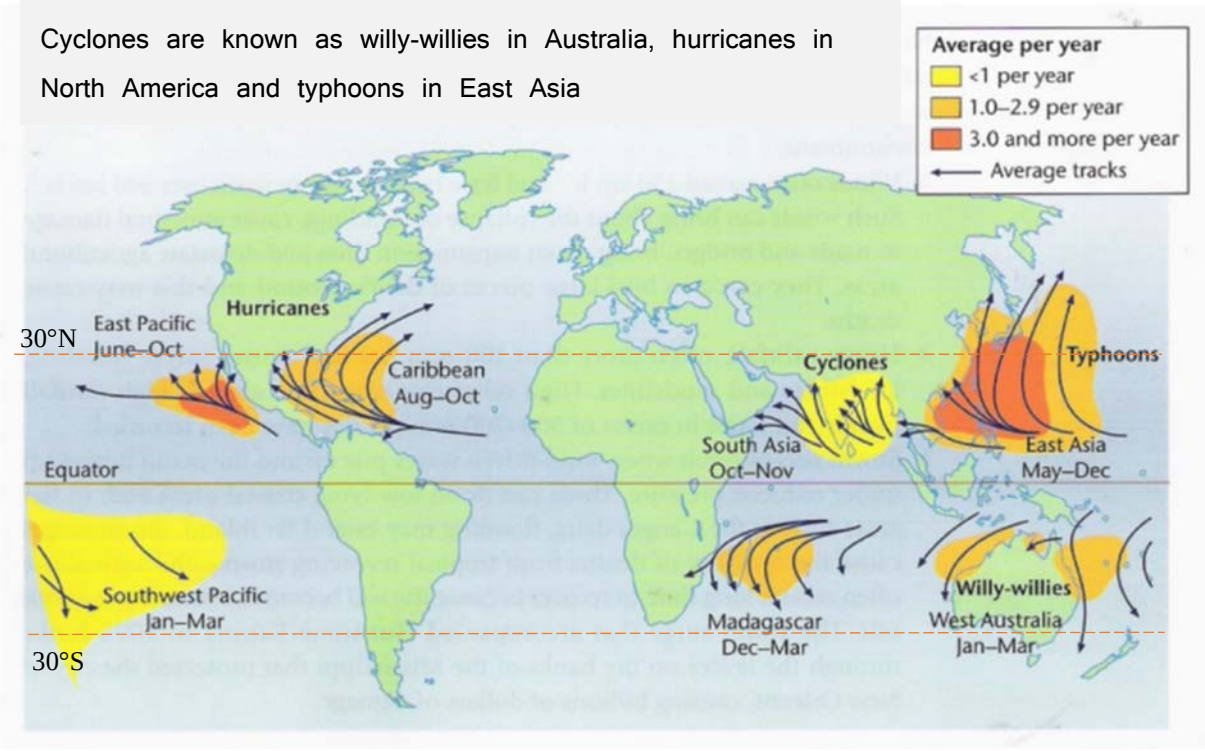
Survey questionnaire results collected from the neighbourhood of Kallang, Singapore

Total Population of Kallang: 101, 210 **Sample Size: 100** **Sampling Method: Random Sampling**		
	Yes (%)	**No (%)**
General		
Do you know about recent state-led changes in the neighbourhood?	23	77
Are you satisfied with the current liveability of your neighbourhood?	44	56
Leisure		
Are you happy with the current quality of retail facilities in your neighbourhood?	83	17
Are you happy with the current quality of sports facilities in your neighbourhood?	55	45
Environment		
Are you happy with the current quality of green spaces in your neighbourhood?	37	63

Resource 4 for Question 2

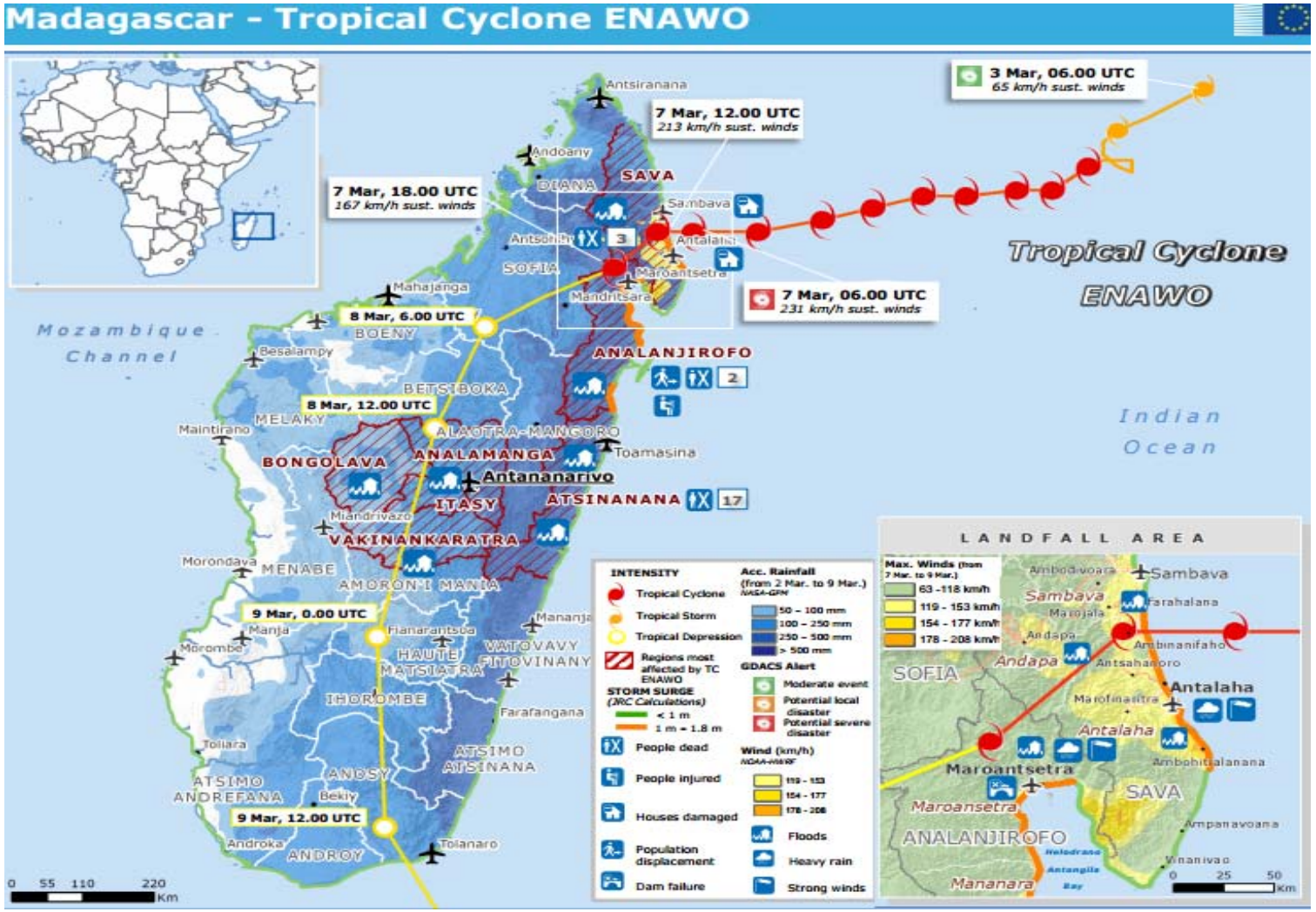
Global distribution of tropical cyclones

Cyclones are known as willy-willies in Australia, hurricanes in North America and typhoons in East Asia



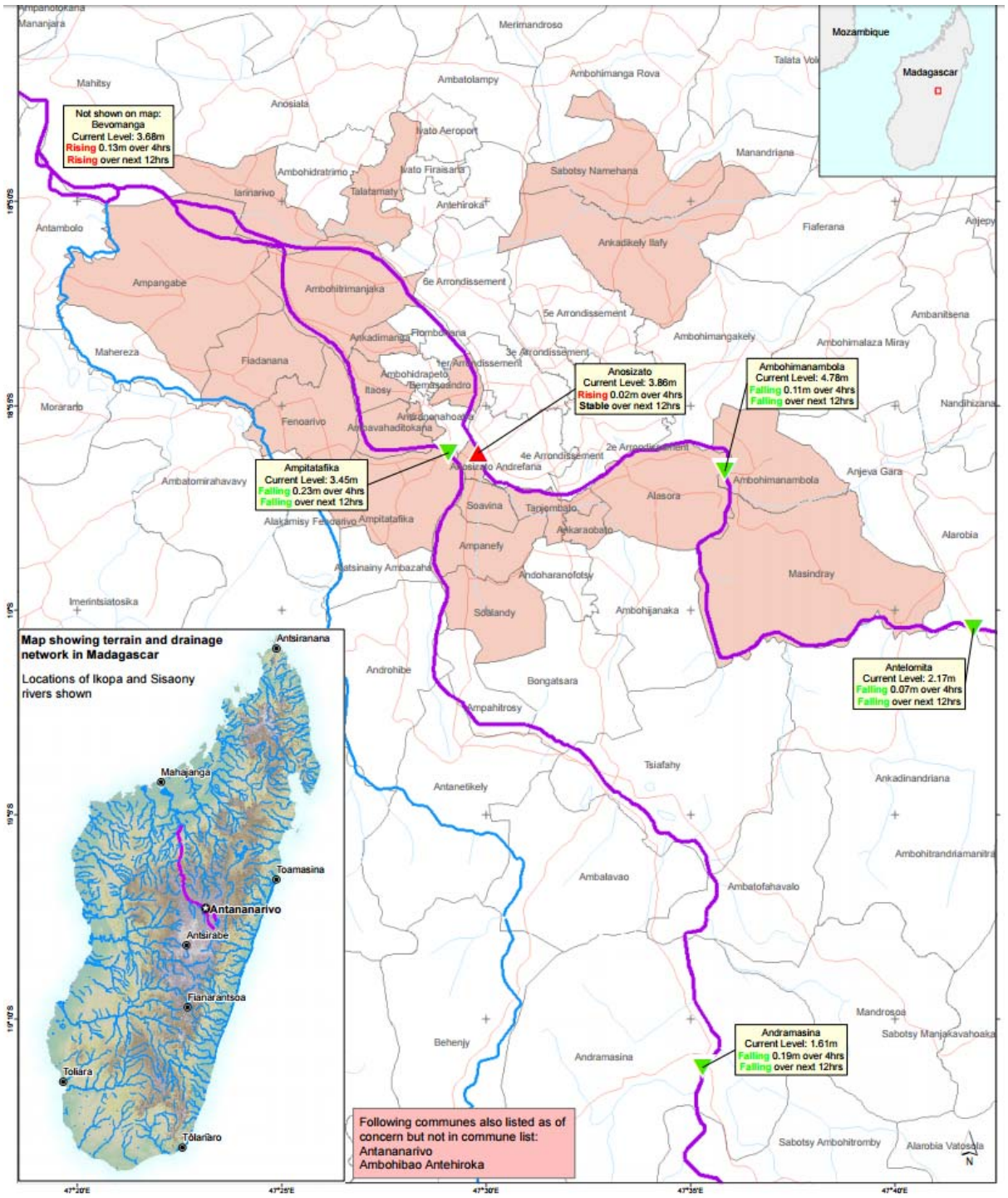
Resource 5 for Question 2

Tropical Cyclone Enawo in Madagascar



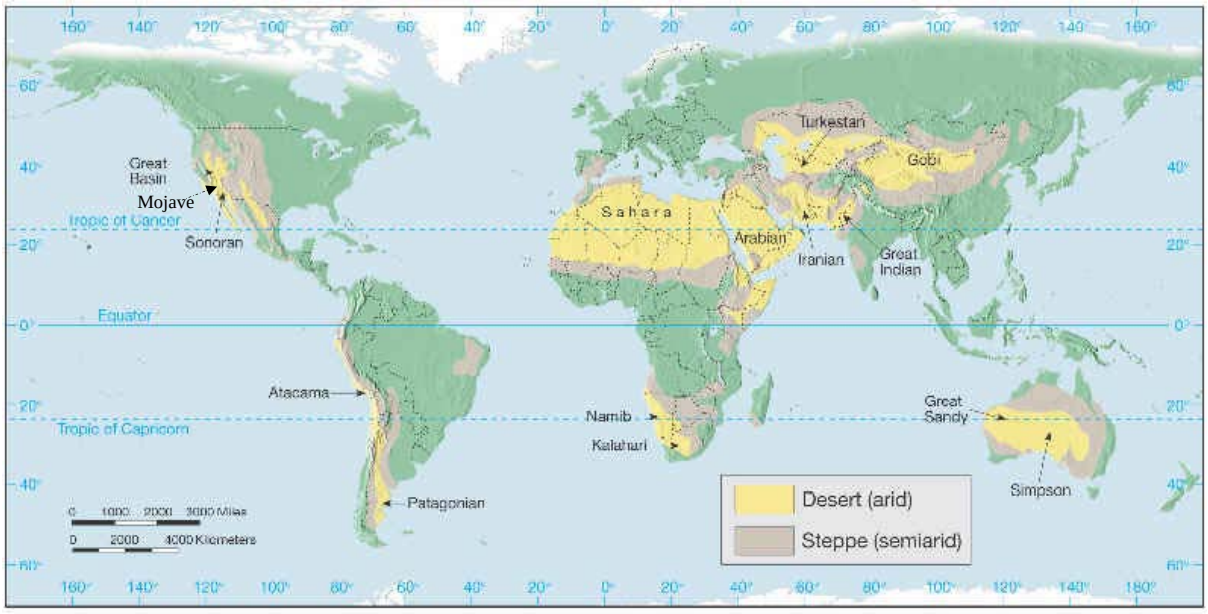
Resource 6 for Question 2

Flooding situation in Antananarivo, Madagascar on 10 March 2017 as a result of Tropical Cyclone Enowa



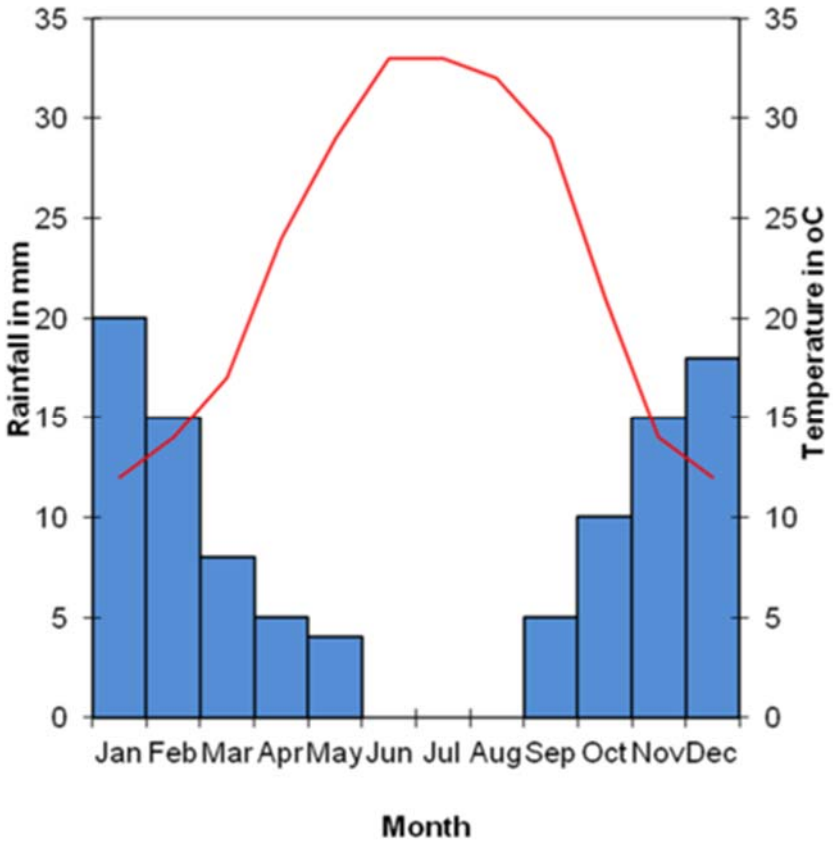
Resource 7 for Question 3

Global Distribution of Arid Tropical Climates



Resource 8 for Question 3

Climograph of Mojave Desert



Resource 9 for Question 3

A landform found in Mojave Desert



Resource 10 for Question 3

Newspaper excerpt on a mudslide in Mojave Desert

Hundreds of vehicles stuck in mudslide on Hwy 58 in Mojave desert

POSTED: OCT 16 2015 01:21PM EDT
UPDATED: OCT 16 2015 08:28PM EDT

Hundreds of cars and trucks were still stuck in mud Friday from flash floods on State Route 58 in the Mojave Desert north of Los Angeles.

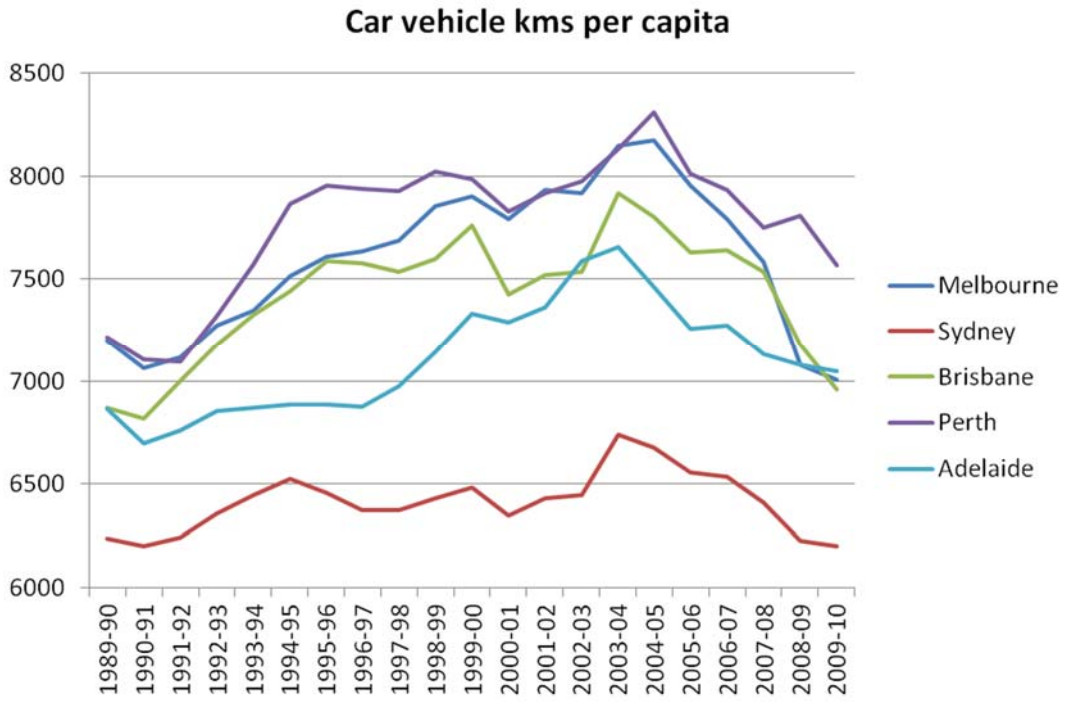
It's one of several scenes of massive mud flows unleashed by powerful thunderstorms in Southern California's mountains and deserts Thursday afternoon.

It happened fast as a downpour just before 6pm Thursday night soaked the hillsides. Officials at a news conference in Lancaster Friday said we should all remember the power of Mother Nature can be extraordinary. A little water can move a big car. In this case, a little moved a big number of cars and trucks.

CHP officials say it could take days to clean off the road and remove the vehicles. Given that, it could take longer to get the road reopened. So, for now, Highway 58 between Mojave and Tahachapie is closed indefinitely.

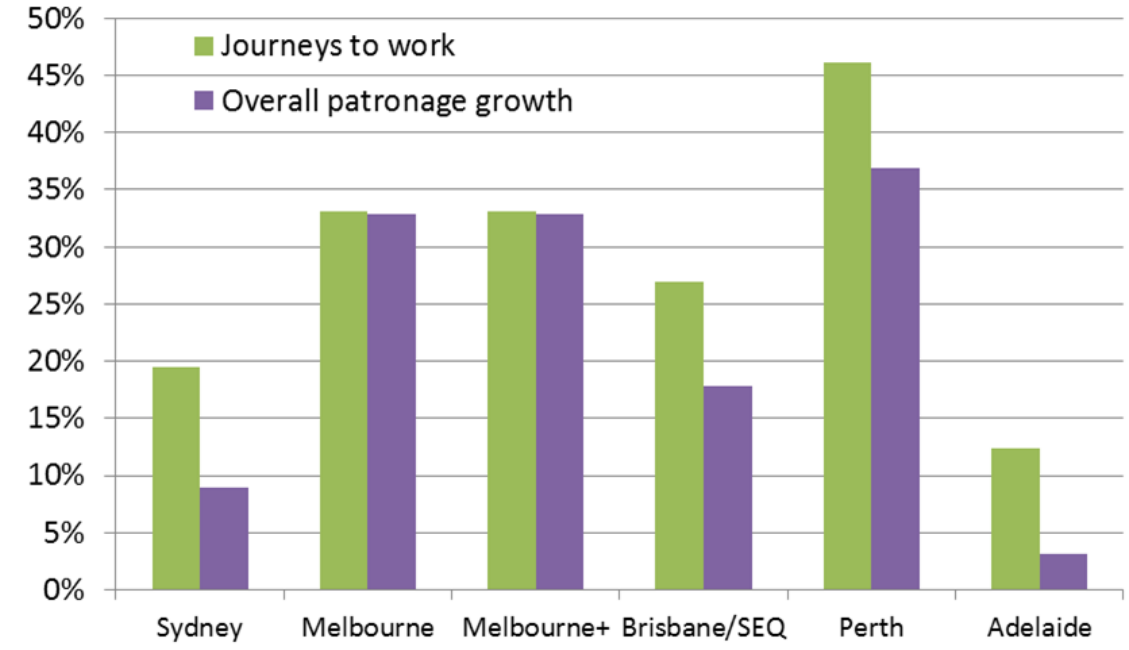
Resource 11 for Question 4

Distance travelled by car vehicles in kilometres (kms) per capital in major cities of Australia from 1989 to 2010



Resource 12 for Question 4

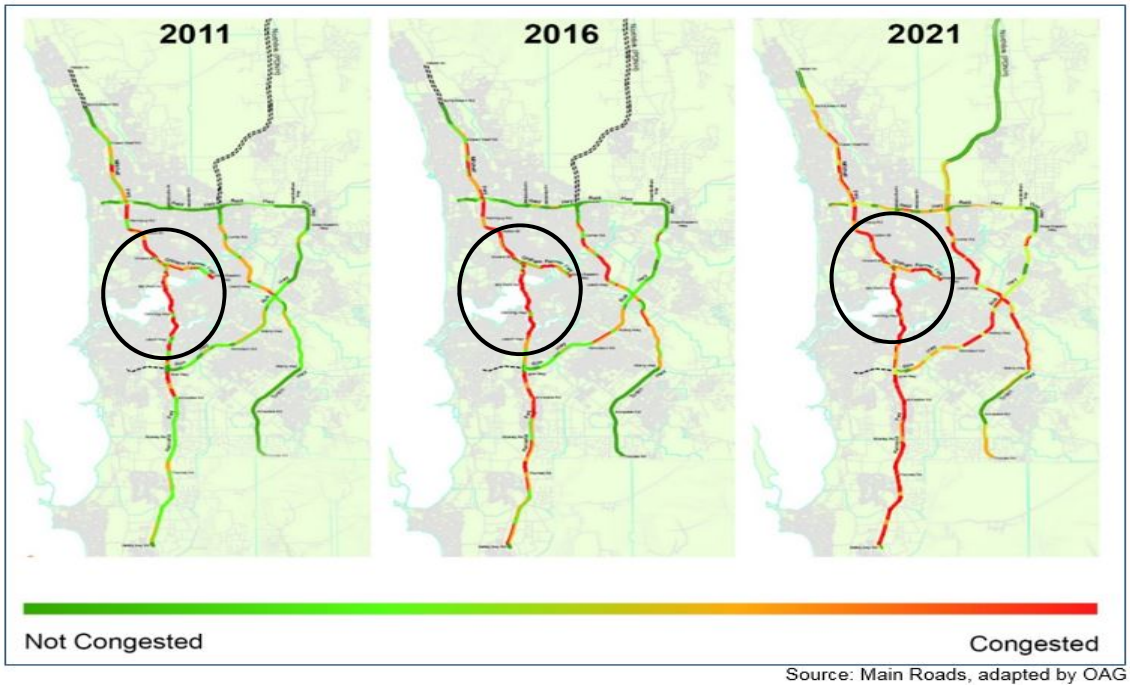
Growth in public transport use in major cities of Australia from 2006 to 2011



Resource 13 for Question 4

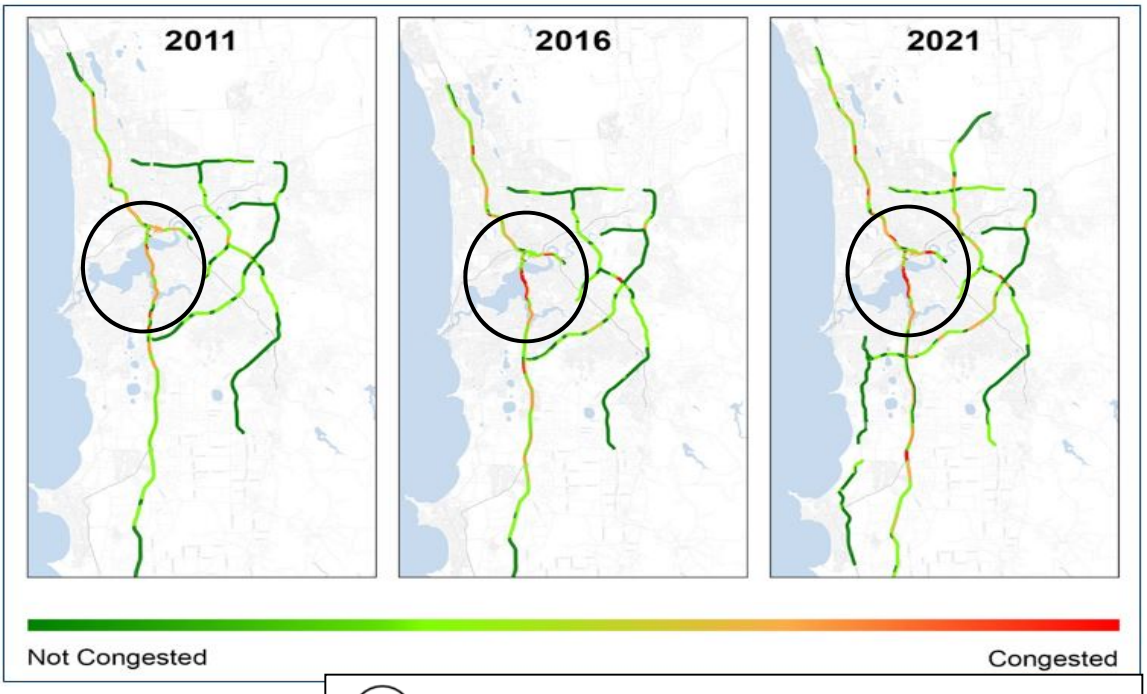
Computer modelling results of estimated future traffic congestion situation by the Office of Auditor General (OAG) of Western Australia (WA), focusing on the main roads in and around Perth, Australia in the year 2015.

Before factoring in public transport use and current projects



Source: Main Roads, adapted by OAG

After factoring in public transport use and current projects



Resource 14 for Question 4

Infographic about the perceived and actual average cost of owning a car in Perth.



-End of Insert-

Copyright Acknowledgements:

Question 1 Resource 1 & 2	http://www.fendylee.com/master-plan-2013/archives/11-2013/3 (Last accessed: 21 August 2013)
Question 1 Resource 3	Millennia Institute
Question 2 Resource 4	http://www.geocoops.com/tropical-storms.html
Question 2 Resource 5	http://www.gdacs.org/datareport/dailymap/TC/1000341/20170310_Madagascar_TC_ENAWO.pdf (Last accessed: 10 August 2017)
Question 2 Resource 6	https://maps.mapaction.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3edbb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)
Question 3 Resource 7	http://www.geo.hunter.cuny.edu/tbw/wc.notes/15.climates.veg/climate/B/arid.seimarid.climates.world.map.jpg (Last accessed: 11 August 2017)
Question 3 Resource 8	http://7continents1globe.com/mojave-desert/ (Last accessed: 11 August 2017)
Question 3 Resource 9	https://www.flickr.com/photos/sieren/5609982041 (Last accessed: 11 August 2017)
Question 3 Resource 10	http://www.fox5ny.com/news/34017262-story (Last accessed: 11 August 2017)
Question 4 Resource 11	https://chartingtransport.files.wordpress.com/2011/10/car-vkms-per-capita.png (Last accessed: 14 August 2017)
Question 4 Resource 12	https://chartingtransport.files.wordpress.com/2013/02/jtw-versus-overall-pt-growth-v2.png (Last accessed: 14 August 2017)
Question 4 Resource 13	https://audit.wa.gov.au/reports-and-publications/reports/main-roads-projects-address-traffic-congestion/demand-road-network-increased-traffic-congestion-predicted-get-worse/ (Last accessed: 14 August 2017)
Question 4 Resource 14	https://greengurus.com.au/car-sharing-is-coming-to-perth/ (Last accessed: 14 August 2017)

Name: _____ Admission No: Class:

millennia institute

2017 Promotional Examination II
Pre-University 2

GEOGRAPHY (HIGHER 2) **9751/02**
Paper 2 Data Response Questions **12 September 2017**

3 Hours

Additional Materials: Answer Booklet/Paper
1 Insert

INSTRUCTIONS TO CANDIDATES

Write your name, admission number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Candidates answer **all** questions

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A

Theme 4: Geographical Investigation

1 A group of Geography students are interested to investigate the effectiveness of recent state-led efforts to improve urban liveability in Singapore. They selected the neighbourhoods of Kallang and Punggol for their investigation. Kallang is an inner city neighbourhood while Punggol is a planned new town.

The group of students were allocated three days for field investigation. They have access to secondary data detailing the range of implemented stage-led efforts to improve liveability in Kallang and Punggol extracted from the URA Master Plan (2013). Resource 1 details the recent state-led efforts to improve urban liveability in Kallang. Resource 2 details the recent state-led efforts to improve urban liveability in Punggol. Resource 3 shows the survey questionnaire results that the students have collected from the neighbourhood of Kallang.

(a) Suggest a suitable research question for the students' investigation with reference to Resources 1 and 2, and state **three** reasons why the research question is at a suitable scale. [4]

(b) Explain possible risks that the students might have to confront when conducting the research investigation and suggest ways to mitigate them. [4]

(c) Recommend and explain other data collection methods to supplement the findings as shown in Resource 3. [5]

(d) Select a suitable data representation method and sketch resident's perception of the environmental impacts of recent state-led efforts to improve urban liveability using information as shown in Resource 3. [3]

(e) Evaluate the usefulness of the investigation in understanding the impacts of recent state-led efforts to improve urban liveability in Singapore. [9]

Section B

Theme 1: Tropical Environments

Tropical Cyclone Enawo in Madagascar

2 Resource 4 shows the spatial and temporal distribution of tropical cyclones in the world. Resource 5 shows information on Tropical Cyclone Enawo that hit Madagascar in March 2017. Resource 6 shows the flooding situation in Antananarivo, Madagascar on 10 March 2017 as a result of Tropical Cyclone Enowa.

Note: A tropical depression has wind speed of below 63 kilometres per hour, a tropical storm has wind speed of 63 to 118 kilometres per hour while a tropical cyclone has wind speed above 118 kilometres per hour.

(a) Describe the spatial and temporal distribution of tropical cyclones from 1851 to 2006 as shown in Resource 4.
[4]

(b) With reference to Resources 4 and 5, explain the development of Tropical Cyclone Enawo at Madagascar in March 2017.
[6]

(c) With reference to Resource 5, describe the distribution of impacts at Madagascar due to Tropical Cyclone Enowa.
[5]

(d) Using Resources 5 and 6, explain how hydrological processes could have been affected by Tropical Cyclone Enowa which resulted in river floods in Antananarivo, Madagascar.
[6]

(e) Explain **<u>two</u>** impacts caused by the floods due to Tropical Cyclone Enowa in Antananarivo, Madagascar as shown in Resources 5 and 6.
[4]

Theme 1: Tropical Environments

Mojave Desert

3 Resource 7 shows global distribution of arid tropical climates and deserts. Resource 8 shows the climograph of Mojave Desert, California, USA. Resource 9 shows a landform found in the Mojave Desert. Resource 10 shows a newspaper excerpt of a mudslide incident in the Mojave Desert.

(a) With reference to Resource 7, describe the distribution of Tropical Desert (BWh) climate in the world. [3]

(b) Using Resources 7 and 8, account for the climate that Mojave Desert in California, USA has. [5]

(c) Explain how the landform shown in Resource 9 is formed. [4]

(d) Explain **<u>two</u>** conditions required for the formation of the landform shown in Resource 9. [4]

(e) With reference to Resources 9, 10 and your own knowledge, evaluate the extent to which the mudslide in Mojave Desert is caused by natural factors. [9]

Theme 3: Sustainable Development

Transport Situation in Australia

4 Resource 11 shows the distance travelled by car vehicles in kilometres (kms) per capita in major cities of Australia from 1989 to 2010. Resource 12 shows the growth in public transport use in major cities of Australia from 2006 to 2011. Resource 13 shows the computer modelling results of estimated future traffic congestion situation by the Office of Auditor General (OAG) of Western Australia (WA), focusing on the main roads in and around Perth, Australia in the year 2015 before and after factoring in public transport use and outcomes from current projects being done to alleviate traffic problems. Resource 14 shows an infographic about the perceived and actual cost of owning a car in Western Australia (WA).

(a) Describe the trends in the car vehicle kms per capital in the major cities of Australia as shown in Resource 11. [4]

(b) Compare the journeys to work and overall patronage growth in public transport use in the major cities of Australia as shown in Resource 12. [3]

(c) With reference to Resources 11 and 12, discuss the extent to which growth in public transport use can explain the trends observed in Resource 11. [5]

(d) With reference to Resource 13, explain the impact of public transport use and projects done to alleviate traffic problems for Perth, Australia. [6]

(e) With reference to Resources 13, 14 and your own knowledge, explain possible strategies to alleviate traffic problems in Perth, Australia. [7]

- End of Paper -

Copyright Acknowledgements:

Question 1 Resource 1 & 2	http://www.fendylee.com/master-plan-2013/archives/11-2013/3 (Last accessed: 21 August 2013)
Question 1 Resource 3	Millennia Institute
Question 2 Resource 4	http://www.geocoops.com/tropical-storms.html
Question 2 Resource 5	http://www.gdacs.org/datareport/dailymap/TC/1000341/20170310_Madagascar_TC_ENAWO.pdf (Last accessed: 10 August 2017)
Question 2 Resource 6	https://maps.mapaction.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3edbb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)
Question 3 Resource 7	http://www.geo.hunter.cuny.edu/tbw/wc.notes/15.climates.veg/climate/B/arid.seimarid.climates.world.map.jpg (Last accessed: 11 August 2017)

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Question 4 Resource 13	https://audit.wa.gov.au/reports-and-publications/reports/main-roads-projects-address-traffic-congestion/demand-road-network-increased-traffic-congestion-predicted-get-worse/ (Last accessed: 14 August 2017)
Question 4 Resource 14	https://greengurus.com.au/car-sharing-is-coming-to-perth/ (Last accessed: 14 August 2017)

Name: _____ Admission No: Class:

millennia institute

2017 Promotional Examination II

Pre-University 2

GEOGRAPHY (HIGHER 2) **9751/01**

Paper 1 Structured Essay Questions **20 September 2017**

3 Hours

Additional Materials: Answer Booklet/Paper
1 Insert

INSTRUCTIONS TO CANDIDATES

Write your name, admission number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions.

You should make reference to appropriate examples studied in the field or classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
You are reminded of the need for good English and clear presentation in your answers.

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.

Answer **three** questions.

Section A – Tropical Environments

1 (a) Explain the similarities and differences in climatic characteristics between tropical monsoon (Am) climate and tropical desert (BWh) climate. [12]

Tropical Monsoon (Am) and Tropical Desert (BWh) climates are both tropical climates located within the tropics, but due to the differences in climatic characteristics, Am is a type of humid tropical climate while BWh is an arid tropical climate. Though similar in having high mean annual temperatures, Am and BWh climates differ in the annual temperature range, total annual precipitation and precipitation pattern.

Am and BWh climates both have high mean annual temperature as the regions experiencing these climates are located within the tropics where thermal uniformity prevails throughout the year. As the tropics is located within 0° to 30° N/S of the equator, the low latitude result in this region to be an area of radiative surplus where the average temperature of the coldest month is above 18°C. Due to the earth's tilt, as the earth revolves around the sun, the position of the overhead sun shifts north and south of the equator but mainly within the tropics. The high angle of incidence of the sun causes insolation to be concentrated on a small area which heats up the earth's surface and causes temperature to be relatively high. This explains why both Am and BWh climates have high mean annual temperature. For example, Monrovia in Liberia that experiences Am climate has a mean annual temperature of about 26°C while Cairo, Egypt that experiences BWh climate has a mean annual temperature of about 21°C. Due to their geographical location of low latitude within the tropics, both Am and BWh climates have high mean annual temperature.

Despite having high mean annual temperature, Am and BWh climates differ in their annual temperature range due to the difference in their latitudinal locations within the tropics. For Am climate, they are usually located about 5° to 20°N/S of the equator and there is very little variation in monthly temperature throughout the year. All months are characterised by high monthly temperature of about 25°C. Variation may exist where the warmest months occur just prior to the onset of the wet season due to presence of little cloud cover that allows a high amount of insolation to reach the earth's surface. During this period, temperature can reach up to 32°C. With the onset of the wet season, monthly will be brought down to within 20°C to 30°C. This results in the annual temperature range of Am climate to be approximately 2°C to 11°C. For example, Akyab, Myanmmar experiences an annual temperature range of 7.8°C. On the other hand, BWh climate has higher annual temperature range that is approximately 17°C to 22°C. BWh climates are found close to 30°N/S of the equator and their monthly temperature is heavily influence by the position of the overhead sun. During summer, the combination of the overhead sun, clear skies and low humidities causes ground temperature to become extremely high, where average temperature during this period can be between 30°C to 35°C. However, as the position of the overhead sun shift to the other hemisphere, average monthly temperatures can be close to 10°C due to the combined effect with low cloud cover that allows heat to escape easily. For example, in Baghdad, Iraq, monthly temperature during the summer is 35°C which is 25°C higher than its average January temperature of 10°C. This shows how Am and BWh climates differ in their annual temperature range due to their latitudinal locations within the tropics.

In addition, the total annual precipitation of Am and BWh climates differ due to the influence of the Inter-Tropical Convergence Zone (ITCZ) for Am climate and subsiding limb of the Hadley cell for BWh climate. The ITCZ is a zone of convergence of the trade winds (as a result of the Hadley cells) and is characterised by bands of clouds with high rainfall. The ITCZ moves with the overhead sun. Due to the shifting of the ITCZ, the ITCZ brings rainfall to Am climate from 6 to 12 months of the year. Under the influence of the ITCZ, monthly rainfall can reach up to as high as 600mm, as evident in Yangon, Myanmar. Due to the high amount of rainfall during the wet season, Am climate has high total annual precipitation of more than 2000mm. This is the opposite for BWh

climate. In regions experiencing BWh climate, rainfall is rare as the ITCZ does not extend/reach this higher latitude. Furthermore, this region is associated with the subsiding limb of the Hadley cell where air subsidence inhibit the formation of cloud and thus rainfall. Rainfall only occurs when unusual conditions move moist air into the region. Thus, as the sky is clear for most period of the year, the total annual precipitation is low, such as in Yuma, Arizona, where it is only 75mm. Because of their latitudinal locations, the influence of various factors such as the ITCZ and the subsiding limb of the Hadley cell result in differing total annual precipitation for the Am and BWh climates.

Precipitation patterns also differ between Am and BWh climate due to varied precipitation mechanism in regions experiencing these 2 climates. For the Am climate, it has a very distinct wet and dry season, with high precipitation brought about by the onset of warm and moist monsoon winds during the wet season. During the northern hemisphere summer, the shifting of the ITCZ up north in latitude brings about the onset of moist southwest monsoon winds in the Asia region that brings about high amount of rainfall to the India sub-continent and southeast Asia. However, as the position of the overhead sun shifts to the southern hemisphere, places like the India sub-continent will receive cold dry northeast monsoon winds that bring little rain. Regions experiencing Am climate feature a dry season that lasts 1 or more months, hence is characterised with distinct wet and dry seasons, such as those experienced in Dhaka, Bangladesh. However, for BWh climates, they are characterised by no rainfall for most months of the year with scant precipitation occurring in some months. Precipitation that occurs are usually in the form of localised showers due to convection during the summer period. Though precipitation events that occur may be of high intensity that can cause flash floods, they are usually not frequent or strong as the moisture supply is usually too low to allow much precipitation to fall. This is evident in Cairo, Egypt, where precipitation of about 10mm occur during its summer months of January to April but the other months have no rainfall at all. Thus, precipitation patterns in the Am and BWh climates also differ due to varied precipitation mechanisms.

Marker's Report:

- *Many students did not do well in this question as they merely described how similar/different Am and BWh climates are and failed to provide explanation behind these similarities/differences*
- *Students were not specific in their answer*
    - *E.g. Students wrote that Am and BWh climates have high temperature → monthly? Annual?*
    - *Students should be familiar with terms in describing climatic characteristics, such as mean annual temperature, annual temperature range, total annual precipitation etc.*

(b) 'Strategies to manage tropical deforestation have been successful'.

How far do you agree with the statement? [20]

Deforestation is clearing of Earth's forests on a massive scale, often resulting in damage to the quality of the land. Tropical deforestation involves deforestation within the tropics and due to the presence of large tracts of forests in the tropics, deforestation is occurring at a rapid rate. Strategies have been put in place by a range of stakeholders – supranational bodies, states, transnational corporations (TNCs) and individuals -- to manage tropical deforestation but unfortunately, I agree with the statement to a small extent as they have been successful only to a small extent. Although strategies to manage tropical deforestation may be successful if they reduce the rate or prevent deforestation from happening, these strategies do not manage tropical deforestation in the long run as they often do not tackle the root cause of tropical deforestation. Even if they do, the scale at which these strategies are operating is too small to warrant a positive outcome. Furthermore, in some place contexts, the lack of political commitment have resulted in the failure of management of tropical deforestation.

Strategies to manage tropical deforestation may be successful if they help in reducing the rate or preventing tropical deforestation from happening. Deforestation involves the removals of trees on a large scale and it brings about many consequences such as increasing the rate of global warming, soil erosion, loss in biodiversity and ecosystem services. This unsustainable human activity has to be reduced or even prevented to protect and conserve the forests that we have in the tropics that serve many purposes which include their role as carbon sinks to mitigate climate change. One major agent of deforestation is TNCs which use the forest for the production of their goods. Being an agent of deforestation also meant that TNCs have the ability to reverse this trend. Some TNCs have implemented 'zero deforestation' policies in their supply chains by holding their suppliers accountable for producing commodities like timber and paper in a way that does not fuel deforestation. For example, one such TNC is McDonald's that has pledged in April 2015 to end deforestation across its entire supply chain. McDonald's promised not to contribute to deforestation in areas most critical to reducing carbon in the atmosphere - known as high carbon value and high carbon stock forests. By having commitments like this from major agents of deforestation and if these agents follow through their commitments, the rate of tropical deforestation can be reduced or done in a more sustainable manner. Therefore, if the rate of deforestation can be reduced or prevented, strategies to manage tropical deforestation may be successful.

However, strategies to manage tropical deforestation have not been successful as they often do not solve the root cause of the issue. There are various causes of deforestation such as logging and urbanisation but the main root cause of deforestation lies in overconsumption as a result of development. In the name of development, activities like irrational and unscrupulous logging, cash crops and cattle ranching are carried out. Despite the developed countries making up one quarter of the world's population, they consume almost four-fifth of the world's resources. This lifestyle of overconsumption of resources is also being advertised in and forced upon developing countries, causing the world to be using forest resources in an unsustainable manner. If strategies to manage tropical deforestation do not manage this lifestyle of overconsumption of resources, they will be unsuccessful as deforestation will continue as long as there is the demand for the resources. Despite McDonald's commitment in 'zero deforestation', palm oil which is a major contributor of deforestation and used in many of its products, if the demand for goods containing palm oil continue to rise with limited availability of sustainably sourced palm oil is limited today, deforestation may still continue or even worsen. Besides TNCs, to manage tropical deforestation, United Nations, which is a supranational body, initiated the REDD (Reducing Emissions from Deforestation and forest Degradation) program whereby a market-based approach is taken to create a financial value for the carbon stored in forests, offering economic incentives for developing countries to reduce emissions from forested land and invest in low carbon-paths to sustainable development. Yet, in Keo Seima, Cambodia, despite the REDD programme being implemented, logging was still rampant among residents as the demand for forest resources present a source of livelihood for these villagers. Without tackling the root cause of deforestation, strategies will not be successful.

Moreover, even if strategies in promoting sustainable behaviour to reduce consumption of forest resources exist, the scale at which they are operating now is too small to warrant a success. To promote green consumption among individuals, whereby individuals are ascribed co-responsibility for addressing environmental problems through the adoption of environmentally friendly behaviour, TNCs have sought to get sustainably-produced goods certified to help consumers make informed choices. For example, the Rainforest Alliance gives out green frog certification seal to indicate that a farm or forest has been audited to meet standards that meet environmental, social, and economic sustainability. Consumers can play a part to combat tropical deforestation by choosing products bearing the Rainforest Alliance Certified seal. However, currently, only minority of products are certified that they are produced sustainably which presents limited choices for consumers to practise sustainable behaviour. In addition, research has shown that there is a lack of consumer knowledge on such certification/products and thus the role of individuals in practising green consumption practices is further limited. There is a need for TNCs to engage in more sustainable practices in their

supply chain and for individuals to engage in more environmentally friendly behaviour so that the consumption of forest resources can be done in a more sustainable manner and the issue of tropical deforestation to be better managed. Hence, as the scale at which strategies currently promote sustainable behaviour to reduce consumption of forest resources is too small, strategies to manage tropical deforestation have been unsuccessful.

In some place contexts, strategies to manage tropical deforestation have not been successful because of the lack of political commitment. To manage the issue of tropical deforestation, states have engaged in policy, legislative and regulatory measures to protect forests. For example, states can increase the area and standard of management of protected areas and/or promote sustainable forest management in a bid to manage the issue. In Brazil, approximately half of the deforestation was avoided in the Amazon Rainforest during 2005 to 2009 as a result of government conservation policies. This is only made possible with strong political commitment of the Brazilian state authorities to coordinate efforts among various stakeholders (federal, state governments and civil organisations) to protect the forest. Without such political commitment, strategies to manage deforestation may render useless. In Indonesia, despite the state's promise to crack down deforestation from the expansion of oil palm plantations, deforestation continues to be rampant in the country due to corruption and the lack of enforcement of regulations and legislation. This shows that strategies have not been successful in some place contexts due to the lack of political commitment.

In conclusion, I agree with the statement only to a small extent as strategies to manage tropical deforestation have largely not been successful. Although there are strategies that help to prevent deforestation from occurring, often they do not tackle the root cause of deforestation which presents a challenge to this issue in the long term. At present, there may be strategies to encourage more sustainable behaviour from both producers and consumers, but this is happening at a small scale that does not effectively deal with deforestation. Also, in some place contexts, the lack of political commitment renders the strategies unsuccessful. Tropical deforestation is a major environmental issue occurring in the tropics that requires the concerted effort of different stakeholders at varied scales to manage this issue sustainably.

Synoptic thinking

- Theme 2: Development, resource management
- Theme 3: Climate change, sustainable development

Marker's Report:

- *Many students failed to provide an evaluation of the STRATEGIES to manage tropical Df*
- *Strategies provided by students did not address the question meaningfully*
    - *Students should be providing strategies that could be taken by TNCs, supranational bodies, states and individuals to provide a more holistic evaluation*
- *Students lack elaboration in the arguments they crafted*
- *Students need to ensure that case studies selected are purposeful in supporting their argument and explanation*

2 (a) Explain the similarities and differences of weathering and erosional processes that occur in the humid and arid tropics. [12]

Weathering involves the disintegration of rocks in situ at or near the earth's surface while erosion involves the removal of materials where sediments get entrained and move along with erosional agents such as water and wind. There are 2 main types of weathering – physical and chemical, while there are 2 main agents of erosion – wind and water. Weathering processes differ in the humid and arid tropics, as due to differing climatic characteristics, the type and rate of weathering processes differ in these 2 climatic regions. As for erosion, while erosion by water occurs in both humid and arid tropics, aeolian erosion is more predominant in arid tropics due to differing environmental conditions in the humid and arid tropics.

The type of weathering processes that occur in the humid and arid tropics differ due to differing climatic conditions. With high mean annual temperature and high total annual precipitation, chemical weathering processes is dominant in the humid tropics. As water is the main agent of chemical weathering processes, the high total annual precipitation provides and replenishes acidulated groundwater that can percolate to great depths which facilitates deep weathering that produce great depth of regolith. Furthermore, high mean annual temperatures speed up the rate of chemical weathering processes as according to van't Hoff's rule, the rate of chemical reaction is doubled for every 10°C rise in temperature. Thus, chemical weathering processes such as hydrolysis are predominant in the humid tropics. However, for arid tropics, due to low total annual precipitation, chemical weathering processes that rely on water to operate is less likely to occur. Instead, physical weathering processes are predominant there as high mean annual temperature and low total annual precipitation encourages the growth of salt crystal that promotes salt crystallisation and the high diurnal temperature range encourages insolation weathering. Salt crystallisation involves the growth of salt crystals in climate where evaporation exceeds precipitation which exert expansive stress on joints that eventually result in physical disintegration of rocks. Whereas insolation weathering involves the alternate heating and cooling of the rocks that result in constant expansion and contraction of the rock that leads to stresses and eventually exfoliation to occur. Chemical weathering in arid tropics is by no means absent because the atmosphere in deserts is never completely dry and the presence of moisture can facilitate the occurrence of chemical weathering processes, albeit to a smaller extent. Thus, due to differing climatic characteristics in the humid and arid tropics, the type of weathering processes differ in these 2 regions. [can also bring in Strakhov's model to show the extent of chemical weathering in both humid and arid tropics]

Not only do the type of weathering processes differ in these 2 climatic regions, the rate at which weathering processes occur also vary. Peltier's diagram shows very clearly the relationship between climate and the intensity and type of weathering processes. In Pelter's diagram, it indicates that with high mean annual temperature and rainfall, strong chemical weathering will take place. This is because of the favourable climatic conditions that speeds up the rate at which chemical weathering processes take place in the humid tropics. As for the arid tropics, though physical weathering processes predominate, the rate at which they occur is very low. This is observed in Peltier's diagram where it shows only very slight weathering occurs in the arid tropics where there is high mean annual temperature but low mean annual rainfall. As physical weathering processes such as insolation and salt crystallisation that occur in the arid tropics are concentrated at the surface of the rocks, these physical weathering processes occur at a smaller scale as compared to chemical weathering processes that occur in the humid tropics due to the ability of water to penetrate deep down into the ground that results in deep weathering. Hence, due to varied climatic conditions, the rate at which weathering processes occur in the humid and arid tropics differ.

However, erosional processes can be similar in both humid and arid tropics, in which erosion by water can take place in these 2 regions. Erosion by water can take place on hillslopes particularly during a storm event, which can take place in both humid and arid tropics. Erosion by water involves the detachment of materials at the ground surface, the entrainment and transportation of the particles and subsequently the deposition of the particles. In the humid tropics, rainfall events are common due to the presence of the inter-tropical convergence zone (ITCZ) and the occurrence of convection rainfall. As for the arid tropics, though they have low total annual precipitation, precipitation that occurs are usually in the form of localised showers due to convection during the summer period. These precipitation events in the humid and arid tropics provide chances for splash erosion, rainwash and rillwash to take place. Raindrops striking rock and soil surfaces may detach particles for entrainment in the process of splash erosion for subsequent transport by rainwash. Rainwash involves a thin layer of moving water that diverge and converge around surface bulges that cause erosion by particle detachment and transfer. If turbulent flows are present, these flows can incise into the surface, forming rills in the process of rillwash. Under the presence of water brought about by rainfall events, both humid and arid tropics do experience erosional processes by water.

Yet, what is unique to the arid tropics is Aeolian erosion due to favourable environmental conditions for erosion by wind to take place. Arid tropical regions are typically windy due to low density of vegetation that decreases the surface roughness which increases velocity and erositivity of wind. Conditions for Aeolian erosion to take place include loose, dry or fine soil, smooth ground surface, sparse vegetation cover and sufficiently strong wind to initiate soil movement which are present in the arid tropics. Thus, Aeolian erosion processes of abrasion and deflation are common in the arid tropics that produce arid landscapes such as yardangs and sand dunes. However, in the humid tropics, due to high density of vegetation cover that do not provide a smooth ground surface, Aeolian erosion is minimal. Therefore, Aeolian erosion that is present in the arid tropics but absent in the humid tropics is because of differing environmental conditions in these 2 climatic regions.

(b) Assess the extent to which climate is essential in the development of karst landscapes in the humid tropics. [20]

Karst is a distinctive topography that indicates dissolution of underlying soluble rocks by surface water or ground water. Karst landscapes are found in the humid tropics where favourable conditions for its formation are present. This essay argues that climate is essential in the development of karst landscapes in the humid tropics to a large extent because it provides favourable conditions for required processes to take place, in terms of type and rate of weathering, and also encourage the growth of vegetation needed for its development. However, it is to note that besides climate, the geological structure also plays an important role in determining the type of karst landforms that would be resulted.

The hot and wet climate characteristic of humid tropics is favourable for chemical weathering to take place – a process needed for the development of karst landscapes. For the formation from limestone to karst landscape, chemical weathering, predominantly carbonation and solution have to take place. Both require water to act as an agent in the process. For carbonation, it involves a reaction between carbonic acid and carbonate compounds while solution takes place in conjunction with running water around rock minerals and particles and helps in removing certain residual products of other weathering processes, to expose the joints to further weathering. In the humid tropics, because of the high amount of rainfall that provides and replenishes acidulated water required for chemical weathering, this favours active chemical weathering of limestone to form karst landscapes. Furthermore, climates with distinct seasons of heavy rainfall and drought, such as tropical monsoon climate, may also favour the development of karst landforms as the resultant seasonal shift of the water table contributes to extensive cavern formation and also to eventual collapse and lowering of ground level. As such, humid tropical places like Hanoi, Vietnam has distinct karst landscapes formed (Ha Long Bay). Thus, climate is essential in the development of karst landscapes in the humid tropics as it provides for the necessary climatic conditions

suitable for the required chemical weathering processes to take place.

Not only that, the climatic characteristics of the humid tropics allow for high rates of chemical weathering to take place for the development of karst landscapes in the humid tropics. Van't Hoff's rule states that the rate of chemical weathering increases two to three times with every 10°C increase in temperature. With high mean annual temperature in the humid tropics, it promotes high rates of chemical weathering to take place. It also increases biochemical activity which increases the production of carbon dioxide and organic acid which can dissolve in water and allows for chemical weathering to take place. In addition, high total annual rainfall of the humid tropics ensure the maintenance of abundant amount of groundwater. Both high temperature and rainfall accelerates the rate at which chemical weathering processes. This is also observed in Peltier's diagram, where regions with high mean annual temperature and rainfall have strong chemical weathering. The South China Karst is an example of a distinctive tower karst landscape formed in the humid tropics. Therefore, climate is essential in the development of karst landscapes in the humid tropics as it allows for high rates of chemical weathering to tak place.

Also, as climate determines the nature of vegetation, and vegetation is a factor affecting formation of karst landscapes in the humid tropics, climate is an essential factor. Climate determines the presence, type and density of vegetation in a region, as it provides the necessary conditions for vegetation growth. For a limestone landscape to develop into a karst landscape, there needs to be presence of vegetation to increase the acidity of the circulating water. High amount of rainfall and temperature in the humid tropics allows the growth of dense evergreen/deciduous vegetation. This presence of dense vegetation contributes to carbon dioxide level in the soil through root respiration and contributes to organic (humic) acid through its decomposition. The combined effect can raise carbon dioxide levels in the soil to about 30%. Consequently, rainwater that infiltrates through the soil becomes more acidic through the enrichment of dissolved carbon dioxide in the soil and thus become more effective in carrying out carbonation and solution weathering processes. This is why karst landscapes, such as Chocolate Hills in Bohol, Philippines, are often covered with vegetation. Since climate determines the nature of vegetation in a region and vegetation is necessary for the development of karst landscapes in the humid tropics, climate is essential in the development of karst landscapes in the humid tropics.

However, climate is not the only essential factor required for the development of karst landscapes in the humid tropics. With a suitable climate but without good geology, the development of karst landscapes may be inhibited. Geological characteristics of the limestone have to be favourable and geological structure determines the resultant karstic landforms. Karst landforms are observed to only fully develop where the purity of the limestone is made up of at least 90% calcium carbonate. The limestone must be present at or near the earth surface for dissolution by surface or ground water. Also, it must be of considerable thickness of up to hundreds of metres so that it would be structurally strong to support karst features. Importantly, the permeability and joints structure of limestone would affect the karstic landforms resulted. The limestone rock has to be of low porosity but with high perviousness (joints and bedding planes) to allow for the movement of water in the rock. The density of joints will affect the eventual landforms, with wide spacing of joints for the development of tower and cone karsts like Kinta Valley of Malaysia, while presence of bedding planes may lead to the formation of caves and caverns, like Batu Caves in Selangor, Malaysia. Hence, geology plays an essential role in the development of karst landscapes in humid tropics too as certain geological characteristics are required and the geological structure affects the eventual landforms resulted.

In conclusion, climate is essential in the development of karst landscapes in the humid tropics to a large extent. The high mean annual temperature and high total annual precipitation provides favourable conditions for chemical weathering processes to take place at a rapid rate to produce the karst landscapes. Also, it promotes the growth of dense vegetation that increase the effectiveness of carbonation and solution acting on limestone landscape. Despite the essential role that climate plays, it is important to note that geology also play a crucial role in affecting the resultant karst

landforms, through its characteristics and structure. The development of karst landscape in the humid tropics is a complex process that is affected by various factors and not determined by just one factor alone. Karst landscapes in the humid tropics to some extent reflect the interaction between surface weathering processes and underground water movement that is made possible by favourable climatic and geological conditions.

Synoptic Thinking:

- Other topics in theme 1: Climate, Rocks, Weathering

Section B – Sustainable Development

3 (a) Explain how sustainable urban development can be measured in cities. [12]

Introduction:
Measuring urban sustainability is not a straightforward process. The choices of which variables should be measured and which criteria should be used to measure depend on how we define urban sustainability. Sustainable urban development is about focusing on the improvement of long-term human wellbeing by balancing the three dimensions of sustainability: minimising resource consumption and environmental damage, maximizing resource use efficiency, and ensuring equity and democracy. Because sustainable urban development can be defined in various ways, with different criteria and emphases, relevant but different agencies at a range of spatial scales have increased resources and funds to devise new ways of reporting the state of our urban environments in their own subjective ways.

Body Paragraph 1:
Ecological Footprint (EF) is an area-based indicator that focuses on the environmental dimension of sustainability, implying that a sustainable society should operate within its environmental carrying capacity. Specifically, EF is defined as the land (and water) area that is needed to provide all the energy and material resources consumed and to absorb all the wastes discharged in order to support a population or an activity, given prevailing technology and resource management practices. Comparing the actual EF to the available bio-capacity of a place of concern provides an indication of whether the environmental carrying capacity of that place is exceeded. To quantify both the demands and supplies of the renewable resources generated by land and water, a productivity-weighted areal unit—the ''global hectare''—is used in the calculation of EF. One global hectare is a normalized value based on the average productivity of all biologically productive land and water of the world in a given year. The consumption of natural resources of different kinds, from energy to biomass, can be converted to global hectares. At the urban scale, EF can keep track of a city's demands for food, water, and other natural resources as well as its natural capital, providing a useful measure of its environmental sustainability.

Body Paragraph 2:
Green City Index (GCI) was developed by the Economist Intelligence Unit in cooperation with Siemens (EIU-Siemens) for assessing and comparing the world cities in terms of their environmental performance. GCI includes about 30 indicators of 9 categories, including CO2 emissions, energy, buildings, land use, transport, water and sanitation, waste management, air quality, and environmental governance. About half of the indicators in GCI are quantitative

based on data usually from official public sources (e.g., CO2 emissions, water consumption, air pollution), and the other half are qualitative assessments of environmental policies (e.g., investment in renewable energy, traffic-congestion-reduction policies, and air quality codes). **An independent study by the Economist Intelligence Unit (EIU) has declared Singapore to be Asia's greenest city.** The study evaluated 22 major Asian cities on their policies and performance in eight categories: energy and CO2; land use and buildings; transport; waste; water; sanitation; air quality and environmental governance. Singapore was the only Asian city that rated 'well above average' overall. The city state had consistently strong results in all eight categories and best performance in the waste and water categories.

Body Paragraph 3:

City Development Index (CDI) was developed in 1997 by the Urban Indicators Programme of the United Nations Human Settlements Programme (UN-Habitat), in order to rank cities of the world according to their level of development. CDI is composed of five sub-indices: 1) Infrastructure; 2) Waste; 3) Health; 4) City Product and 5) Education. Each sub-index is further composed of multiple indicators: (1) Infrastructure that considers water availability, sewerage, access to electricity, and telephone availability; (2) Waste that includes wastewater treatment and solid waste disposal; (3) Health that considers life expectancy and child mortality; (4) City product which is analogous to GDP at the city level; and (5) Education that combines literacy and school enrolment. All the indicators are aggregated using weights that are determined by statistical procedures and experts' opinions. As a measure of urban development and access to urban facilities by individuals, CDI is a fairly effective indicator to evaluate urban poverty and urban governance.

Conclusion:

To conclude, although these indicators have been able to provide some basis of comparison to track cities' progress in terms of sustainable development, there remains questions of whether these indexes are indeed objective and fair or are there indicator bias.

Generic level Descriptors for 12m

Level	Marks	Descriptors
4	10-12	Response is consistently analytical and comprises purposeful explanations. Response addresses the question fully using accurate and detailed knowledge. Depth of relevant knowledge and understanding is evident throughout. Response is coherent and use of terminology is accurate throughout.
3	7-9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates relevant knowledge and understanding. The response is coherent and the use of terminology is mostly accurate.
2	4-6	Response includes analysis and explanation but is generally dominated by description. Response reflects understanding of the question and is generally relevant. Some parts of the response may be unclear. Use of terminology is limited.
1	1-3	Response lacks focus on the question. Response is generally fragmentary and lacks a clear structure and organisation. There may be many unsupported, brief or incomplete assertions

		and/or arguments with some inaccurate use of terminology.
0	0	No creditworthy response.

Marker's Report:

- *Many students lack the relevant content for this question*
  - *The question is asking for the indicators to measure SD in cities and explain how they can be used to measure SUD*
- *Students who provided relevant indicators failed to explain how they can be used to measure SUD; too descriptive. Some even provided wrong explanation*
- *A handful of students misinterpreted the question as 'how to define urban' which is not what the question is asking for*
- *Some students provided indicators measuring liveability – note that the syllabus look at indicators to measure SD and to measure liveability (they are different!!)*
  - *Indicators to measure liveability of cities are accepted only when students make the link to SUD clearly*

(b) Evaluate the success of urban re-imaging strategies in cities. [20]

I: Evaluate
R: To what extent have urban re-imaging strategies been successful in cities?
A:

Introduction:

Urban reimaging is a process involving urban authorities projecting and asserting a new positive image and identity for cities or areas within cities. It is a way in which cities or areas within cities are given a new lease of life. An effective "reimaging" process frequently rests upon a <u>combination of both material and non-material strategies such planning/physical production of a new built environment supplemented by spatial imageries and representations of urban development conveyed through various media.</u> It can be argued that with all consequences weighted, urban reimaging can be posited that the overall impact is generally negative.

Counter Paragraph 1

Re-imaging strategies can benefit the local economy to increase the standard of living and income levels of its residents. Extending the use of city centres so that they can be used by a wider range of people for a longer period each day may benefit the local economy. The idea of '24 hour cities' stems from the idea of prolonging the hours of the businesses in city centres. With 24 hours cities, like Paris, France, it is believed to have advantages such as increasing the local economy's GDP due to higher spending by tourists, and also lower crime rates

with the increase in amount of surveillance.

Support Paragraph 1
However, the impact of economic gain or higher standard of living for urban dwellers may only be applicable for higher income dwellers, rendering this benefit or success to be highly selective. The impacts of economic gain and higher standards of living for urban dwellers may only be applicable for the group of residents earning a higher income. They are after all the ones who normally spend large sums of money to pay for the higher standards of living. One example of urban reimaging would be the flagship projects such as the Marina Bay Sands. Flagship Projects are a mixture of urban land use in which recreational, business and residential buildings are refurbished and transformed into iconic buildings with unique architecture. As such, the cost of living in such places would be very high and only residents of higher income would be able to live in these places. As a result, the lower income group of residents of Singapore would have to relocate to places further away from their place of work. This would lead to greater inconvenience for the people when they travel to work from their place of stay. Thus, urban reimaging can increase in standards of living of people living in the area. However, only people who earns a higher income can enjoy the benefits of higher standards of living in Singapore.

Counter Paragraph 2:
If success of re-imaging is dependent upon heightening civic pride in its residents and attracting more investments and tourists, then some strategies can be considered to have succeeded in doing so. Civic pride for locals is instilled in them when their country is successful in the construction or preservation of architecture. It is especially when the constructed or the preserved architecture becomes famous and renowned around the world. The locals who live in the same city as the architecture would feel a heightened sense of belonging to the city. One such example would be Burj Khalifa in Dubai, is known as the tallest building in the world attracts a lot of tourists to Dubai every year. The residents living in Dubai would also feel proud to see numerous tourists visiting their city to see the iconic building. Therefore, urban reimaging can instil civic pride in locals and at the same time increasing their sense of belonging to their country.

Support Paragraph 2:
However, the locals might also feel that their sense of identity is not authentic due to the different narrative by the authorities in inculcating these civic pride and sense of belonging in the locals. This means that the local's perspective of reimaging and the government's perspective of reimaging are not on the same page. An example would be Chinatown and Kampong Glam in Singapore. Urban Redevelopment Authority (URA) has its own narrative of these civic districts. However, the locals do not agree with such a narrative as URA's narrative of such districts are not what the locals have experienced. URA's narrative can attract tourists to Singapore and only tourists would visit such areas and spend such money at these refurbished places. URA's motive is to attract tourists to Singapore and to tend to consider the interests of the tourists rather than the locals. Given that these place are tailored- made to suit the needs of the tourists, citizens would feel that their sense of identity is no longer authentic due to the different perception between the government authorities and the local citizens.

Support Paragraph 3:
In addition, one cannot discount the fact that every strategy would have its problems and issues, regardless that they may be successful in its intended positive impact that it might want to bring to the city and its people. These problems and issues may therefore reduce the success of these strategies as they bring about other sets of problems of the authorities to resolve, or sometimes worse, for the local residents to grapple with. For example, as mentioned in the body paragraph one, Paris, France has adopted the idea of 24-hour strategy to fight serious crime and economic degeneration of the city centre after office hours. Whilst it has been successful in improving the economic vibrancy of cities,
24 hours cities like Paris have veered towards 'clubbing' and 'alcohol consumption', resulting in the increase in crime-rate and violence during the wee hours, including crimes such as noise pollution, vandalism of property and littering. The increase in crime rates and violence may instil fear in the residents and tourists travelling to the city. Therefore, urban reimaging may lead to an increase in crime rates in cities which further instil fear in residents.

In summary, urban reimaging has had both positive and negative impacts on the urban dwellers and the city as a whole. Despite the positive the impacts such as higher standard of living and also better facilities and others as stated above, it also has negative impacts such as increased crime rates in country as well as many locals not having civic pride and not feeling the sense of belonging through the preserved areas such as Chinatown and Kampung Glam in Singapore. The idea of success in such re-imaging may be mooted under the concept of liveability, which in itself is very subjective and controversial. Finally, one should perhaps consider the definition of ‘success’ in the context of ‘to whom’ and ‘by whom’ – that ‘success’ is very much subjective as the impacts of urban reimaging depends on different people and at different scale, which would warrant a much lengthier analysis.

Synoptic Thinking: Liveability, Sustainable Urban Development

Generic level Descriptors for 20m

Level	Marks	Descriptors
5	17-20	Response is perceptive, logical and has strong evaluative elements. Evaluation is relevant and comprehensive. Strong evidence of synoptic thinking where knowledge from different topics is synthesised purposefully. Response fully addresses the demand of the question and features detailed and accurate knowledge reflecting depth of understanding of the subject content. The argument or discussion is coherent and well supported by relevant material. Use of terminology is accurate.
4	13-16	Response displays a sound evaluative element. There is some evidence of synoptic thinking through synthesising knowledge from different topics. Response is generally focussed on the demands of the question and features accurate knowledge, reflecting depth of understanding of the subject content. The argument or discussion is coherent and supported by relevant material. Use of terminology is accurate and appropriate.
3	9-12	Response is broadly evaluative rather than descriptive.

		Response addresses the questions and features accurate knowledge, reflecting some understanding of the subject content. Argument or discussion is mainly coherent and supported by material which is largely relevant. Use of terminology is relevant and mostly accurate.
2	5-8	Response is largely descriptive. Response attempts to provide an argument to address the question. The weakest responses in this level may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Some lapses in use of terminology though generally accurate.
1	1-4	Response lacks focus on the question and may be largely irrelevant to it. Response is fragmentary and lacks clarity. There may also be unsupported assertions and/or arguments with limited or no use of relevant terminology.
0	0	No creditworthy response.

Marker's Report:

4 (a) Explain the concept of sustainable development at different levels of development. [12]

Introduction

According to Brundtland Report, SD is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Although given a definition, SD is subjected to varying interpretations by DCs and LDCs which are at varying stages of development.

Body Paragraph 1 : TBL of SD

Following the Brundtland Report's definition, the triple bottom line for SD is adopted to achieve SD in DCs and LDCs. It is advocated from the report that social equity, economic growth and environmental maintenance are simultaneously possible, thus highlighting the three fundamental components of sustainable development, the environment, the economy, and society, which later became known as the triple bottom line. To achieve the SD goals as advocated by the United Nations (UN), different countries have adopted various policies as part of their state of the environment report to achieve sustainable development according to the triple bottom line. For example, in DCs such as Singapore, Australia and LDCs like China have rolled out national plans in achieving sustainable development. The concept of sustainable development provides a framework for the integration of environment policies and development strategies in both DCs and LDCs

Body Paragraph 2: Essential vs Perceived Needs

Varying interpretations have been adopted by DCs and LDCs with regards to the 'needs' in the definition of SD in the Brudtland Report. Developed countries have moved beyond essential needs and due to their affluence, require resources to fulfil their *perceived* needs. Their consumption pattern is unsustainable, taking the United States for example, if the world population were to live like an average US citizen, 4.8 earths are required to sustain the population. Sustainable development in DCs thus requires the promotion of

values that encourage consumption standards that are within the bounds of the ecological possible and to which all can reasonably aspire. OTOH, in the context of the LDCs, the concept of development must include the meeting of essential needs in the LDCs. The essential needs of vast numbers of people in developing countries for food, clothing, shelter, jobs - are not being met, and beyond their basic needs these people have legitimate aspirations for an improved quality of life. For example, countries like Ethiopia which face the issue of famine have to develop in such a way to ensure enough food supply for its citizens. Thus, due to varying interpretations of 'needs' in the definition of SD, DCs and LDCs adopt sustainable development differently.

Body Paragraph 3: Limits

The concept of sustainable development does imply limits. Even for the same resources, LDCs and DCs do have different limits due to differing state of technology and social organisation. By the understanding of the concept of limits, one needs to understand that this is not absolute limits but limitations imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But ultimate limits there are, and sustainability requires that long before these are reached, the world must ensure equitable access to the constrained resource and reorient technological efforts to relieve the presume. DCs must recognise that their energy consumption is polluting the biosphere and eating into scarce fossil fuel supplies – driving resources to their limits. Recent improvements in energy efficiency such as in countries like Germany and Denmark and a shift towards less energy-intensive sectors have helped limit consumption. But the process must be accelerated to reduce per capita consumption and encourage a shift to non-polluting sources and technologies. The simple duplication in the LDCs of industrial countries' energy use patterns is neither feasible nor desirable. Changing these patterns for the better will call for new policies in urban development, industry location, housing design, transportation systems, and the choice of agricultural and industrial technologies. This is observed in Bangladesh, which has become the world's largest market for home solar systems. Hence, to both DCs and LDCs, achieving SD involves the management and improvement of technology and social organization to live within the global carrying capacity of the earth.

Body Paragraph 4: Intra and Inter-generational Equity

SD requires the achievement of both inter-generational and intra-generation equity. As needs may vary over time, inter-generational equity can only be achieved by ensuring that the global population live within global carrying capacity. Yet, global population has been growing exponentially in an unsustainable manner and developed countries like Japan have made use of 'under-population' to legitimise its population policies. Furthermore, to progress sustainably, it is important to ensure intra-generational equity between DCs and LDCs. However, economic interdependence has made the achievement of this difficult. International economic relationships facilitated by globalisation have caused most LDCs to overexploit its resource base due to

enormous economic pressures. For example, being the world factory of goods, China experiences the problem of air pollution and smog as a result of lifestyles and consumption patterns from the DCs. Such equity between and within generations to achieve SD in DCs and LDCs would be aided by political systems that secure effective citizen participation in decision making and by greater democracy in international decision making.

Generic level Descriptors for 12m

Level	Marks	Descriptors
4	10-12	Response is consistently analytical and comprises purposeful explanations. Response addresses the question fully using accurate and detailed knowledge. Depth of relevant knowledge and understanding is evident throughout. Response is coherent and use of terminology is accurate throughout.
3	7-9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates relevant knowledge and understanding. The response is coherent and the use of terminology is mostly accurate.
2	4-6	Response includes analysis and explanation but is generally dominated by description. Response reflects understanding of the question and is generally relevant. Some parts of the response may be unclear. Use of terminology is limited.
1	1-3	Response lacks focus on the question. Response is generally fragmentary and lacks a clear structure and organisation. There may be many unsupported, brief or incomplete assertions and/or arguments with some inaccurate use of terminology.
0	0	No creditworthy response.

(b) 'The strategies used to cater to the needs of the different social groups in cities are ineffective.'

[20]

Discuss.

I: Discuss
R: To what extent are strategies used to cater to the needs of the different social groups in cities ineffective?
A:

Introduction:
In each city, there would be different proportions of social groups with a variety of needs which city planners and authorities would try to satisfy. For this essay, the social groups which were be discussed would be the elderly and the migrants residing in the cities. Although there are subjective interpretations as to what constitute as elderly and the idea of it as a social construct and subjected to many interpretations, for the purpose of this essay, elderly is defined as those living beyond the age of 60. The other group in question would be the migrants, who can be broadly categorised into economic migrants who are skilled and unskilled, political and environmental refugees. Strategies catering to the needs of different social groups in cities have been **effective to a**

small extent. This can be due to a variety of reasons ranging from insufficient economic capacity to sustain these strategies for the long run, inability to meet the diverse needs of the different social groups, or having to face difficulty in bringing about a change of perceptions which are often ingrained in people's minds or that strategies themselves bring about other sets of unintended social consequences. However, strategies to cater to the needs of different social groups in cities may be effective if they cater to the essential needs of these social groups.

Counter paragraph 1

To state that strategies that cater to the needs of different social groups are ineffective would be unfair as some strategies do cater to the essential needs of these social groups, improving their quality of life. Migrants and refugees should be assisted in overcoming difficulties in accessing basic essential needs such as water, shelter and food, to empower and improve their quality of life. For elderly, their needs may include the freedom to access places in the city and for them to have a permanent housing or shelter close to areas with healthcare services and for active ageing to take place. For instance, in Britain, economic aid was given to asylum seekers in the form of weekly allowance and more for women who are pregnant or with children. For active ageing, there should be optimised opportunities for healthcare services, participation in social networks, sense of security with community support with respect and inclusion. Therefore, strategies catering to the needs of the elderly should enhance the enablement for elderly. In this aspect, Singapore has developed 39 new Senior Care centres by 2016 to meet increasing demand for aged care in the heartland communities. These senior care centres provide day care, dementia day care, day rehabilitation services and basic nursing services and over time, may even begin the delivery of home care services. These services have been well received by the elderly and are also very much welcomed by the families of the elderly. Hence, the strategies that cater to the needs of the different social groups may be effective if they are able to provide the essential needs.

Support Paragraph 1:

However, in retrospect, the statement in the question may be largely accurate due to the nature of these 'needs' and the fact that these social groups are within themselves too diverse for states and planners to adequately cater to the large diversity of needs that these groups may require. Every social group is often generalised and seen as one where they might face the same generic problems and therefore face the same needs. As a result, it creates a lack of understanding by the government and urban authorities when in fact they could have offered more assistance if they further narrow own the scope of assisting a social group. In other words, a social group's needs can be further assessed when it is associated with religion, gender status and culture. For example, a research performed by Ontorio Human Rights Commission of old Age experiences in Canada has found that while older men do experience particular concerns, the unique and often compounded disadvantage experienced by older women needs to be recognised. Owing to a number of factors including longer life expectancy, labour force participation patterns, wage inequality, social programmes and systems designed primarily from a male-centred or gender-neutral perspective, older women are more likely to experience poverty. This reflects how old age can be compounded with other identity markers to create different levels of marginalisation and urban

experiences. Going back to the example mentioned above on Senior Care Centres, there still exist the problem of elderly who are living in poverty or who are disabled and may not be able to make it to the senior care centres or afford to go for these senior care centres. The problem is the same for the strategy on improving bus transport system to enable elderly to get out and about on their own by providing bus information and disabled friendly facilities on the roads. This still do not cater to the needs of the elderly living in poverty who might not even have the monetary means to pay for public transport on their own. Therefore, whilst generic issues may be addressed by strategies, the many facets of issues faced by the diversity within each social groups will impede the authorities' effectiveness to cater to each and every single need.

Support Paragraph 2:

Moreover, for some countries, even strategies to meet the basic needs of socials may not be feasible or successful as such strategies demand for a strong political commitment, economic capacities and planning capabilities from the government to successfully plan and implement it at the community level for the different social groups. Developed countries and their cities have the fundamental infrastructure and capital and are striving towards green issues as opposed to developing countries that have yet to meet their basic needs and are struggling with a range of other brown issues. Therefore, in many of these developing countries, or even in poorer cities within developed nations such as Texas will have problems providing even basic needs for migrants and/or elderly. In Turkey, more than 1.8 million refugees are living along its borders and is said to put a strain on Turkey as it has already spent more than 6 million dollars on refugee camps and providing them with food. This highlights how the city's budget allocation is insufficient to alleviate their economic strain, exceeding their financial capacity and even planning capabilities to cater to the enlarging group of refugees and migrants in the cities. Going back the previous example of providing information on transport options to influence elderly's use of public transport, it is a costly system which Singapore and Himeji, Japan are currently using and this will not be possible to be emulated in cities struggling with brown issues. Therefore, strategies to cater to the needs of the social groups may be met with financial constraints and planning blight which further reduce the strategies' success.

Support Paragraph 3:

Strategies to cater to different social groups have not been effective to a large extent as they often do not change the negative perceptions of social groups and hence do not solve the root cause behind their marginalisation. These perceptions are often ingrained social constructs which may take generations of educating the young to finally be eradicated to a certain extent. Over the past years, both elderly and migrants have been associated with negative connotations in the society. These stigma and labellings may directly or indirectly affect the effectiveness of strategies such as the ones which attempt to provide opportunities for integration into the mainstream society and for these groups to feel included in the city. For example, promoting a culture of respect and social inclusion is taken by the Tripartite Alliance for Fair and Progressive Employment Practices (TAFPE) in Singapore to promote the adoption of fair, responsible and progressive employment practices. Today, TAFEP has been producing advertisements and running campaigns aimed at convincing employers and employees to look beyond their age biases, and see

the elderly's abilities and the value they bring to the organisation. However, such campaigns and advertisements may not guarantee the change in perceptions of the society. It is still hard to convince employers to retain these older worker in the companies especially in the face of economic recession and cost-cutting measures need to be undertaken. Therefore, whilst strategies targeting a change in mindset and attitude towards certain social groups are essential, it may take long time for them to take effect and still does not alleviate unfair work practices and uneven power relations in the workplace in the short run.

Support Paragraph 4:

Finally, strategies to cater to different social groups may bring about other sets of unintended social or economic consequences. It is sometimes hard, or even too demanding for strategies to be able to cover all economic, social and cultural grounds for a 'holistic' approach. For example, to cater to the needs of migrant workers in Singapore, the government has commissioned for Workers' dormitories to be built in areas like Tuas and Tampines. These self-contained workers' dormitories include services such as remittance services, mini food court, barbers and facilities such as basketball courts and kitchens. This provides a basic level of services and facilities to cater the essential needs of the migrant workers. However, in doing so, some are arguing that this adds to the further socio-spatial segregation of these workers as these self-contained dormitories would mean they do not need to travel out of the dormitories. This impedes chances for mutual understanding between the locals and the migrants, and misunderstandings and misconceptions about them may not be easily eradicated or be reduced. As such, for the state or authorities to be able to cater the needs of the social groups for all their needs without some consequences would therefore be impossible, unless certain complementary policies are put in place, which brings about the question of inter-agency cooperation and its effectiveness.

Conclusion

In the final analysis, it is almost impossible to cater to the needs of each and every single individual in these social groups as their needs differ according to their identities, level of income and differing backgrounds. It is also important to bring in the fact that the idea of catering to the needs of different social groups in the context of liveable cities is fluid and means different things to different individuals. Therefore, whilst the cities gear towards liveability for all, one must acknowledge the difficulty in trying to satisfy all the different needs of these individuals at the government or planning authorities' level. Sometimes, it is up to us individuals to make the changes from bottom-up approach to try and make the city a comfortable and liveable place for everyone.

Generic level Descriptors for 20m

Level	Marks	Descriptors
5	17-20	Response is perceptive, logical and has strong evaluative elements. Evaluation is relevant and comprehensive. Strong evidence of synoptic thinking where knowledge from different topics is synthesised purposefully. Response fully addresses the demand of the question and features detailed and accurate knowledge reflecting depth of understanding of the subject content. The argument or discussion is coherent and well

		supported by relevant material. Use of terminology is accurate.
4	13-16	Response displays a sound evaluative element. There is some evidence of synoptic thinking through synthesising knowledge from different topics. Response is generally focussed on the demands of the question and features accurate knowledge, reflecting depth of understanding of the subject content. The argument or discussion is coherent and supported by relevant material. Use of terminology is accurate and appropriate.
3	9-12	Response is broadly evaluative rather than descriptive. Response addresses the questions and features accurate knowledge, reflecting some understanding of the subject content. Argument or discussion is mainly coherent and supported by material which is largely relevant. Use of terminology is relevant and mostly accurate.
2	5-8	Response is largely descriptive. Response attempts to provide an argument to address the question. The weakest responses in this level may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Some lapses in use of terminology though generally accurate.
1	1-4	Response lacks focus on the question and may be largely irrelevant to it. Response is fragmentary and lacks clarity. There may also be unsupported assertions and/or arguments with limited or no use of relevant terminology.
0	0	No creditworthy response.

- End of Paper -

Name: _____ Admission No: Class:

millennia institute

2017 Promotional Examination II

Pre-University 2

GEOGRAPHY (HIGHER 2) **9751/02**

Paper 2 Data Response Questions **12 September 2017**

3 Hours

Additional Materials: Answer Booklet/Paper
1 Insert

INSTRUCTIONS TO CANDIDATES

Suggested Responses

Section A

Theme 4: Geographical Investigation

1 A group of Geography students are interested to investigate the effectiveness of recent state-led efforts to improve urban liveability in Singapore. They selected the neighbourhoods of Kallang and Punggol for their investigation. Kallang is an inner city neighbourhood while Punggol is a planned new town.

The group of students were allocated three days for field investigation. They have access to secondary data detailing the range of implemented stage-led efforts to improve liveability in Kallang and Punggol extracted from the URA Master Plan (2013). Resource 1 details the recent state-led efforts to improve urban liveability in Kallang. Resource 2 details the recent state-led efforts to improve urban liveability in Punggol. Resource 3 shows the survey questionnaire results that the students have collected from the neighbourhood of Kallang.

(a) Suggest a suitable research question for the students' investigation with reference to Resources 1 and 2, and state **three** reasons why the research question is at a suitable scale. [4]

(b) Explain possible risks that the students might have to confront when conducting the research investigation and suggest ways to mitigate them. [4]

(c) Recommend and explain other data collection methods to supplement the findings as shown in Resource 3. [5]

(d) Select a suitable data representation method and sketch resident's perception of the environmental impacts of recent state-led efforts to improve urban liveability using information as shown in Resource 3. [3]

(e) Evaluate the usefulness of the investigation in understanding the impacts of recent state-led efforts to improve urban liveability in Singapore. [9]

Section B

Theme 1: Tropical Environments

Tropical Cyclone Enawo in Madagascar

2 Resource 4 shows the spatial and temporal distribution of tropical cyclones in the world. Resource 5 shows information on Tropical Cyclone Enawo that hit Madagascar in March 2017. Resource 6 shows the flooding situation in Antananarivo, Madagascar on 10 March 2017 as a result of Tropical Cyclone Enowa.

Note: A tropical depression has wind speed of below 63 kilometres per hour, a tropical storm has wind speed of 63 to 118 kilometres per hour while a tropical cyclone has wind speed above 118 kilometres per hour.

(a) Describe the spatial and temporal distribution of tropical cyclones from 1851 to 2006 as shown in Resource 4. [4]

Award 1 mark for each description on the spatial/temporal distribution. Reserve 1 mark for spatial distribution and 1 mark for temporal distribution.

Possible responses

Spatial distribution:

- Generally located within 5 to 40° N and 5 to 30° S of the equator
- Anomaly: absent in southern Atlantic ocean within the tropics
- Highest frequency found in east pacific and east Asia with 3 and more cyclone per year
- Lowest frequency found in south Asia and southwest pacific, of less than 1 per year

Temporal distribution:

- In the N Hemisphere, cyclones are usually formed at the second half of the year, from around June to Dec, e.g. East Pacific is June – Oct while East Asia is May – Dec
- In the S Hemisphere, cyclones are formed at the first half of the year. For e.g. Southwest Pacific and West Australia from Jan – March

Data from Resource 4 should be used when appropriate to support responses
Point marked

Marker's Report:

- Many students failed to provide specific description
  - E.g. '30°N/S from the equator' but cyclones do not exist between 0° to 5°N/S of the equator! (see resource!!)
- For 'describe' questions, students should not be listing everything as seen in the resource. Instead, students should be describing the spatial/temporal distribution such that a reader without looking at the resource is able to visualise the distribution
- Some students managed to mention the general temporal distribution of cyclone

but failed to provide data from the resource to support the observation
- Cyclone tracks do not serve as spatial distribution of cyclones

(b) With reference to Resources 4 and 5, explain the development of Tropical Cyclone Enawo at Madagascar in March 2017. [6]

Indicative Content

Conditions:
- Due to the position of the overhead sun in the southern hemisphere in the early part of the year (December – March), the Indian Ocean is warmed up
- The warm ocean of at least 28°C to a depth of 60m and atmospheric humidity of up to 6km provides the necessary condition to initiate the formation of a cyclone where the warm sea heats the air above it
- Tropical cyclone started its formation in the warm ocean on 7 March

Track:
- Once formed, the cyclone is steered primarily westwards by the trade winds from 7 to 8 March
- Due to coriolis effect, the cyclone starts to move polewards once it fully develops (8 – 9 March)
- It then starts to move eastwards as they move into areas dominated by westerlies
- The cyclone takes on an anti clockwise direction (moving westwards, polewards and eastwards)

Intensity:
- Cyclone started off as a lower intensity tropical storm. As it crosses the ocean and picks up more moisture from the sea, the storm continues to grow in intensity. As the cycle continues, the surface pressure at the centre drops lower and lower causing the circulation of air to strengthen and the winds to grow increasingly stronger, thus creates a self-sustaining heat energy
- However, after it makes its landfall on the eastern coast of Madagascar, it starts to lose its source of energy which is the ocean, and starts to fall in its intensity (tropical cyclone at Sava vs tropical depression at Analamanga)

Levels marked

Level	Marks	Descriptors
3	5 – 6	Response demonstrates accurate knowledge of development of tropical cyclone, including at least 2 explanation relating to the conditions for its formation, the track of the tropical cyclone or its intensity. Good and accurate use of resources to explain for the development of Tropical Cyclone Enawo at Madagascar in March 2017. Response is clear, detailed and shows focus on the question.
2	3 – 4	Response demonstrates knowledge on the development of tropical cyclone, including at least 1 explanation relating to the conditions for its formation, the track of the tropical cyclone or its intensity. Some reference is made to the resource to explain for the development of Tropical Cyclone Enawo at Madagascar in March 2017. Explanation however may lack accuracy or details in parts. Response is mostly clear but may lack focus on the question at times
1	1 – 2	Response demonstrates some knowledge on the development of tropical cyclone, including at least 1 explanation relating to the conditions for its formation, the track of the tropical cyclone or its

		intensity. Limited or no reference is made to the resource to explain for the development of Tropical Cyclone Enawo at Madagascar in March 2017. Little or no explanation made. Response lacks detail, clarity and focus on the question.
0	0	No creditworthy response

Marker's Report:

- Some students misunderstood 'development' in the question as cyclone formation → Need to see the resource and understand what the question is asking. In this case, the question is asking for the explanation as to the development of the cyclone across days (from storm to cyclone), the conditions necessary for its formation and to explain its track
- Some students misinterpreted the movement of the cyclone from South to North when it's moving the other way round
- Many students were able to bring out the necessary conditions for the formation of cyclone but failed to use the resource(s) to support their answer
- Few students made use of the resource(s) purposefully to answer the question

(c) With reference to Resource 5, describe the distribution of impacts at Madagascar due to Tropical Cyclone Enowa. [5]

Award 1 mark for each description that is supported by evidence from Resource 5 where appropriate.

Possible responses:

- Regions that are most affected are along the track of tropical cyclone Enowa
- The eastern side of Madagascar receives greater impact as compared to west Madagascar; e.g. rainfall accumulations follow a gradient whereby highest rainfall of 250 – 500mm are received in the east like in Analanjirofo while places in the west like Morandava received no rainfall from the cyclone/similar for social impacts
- However, Atsimo Andrefana in the west and about 200km away from the cyclone track is one the areas that is most affected despite receiving low amount of rainfall from the cyclone
- Atsinanana is one of the worst affected region; with highest death toll of 23 people and suffering from 5 out of 8 of the impacts listed
- Least affected regions include Morombe, Morondava in the West where they received minima rainfall from the Tropical Cyclone and has no record of flood incidents or the loss of lives and properties

Data from Resource 5 should be used when appropriate to support responses
Point marked

Marker's Report:

- Many students failed to address the part on 'distribution' in the question → they merely address impacts across Madagascar
- Students did not apply the skills taught for questions that require skills to 'describe' a resource
    - I.e. general, specifics and anomaly
- Students are just randomly picking places out and describing the impacts there but not addressing how the impacts were distributed
- Some misread the legend of 'floods' as houses damaged – please read the legend properly, don't assume.

- Impact of accumulated rainfall was not mentioned by all students except one

(d) Using Resources 5 and 6, explain how hydrological processes could have been affected by Tropical Cyclone Enowa which resulted in river floods in Antananarivo, Madagascar. [6]

Indicative Content:

- Antananarivo, Madagascar received 100 – 250mm rain accumulations from 5 to 12 March as shown in Resource 5
- Initially, rainfall brought about by tropical cyclone Enowa will infiltrate into the soil as long as the intensity is below infiltration capacity of the soil and when the soil has yet to reach saturation
- As the rain continues, soil moisture and groundwater storage starts to increase
- High intensity and long duration rainfall results in soil saturation to be reached
- As the soil reaches maximum saturation, rainwater can no longer infiltrate into the sub-surface
- It then flows over as saturation overland flow downslope into the river (increase in OLF), contributing to river discharge
- Ikopa and Sisaony rivers flood as their discharge exceeds bankfull discharge

Level	Marks	Descriptors
3	5 – 6	Response shows accurate knowledge of as well as clearly accounting for possible changes in the hydrological processes brought about by Tropical Cyclone Enowa that resulted in river floods in Antananarivo, Madagascar. Response uses resources accurately to account for the river flood is resulted. Response is clearly focused on the question throughout with a detailed account of how hydrological processes could have been affected by Tropical Cyclone Enowa and resulted in river floods in Antananarivo, Madagascar.
2	3 – 4	Response shows adequate knowledge of and attempts to account for possible changes in the hydrological processes brought about by Tropical Cyclone Enowa that resulted in river floods in Antananarivo, Madagascar. Response uses resources to account for how the river flood is resulted but the use of resources may be limited or lack accuracy at times. Response may lack detail and depth or lack a clear focus on the question of how hydrological processes could have been affected by Tropical Cyclone Enowa and resulted in river floods in Antananarivo, Madagascar.
1	1 – 2	Response shows limited knowledge of and makes limited attempt to account for possible changes in the hydrological processes brought about by Tropical Cyclone Enowa that resulted in river floods in Antananarivo, Madagascar. Little or no use of the resource to account for how the river flood is resulted. Use of resource where present will lack accuracy. Response lacks detail and focus on the question.
0	0	No creditworthy response

Levels marked

Marker's Report:

- A handful of students are not clear of what hydrological processes are – please revise on your content
- Many students focused on transfers only. Besides transfers, students can

mention about storages and output (river discharge)

- Many failed to get high marks for this question because they did not use the resource(s) purposefully to support the answer
  - E.g students mentioned that the cyclone brought heavy rainfall to the area. → How much of rainfall? (Can be seen in R5)
- Many did not explain clearly how the changes to the hydrological processes resulted in flood in the reigon.

(e) Explain **<u>two</u>** impacts caused by the floods due to Tropical Cyclone Enowa in Antananarivo, Madagascar as shown in Resources 5 and 6. [4]

Award 2 marks for each full explanation on an impact to a maximum of 4 marks for 2 impacts given.

<u>Possible responses:</u>

- Disruption of daily activities
  From Resource 5, it indicated that Antananarivo is one of the most affected region by the heavy rainfall of 100-250mm brought about by the cyclone that caused floods. People's homes could be flooded and livelihood disrupted as people may have difficulties going to work
- Economic loss
  From Resource 5 and 6, it is observed that some parts of Antananarivo are affected by the river floods. Economic activities may come to a standstill as communication links and infrastructure may be damaged and disrupted. This leads to the dysfunction of normal life for a period much beyond the duration of the flooding

Data from Resources 5 and 6 should be used when appropriate to support responses
Point Marked

Marker's Report:

- Again, many students failed to read the resource(s) properly. There are many students who talked about loss of lives and damaged houses when in R5, they clearly did not show these impacts in Antananarivo
- Take note that the question only asked for TWO impacts. Students should not be providing more than two impacts as only the first 2 will be taken into account for assessment

Theme 1: Tropical Environments

Mojave Desert

3 Resource 7 shows global distribution of arid tropical climates and deserts. Resource 8 shows the climograph of Mojave Desert, California, USA. Resource 9 shows a landform found in the Mojave Desert. Resource 10 shows a newspaper excerpt of a mudslide incident in the Mojave Desert.

(a) With reference to Resource 7, describe the distribution of Tropical Desert (BWh) climate in the world. [3]

Award 1 mark for each description, up to a maximum of 3 marks

<u>Possible responses:</u>

- They are distributed generally between 15 to 40 deg N/S of equator
- The distribution of BWh climate occupies a larger area in the northern hemisphere compared to the southern hemisphere

- They are mostly found in North Africa, central Asia and South-western Australia
- In the North America and South America continent, BWh climates are found along the west coast

Data from Resource 7 should be used when appropriate to support responses
Point marked

(b) Using Resources 7 and 8, account for the climate that Mojave Desert in California, USA has. [5]

Indicative Content

- Resource 7 shows that Mojave desert is at about 35°N of the equator (link to subsiding limb of Hadley cell)
- Due to air subsidence associated with the subsiding limb of the Hadley cell, there is little formation of clouds and thus rain → account for the low total annual precipitation Mojave Desert has (99m of rain as observed in Resource 8)
- However, in some periods of the year (e.g. Nov-Feb), there is presence of convectional rainfall (due to high temperature in the subtropics that lead to high evaporation rates and thus formation of clouds and rain)
- Mean annual temperature of Mojave Desert is high (23°C) due to its geographical location within the tropics
- But there is a high annual temperature range (21°C) due to shifting of position of overhead sun (where monthly temperature reaches its highest of 33°C during Northern hemisphere summer and lowest of 12°C during northern hemisphere winter)

Levels marked

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge in accounting for the climate of Mojave Desert. Good and accurate use of both resources to account for the climate. Response is clear, detailed and shows focus on the question.
2	3 – 4	Response demonstrates knowledge in accounting for the climate of Mojave Desert. Some reference is made to at least 1 resource to account for the climate. Explanation however may lack accuracy or details in parts. Response is mostly clear but may lack focus on the question at times
1	1 – 2	Response demonstrates some knowledge in accounting for the climate of Mojave Desert. Limited or no reference is made to the resource to account for the climate. Little or no explanation made. Response lacks detail, clarity and focus on the question.
0	0	No creditworthy response

(c) Explain how the landform shown in Resource 9 is formed. [4]

Award 1 mark for each explanation, up to a maximum of 4 marks

Possible responses:

- Resource 9 shows a sand dune, which is an arid depositional feature
- When saltating sand grains encounter small patches of sand, their kinetic energy is dissipated and they accumulate
- Once the height of such accumulations increases above 30cm, a slipface starts to form
- The constant flow of new material makes a slipface a type of avalanche slope: Sand builds up as it moves over the crest of the dune to the brink;

then it avalanches, falling and cascading as the slipface continually adjusts, seeking its angle of repose (usually 30° to 34°)

Point marked

(d) Explain **<u>two</u>** conditions required for the formation of the landform shown in Resource 9. [4]

Award 2 marks for each well-explained condition, up to a maximum of 4 marks

<u>Possible responses:</u>

- Lack of presence of vegetation
  Scarcity of vegetation **can help to reduce air movement, increase wind velocity and erositivity of wind** that is required to form sand dunes. The lack of presence of vegetation, which act as obstacle to trap sediment, **helps in eolian transportation of grains** and provides **favourable conditions for winds to form**
- Sufficient strong wind
  Wind has to be sufficiently strong enough **to initiate soil movement** (entrainment, transportation). **Small particles are difficult to move** due to the particles exerting mutual cohesiveness and how they present a smooth surface to the wind. However, **once entrained, particles can be transported by lower wind velocities**

Point marked

(e) With reference to Resources 9, 10 and your own knowledge, evaluate the extent to which the mudslide in Mojave Desert is caused by natural factors. [9]

<u>Indicative content</u>

- Students should make use of both resources to discuss how natural factors and human activities could have contributed to the occurrence of mudslide
- Resource 10 indicated that the mudflows were 'unleased by powerful thunderstorms' → heavy intense rainfall causes slope to be unstable as the water adds weight to the slope which increases shear stress acting on it and also reduces shear strength of slope by reducing the cohesiveness of particles that make up the slope
- It is also observable from Resource 10 that a highway is constructed near the hillslope in Mojave Desert. Human activities have an impact on the occurrence of mass movement too. By undercutting a slope, the gradient of the slope is made steeper which increases the shear stress acting on it, hence more likely for shear stress to exceed shear strength of slope, causing the mudslide to occur
- From Resource 9, it is observable that the landscape of Mojave Desert has a lack of presence of vegetation. Vegetation helps to bind particles together which helps to increase shear strength of slope. There is a lack of vegetation in the arid landscape to anchor particles down, causing the slope to have low shear strength.

Levels marked

H2 Generic Level Descriptors for Open-ended 9m DRQ on Themes 1, 2 & 3		
Level	**Marks**	**Descriptors**
3	7-9	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills and may include perceptive insights for the strongest responses. Source(s) is well used to support the response.

		• Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints **OR** • Makes a decision which clearly addresses different elements of the issues and/or interests of different stakeholders
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. • Provides an evaluation, which may be limited in depth and insufficient evidence and support used **OR** • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well developed
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. • Provides little to no evaluation **OR** • Evidence of decision-making, if present, is simple and may be flawed
0	0	No creditworthy response

Theme 3: Sustainable Development

Transport Situation in Australia

4 Resource 11 shows the distance travelled by car vehicles in kilometres (kms) per capita in major cities of Australia from 1989 to 2010. Resource 12 shows the growth in public transport use in major cities of Australia from 2006 to 2011. Resource 13 shows the computer modelling results of estimated future traffic congestion situation by the Office of Auditor General (OAG) of Western Australia (WA), focusing on the main roads in and around Perth, Australia in the year 2015 before and after factoring in public transport use and outcomes from current projects being done to alleviate traffic problems. Resource 14 shows an infographic about the perceived and actual cost of owning a car in Western Australia (WA).

(a) Describe the trends in the car vehicle kms per capita in the major cities of Australia as shown in Resource 11. [4]

I: Describe
R: What are the trends in the car vehicle kms per capita in the major cities of Australia as shown in Resource 11?
A:

Award 1 mark for each description, up to a maximum of 4 marks

1m – [General observations] Car vehicle kms per capita in major cities in Australia is generally on an upward trend before 2003, peaking around year 2003-2005, before registering a considerable drop from 2005 to 2010.
1m – [Evidence from specific data] Perth generally registers the highest kms per capita, reaching as high as 8250kms per capita in 2004-2005 before dropping thereafter. However, even as its kms dropped after 2005, it remains the highest kms per capita amongst the 5 cities.
1m – [Evidence from specific data] Sydney, on the other hand, registered the lowest car vehicle kms throughout the years, with a peak reading only at 6700kms per capita, which is much lower than the lowest reading for all the other cities.
1m – [Anomaly] It is noted that Melbourne registered an unusually large decline in car vehicle kms from 2004 onwards, from about 8200 at its peak in 2005 to 7000 in 2009, which is even below its first reading of about 7200 in 1989, which no other cities in Resource 11 has achieved.

Point marked

Marker's Report:

- *Candidates are unable to describe a general trend – most described the trend as 'increasing', when it is clear that the general trend should be divided into 2 segments – before 2003-2005 which is increasing and post-2005 which is decreasing. To describe it as 'increasing' for all cities will be misleading – Melbourne and Sydney registered similar or lower readings at 2010 as compared to 1989.*
- *Most are able to pick out and describe the cities with the highest and lowest readings.*
- *Only 1 candidate picked out the anomaly of Melbourne having a lower reading in 2010 as compared to 1989.*

(b) Compare the journeys to work and overall patronage growth in public

transport use in the major cities of Australia as shown in Resource 12. [3]

I: Compare
R: What are the difference between the journeys to work and the overall patronage growth in public transport use in the major cities of Australia in Resource 12?
A:

Award 1 mark for each comparison, up to a maximum of 3 marks
1m – Generally, there are higher growth in the journeys to work than overall patronage for all major cities in Australia in Resource 12.
1m – Melbourne's and Melbourne+'s difference between the 2 variables are the less apparent – the 2 variables are almost similar in terms of % growth.
1m – Adelaide and Sydney are the only 2 cities in Resource 12 with % growth in journeys to work to be at least twice that of the growth of overall patronage.

Point marked

Marker's Report:

- *Candidates were able to point out the difference but a handful established relationship between the 2 variables instead of comparing.*
- *Only 1 candidate pointed out the large difference between the 2 variables reflected by Adelaide and Sydney.*

(c) With reference to Resources 11 and 12, discuss the extent to which growth in public transport use can explain the trends observed in Resource 11. [5]

I: Discuss the extent
R: To what extent can growth in public transport use can explain the trends observed in Resource 11?
A:

Indicative Content

- Resource 11 shows overall decrease in car vehicle kms per capita for all the cities. From Resource 12, all cities registered growth in overall patronage in public transport use. Specifically, Resource 12 has shown that journeys to work using public transport use has increased minimally by 12%. This may help to explain the reason for car vehicle kms to be reduced in all the major cities in Australia as journeys to work would have constituted a large percentage of the distance travelled by car vehicles by city dwellers.
- However, to totally attribute the drop in total distance travelled by car vehicles in Australia to the use of public transport would be erroneous and misleading. This is because from Resource 11, Melbourne registered the largest drop in car vehicle kms between 2006 and 2011. However, its increase in use of public transport and for journeys to work is still lower than that of Perth, which actually did not register a huge drop in the car vehicle kms. Thus, other than taking public transport, there may also be other factors which can contribute to lower car vehicle kms, such as telecommuting, or cycling to work instead of driving.

Level	Marks	Descriptors
3	5	Response is analytical and demonstrates accurate knowledge and a good understanding of the relationship between public transport and private vehicle use. Good use of the resources with supporting data used to back up response. Response is clear, detailed and shows focus on the question.
2	3-4	Response is mostly analytical and reflects adequate understanding on the relationship between public

		transport and private vehicle use. Some reference is made to the resource to back up response. Response is mostly clear but may lack focus on the question at times.
1	1-2	Response is descriptive and reflects limited understanding on public transport and other alternative transport modes. Little or no reference is made to resources to back up responses. Response lacks clarity, detail and focus on the question.
0	0	No creditworthy response

Levels marked

Marker's Report:

- *Candidates are not able to use resources adequately to infer that the lowering of car vehicles kms may not be because of public transport use. For example, they are unable to quote from the resource that although Melbourne registered the largest drop in car vehicle kms, it did not register as large increase in public transport usage as Perth. Overall, analysis of data can be seen to be weak for this question.*

(d) With reference to Resource 13, explain the impact of public transport use and projects done to alleviate traffic problems for Perth, Australia. [6]

I: Explain
R: How have public transport use and projects done to alleviate traffic problems for Perth, Australia be effective?
A:

Indicative Content

- From Resource 13, it can be observed that public transport use and projects done to alleviate traffic problems have been effective in major roads leading to the city centre of Perth. For example, the comparing the maps before and after in 2021, roads south and Southeast of the city centre are projected to be extremely 'not congested' after the projects. As there are more people who take up public transport as their main mode of commuting, this will mean there will be less private vehicles on the road, which will definitely ease congestion.
- However, it should be noted that whilst the projects are able to alleviate traffic congestions in the city, the city centre of Perth is projected to be still highly congested as seen from the 'after' map in 2016 and 2021. This may be due to the high concentration of employment and services in the city centre and would therefore be a lot more difficult to direct traffic and pedestrian flow way from the city centre to ease congestion.
- Also, judging from the new roads which are projected to be built after 2011, it can be posited that even with new roads being built as part of alleviating poor traffic conditions, it will not help to ease traffic congestions and may lead to even more traffic congestions as seen from the 'before' map in 2021 where there are new roads projected to be built or extended at the Northeast and Northern part of the city.

Level	Marks	Descriptors
3	5-6	Response is analytical and demonstrates accurate knowledge and a good understanding of the possible extent of the impact on urban public transport use. Good use of the resources with supporting data used to back up response. Response is clear, detailed and shows focus on the question.
2	3-4	Response is mostly analytical and reflects adequate

		understanding on the possible extent of the impact on urban public transport use. Some reference is made to the resource to back up response. Response is mostly clear but may lack focus on the question at times.
1	1-2	Response is descriptive and reflects limited understanding on public transport and other alternative transport modes. Little or no reference is made to resources to back up responses. Response lacks clarity, detail and focus on the question.
0	0	No creditworthy response

Levels marked

Marker's Report:

- *Most candidates could adequately describe point 1 given in the indicated content. However, the use of resource to substantiate is extremely weak.*
- *Few candidates pointed out the high level of congestion persisting in the city centre of Perth.*
- *Very few candidates noticed about the building of new roads and how this actually led to even more congestion even as new roads were built. In fact, this could be the reason why city centres remain congested even after public transport has been factored in.*

(e) With reference to Resources 13, 14 and your own knowledge, explain possible strategies to alleviate traffic problems in Perth, Australia. [7]

I: Explain
R: With reference to Resources 13, 14 and your own knowledge, explain how strategies can help to alleviate traffic problems in Perth, Australia.
A:

Indicative Content

- Resource 13 shows the impact of developing public transport and its usage to alleviate traffic congestion in the city of Perth. It is feasible in the city of Perth given that the city should be well endowed with adequate capital to develop better and more efficient public transport system such as developing seamless transport system and enlarging its fleet of buses and trains to connect commuters from their suburban homes to their places of employment. As can be observed from Resource 13, the level of congestion of main roads leading to Perth city centre will indeed be lowered after factoring in public transport use.
- However, from resource 13, it has also been noted that traffic congestion in the Perth city centre remains a concern. This may be due to the fact the most employment and services are found in the city centre and congestion is inevitable as long as commuters have to travel into the city centre for work and other services. As such, the government of Perth may want to consider promoting other forms of transport on top of providing public transport, such as alternative modes of transport such as cycling into the city centre or even encourage telecommuting, where organisations can consider allowing their employees to complete their work from home and thereby reducing the need to commute to the city centres on selected days of the week. The government may even want to introduce the idea of alternative working hours, such as encouraging firms to allow their employees to start and end work later, so as to effectively reduce congestion during peak hours of work days.
- From Resource 14, there seems to be a gross under-estimation of the cost of owning and using private vehicles amongst the residents in Perth. Education and awareness programme of the high cost of owning private

vehicles should be introduced to allow commuters to consider other forms of commuting. The government could even consider increasing the *cost* of owning and using private vehicles such as issuing certificates of entitlement (to increase the cost of **owning** a car) or Road pricing system (to increase cost of **using** a car) to deter people from buying and using their private vehicles.

Levels	Marks	Descriptors
3	6-7	Response is analytical and demonstrates accurate knowledge and a good understanding of the possible extent of the impact on strategies to alleviate traffic problems. Good use of the resources with supporting data used to back up response. Response is clear, detailed and shows focus on the question. .
2	3-5	Response is mostly analytical and reflects adequate understanding on the possible extent of on strategies to alleviate traffic problems. Some reference is made to the resource to back up response. Response is mostly clear but may lack focus on the question at times.
1	1-2	Response is descriptive and reflects limited understanding on strategies to alleviate traffic problems. Little or no reference is made to resources to back up responses. Response lacks clarity, detail and focus on the question.
0	0	No creditworthy response

Levels Marked

Marker's Report:

- *Weak reference to resources, although many candidates could explain the different strategies which could be used to alleviate transport issues. This type of responses could only warrant a low L2.*

- End of Paper -

Copyright Acknowledgements:

Question 1 Resource 1 & 2	http://www.fendylee.com/master-plan-2013/archives/11-2013/3 (Last accessed: 21 August 2013)
Question 1 Resource 3	Millennia Institute
Question 2 Resource 4	http://www.geocoops.com/tropical-storms.html
Question 2 Resource 5	http://www.gdacs.org/datareport/dailymap/TC/1000341/20170310_Madagascar_TC_ENAWO.pdf (Last accessed: 10 August 2017)
Question 2 Resource 6	https://maps.mapaction.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3edbb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)
Question 3 Resource 7	http://www.geo.hunter.cuny.edu/tbw/wc.notes/15.climates.veg/climate/B/arid.seimarid.climates.world.map.jpg (Last accessed: 11 August 2017)
Question 3 Resource 8	http://7continents1globe.com/mojave-desert/ (Last accessed: 11 August 2017)
Question 3 Resource 9	https://www.flickr.com/photos/sieren/5609982041 (Last accessed: 11 August 2017)
Question 3 Resource 10	http://www.fox5ny.com/news/34017262-story (Last accessed: 11 August 2017)
Question 4 Resource 11	https://chartingtransport.files.wordpress.com/2011/10/car-vkms-per-capita.png (Last accessed: 14 August 2017)
Question 4 Resource 12	https://chartingtransport.files.wordpress.com/2013/02/jtw-versus-overall-pt-growth-v2.png (Last accessed: 14 August 2017)
Question 4 Resource 13	https://audit.wa.gov.au/reports-and-publications/reports/main-roads-projects-address-traffic-congestion/demand-road-network-increased-traffic-congestion-predicted-get-worse/ (Last accessed: 14 August 2017)
Question 4 Resource 14	https://greengurus.com.au/car-sharing-is-coming-to-perth/ (Last accessed: 14 August 2017)

MERIDIAN JUNIOR COLLEGE
PRELIMINARY EXAMINATION
Higher 2

JC 2 H2 Geography 9751/01

Paper 1 **14 Sep 2017**

3 Hours

Additional Materials: Answer Book
Insert

READ THESE INSTRUCTIONS FIRST

Write your name and Civics Group clearly on **all** your answer scripts.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.

Answer **three** questions. One from **each section.**

Start each question on a fresh sheet of paper.

1. At the end of the examination, fasten this **cover sheet** and all your work in **chronological order** together securely for submission.

The number of marks is given in the brackets [ ] at the end of each question or part question.
You should make a reference to appropriate examples studied in the field or the classroom, even where the examples are not specifically requested by the question.
Sketch maps and diagrams should be drawn wherever they serve to illustrate an answer.
You are reminded of the need for good English and clear presentation in your answers.

This document consists of 4 printed pages

Name: _____

Class: _____

Index number: _____

Qn no. (Section A)	Marks	Qn no. (Section B)	Marks
1/2		5/6	
3/4			
Total			

Section A - Tropical Environments

Answer **one** question from this section.

EITHER

1 **(a)** Account for the variation of temperature in the tropics. [12]

(b) "The weakening of the Walker Circulation greatly affects rainfall patterns in the tropics." To what extent do you agree with this statement. [20]

OR

2 **(a)** Why does deforestation occur in the humid tropics of Africa and Asia. [12]

(b) "The management of deforestation is hampered by politicians". To what extent do you agree with this statement. [20]

Section B – Economic Development

Answer **one** question from this section

EITHER

3 **(a)** Explain the relevance of David Harvey's views of the relationship between population and resources to Less Economically Developed Countries. [12]

(b) To what extent do you agree that the endowment of natural resources are key to a nation's ability to develop itself. [20]

OR

4 **(a)** Account for the "global shift" in the context of both the manufacturing and services sectors. [12]

(b) Critically examine privatisation of water resources as a strategy to manage the supply and distribution of water. [20]

Section C – Sustainable Development

Answer **one** question from this section

EITHER

5 **(a)** Explain the causes of contemporary climate change. [12]

(b) To what extent do you agree that harnessing hydropower is the best solution to ameliorate climate change. [20]

OR

6 **(a)** What are the challenges in managing traffic conditions in Less Economically Developed Countries (LEDCs). [12]

(b) "The challenge of achieving development is that it is interpreted differently by countries at various levels of development". To what extent do you agree with this statement. [20]

MERIDIAN JUNIOR COLLEGE
PRELIMINARY EXAMINATION
Higher 2

JC2 H2 Geography 9751/02

Paper 2 **20 September 2017**

Insert

3 Hours

READ THESE INSTRUCTIONS FIRST

This Insert contains the Photograph and all the Figures referred to in the questions.

Resource for Question 1

Section of River in the Nature Reserve



Resource 2 for Question 1

Section of the Managed Channel



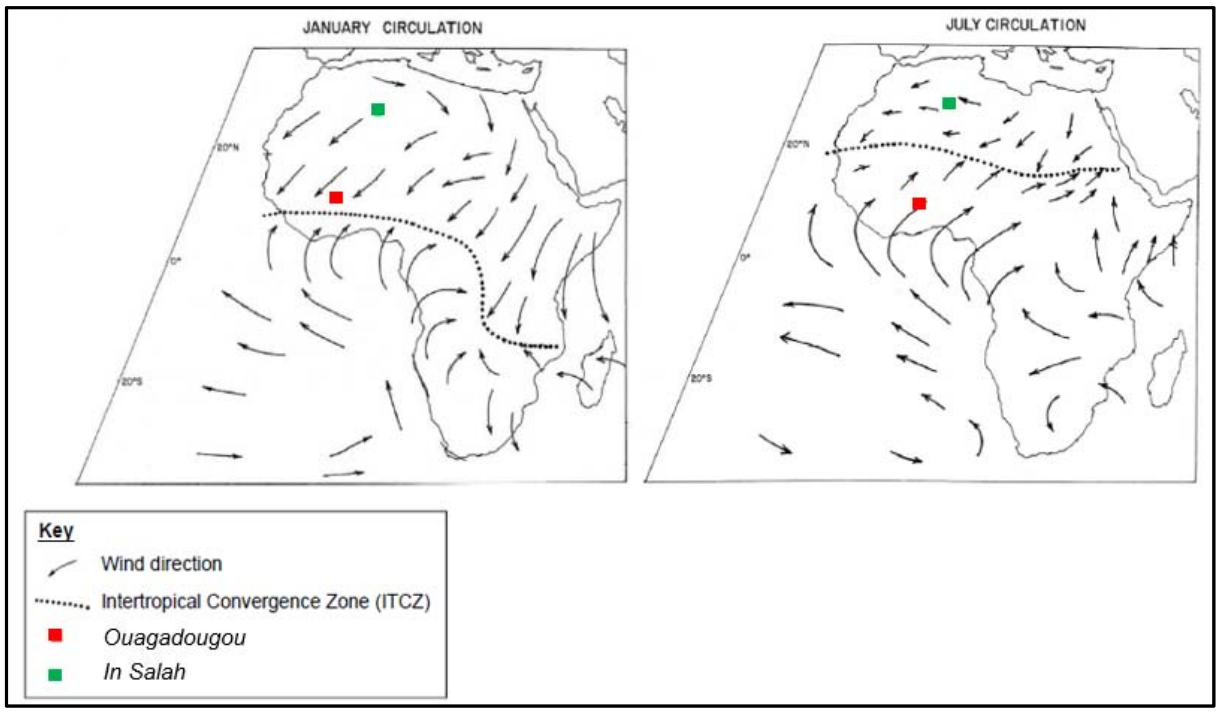
Resource 3 for Question 1

Data collected for Velocity of Rivers A and B

River A – Velocity (m/s)					River B – Velocity (m/s)			
Time	**1**	**2**	**3**	**Average**	**1**	**2**	**3**	**Average**
10.00	0.42	0.48	0.46	0.45	0.36	0.40	0.45	0.40
11.00	0.50	0.50	0.48	0.49	0.52	0.58	0.56	0.55
12.00	0.56	0.58	0.55	0.56	0.62	0.63	0.66	0.67
13.00	0.53	0.52	0.54	0.53	0.51	0.53	0.56	0.53
14.00	0.48	0.46	0.45	0.46	0.48	0.49	0.50	0.49

Resource 4 for Question 2

Wind direction over Africa in January and July



Resource 5 for Question 2
Mass Movement in In Salah (27.2ºN)

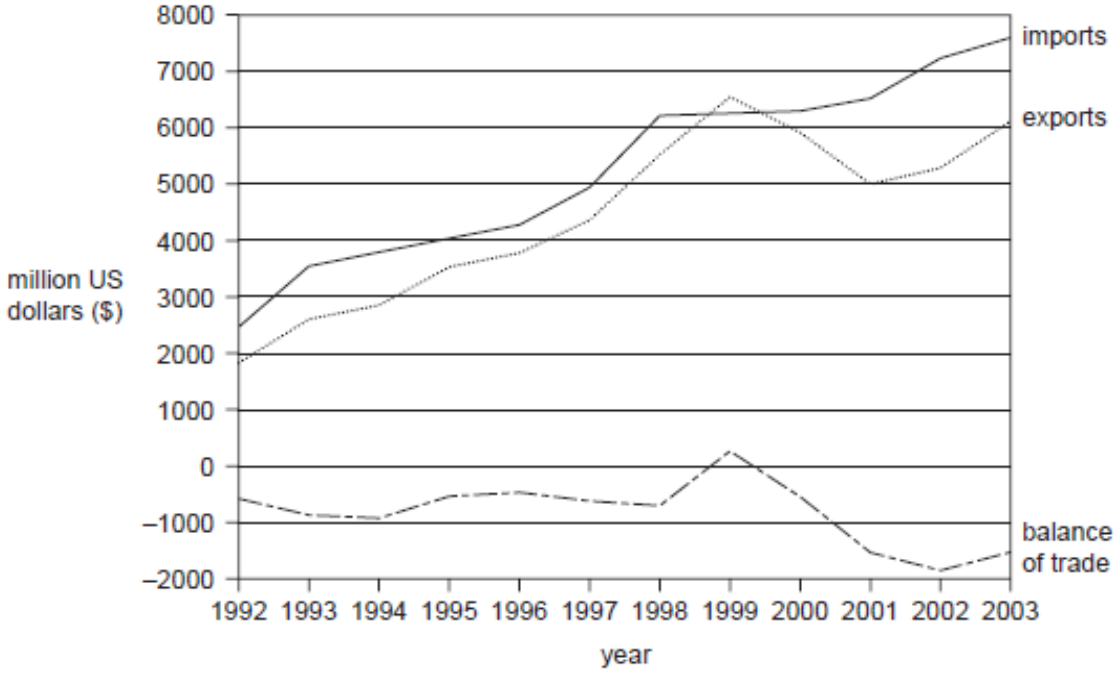


Mass Movement in Ouagadougou (12.4ºN)



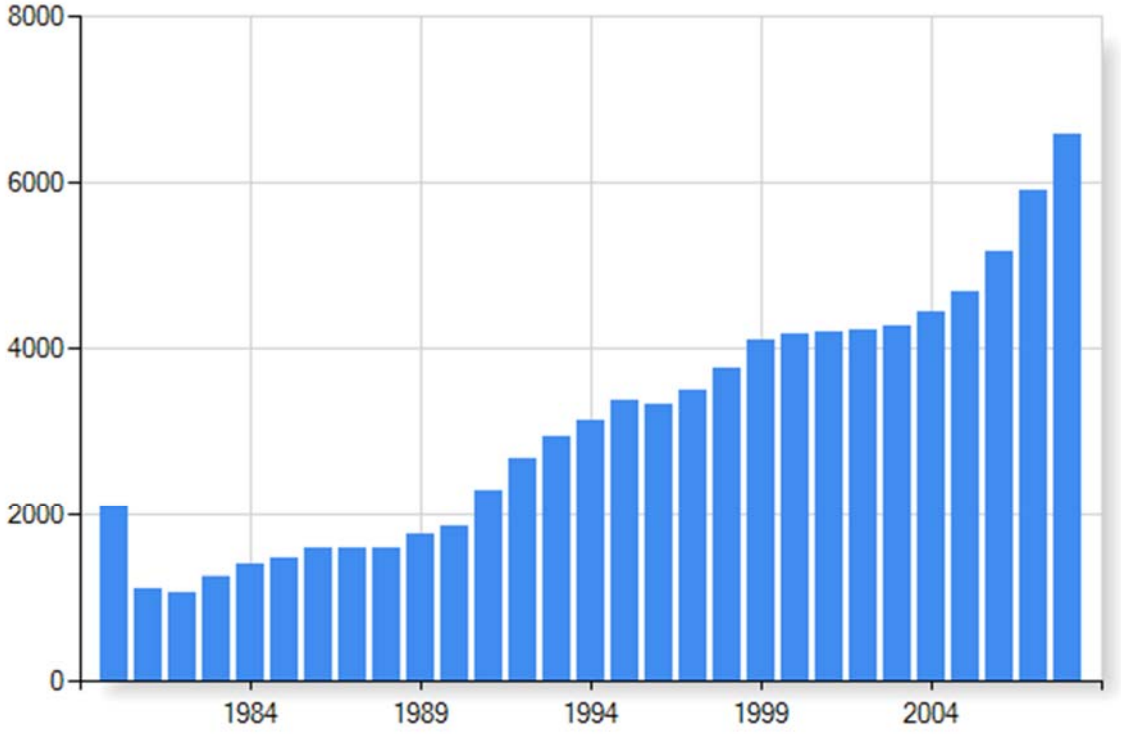
Resource 6 for Question 3

Imports, exports and the balance of trade, 1992-2003 for Costa Rica



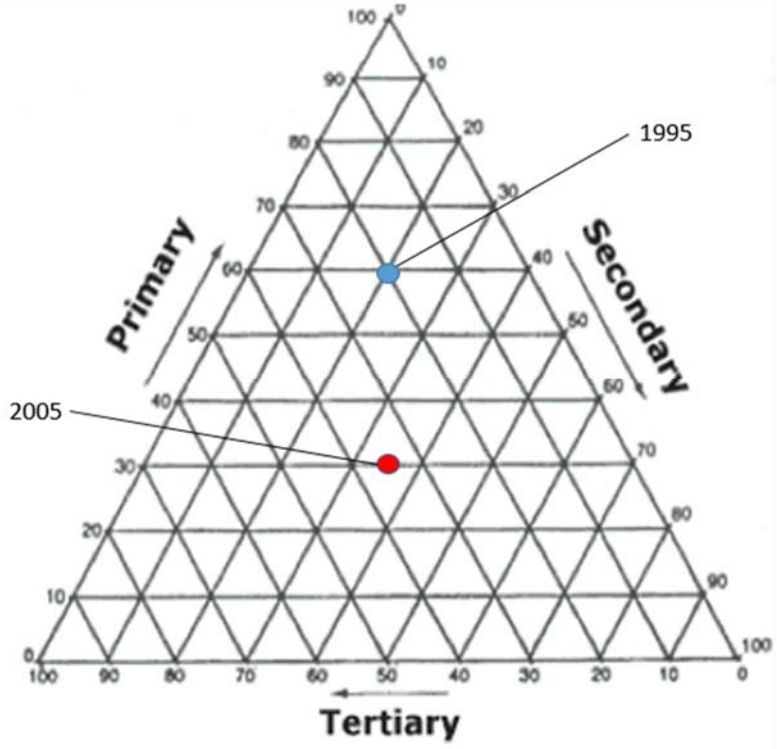
Resource 7 for Question 3

GDP per capita of Costa Rica from 1980 to 2008 (in US$)



Resource 8 for Question 3

Employment Structure of Costa Rica



Resource 9 for Question 3

Location of Costa Rica

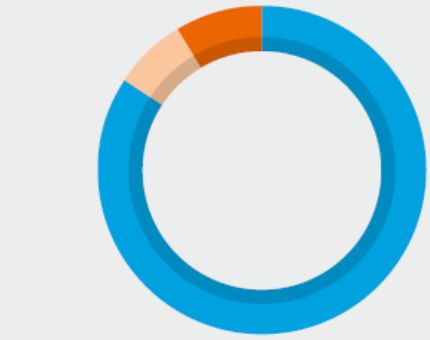


Resource 10 for Question 4

Population Distribution of Uganda by settlement

Uganda

Total Population (2014)	**38,845,000**
Population Living in Urban Areas	15.8% (6,124,000)
Urbanization Rate	5.43%
Urban Population Living in Slums	53.6%
Population of Urban Slum Dwellers	3,282,000



Total Population : 38,845,000

Rural Areas 84.2%

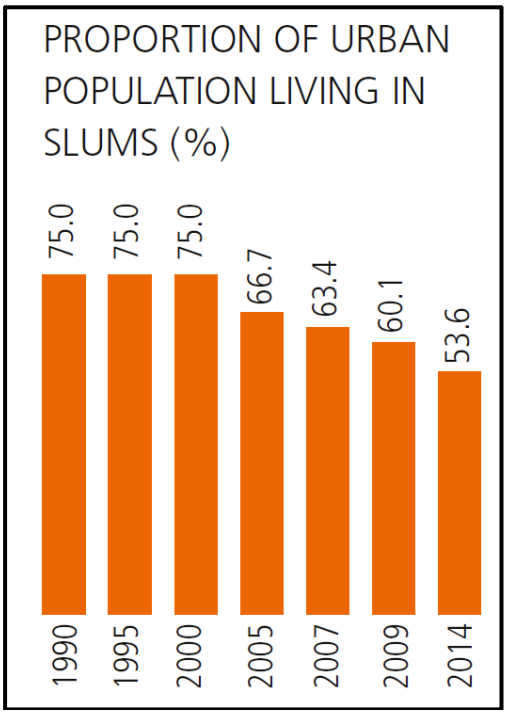
Urban Slums 8.4%

Formal Urban Areas 7.4%



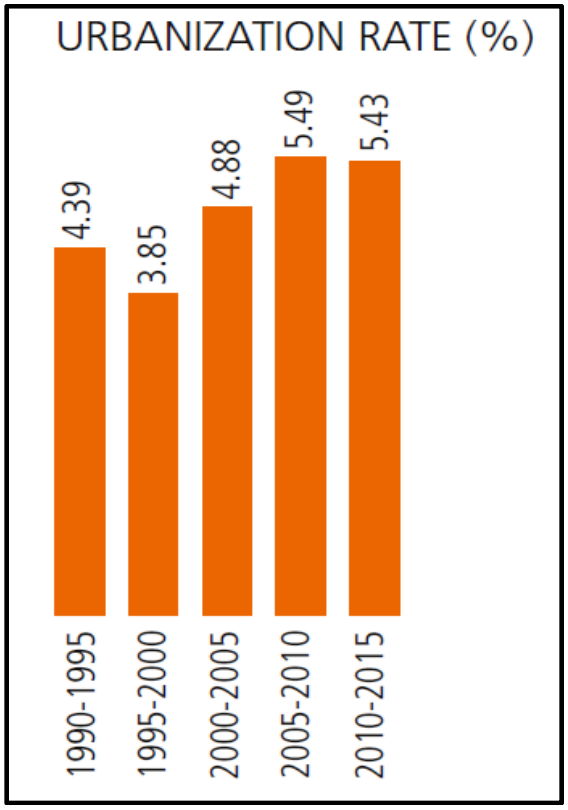
Resource 11 for Question 4

Proportion of Urban Population living in slums in Uganda



Resource 12 for Question 4

Urbanisation Rate of Uganda over time



Resource 13 for Question 4

Katanga slum in Kampala, the capital city of Uganda



MERIDIAN JUNIOR COLLEGE
PRELIMINARY EXAMINATION
Higher 2

JC 2 H2 Geography 9751/02

Paper 2 **20 Sep 2017**

3 Hours

Additional Materials: Answer Book
Insert

READ THESE INSTRUCTIONS FIRST

Write your name and Civics Group clearly on **all** your answer scripts.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Candidates answer **three** questions. **One** from each section.

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1. At the end of the examination, fasten this **cover sheet** and all your work in **chronological order** together securely for submission.

The number of marks is given in the brackets [ ] at the end of each question or part question.

This document consists of 6 printed pages.

Name: _____

Class: _____

Index number: _____

Qn no. (Section A)	Marks	Qn no. (Section B)	Marks
1		3	
2		4	
Total			

Section A
Theme 4 – Geographical Investigation

1 Your class of 8 H2 Geography students were tasked to undertake an investigation on two contrasting river channels to ascertain the flood risk in these locations associated with the nature of the channels at each site.

The class was divided into teams of four to measure river velocity and wetted perimeter of each river. One site (River A) was along a river in a nature reserve. The other site was along River B, a managed river channel next to an urban expressway.

Discharge is calculated by multiplying the cross sectional area of the channel by the velocity of the water.

Your team took measurements on two consecutive Tuesdays in September and were given four hours between 10 a.m. and 2 p.m. at each site to complete the river velocity and wetted perimeter measurements.

Teams were each given the following equipment to gather the primary data on river velocity:

- Tennis balls (floating object)
- Tape measure
- Stop watch

The time taken for the floating object to cover a pre-determined distance defined by the position of the two students standing by the side of the river was recorded. At river A, the group found that the floating object often became stuck in fallen trees or debris in the river. The data collected was recorded using a data collection sheet (Resource 3B).

To measure the river's wetted perimeter, your team used the following equipment:

- Tape measure
- Meter rulers

Your team laid an unweighted tape measure along the river bed and took depth measurements at equal distances across the river. This data was used to plot the river's wetted perimeter and then the cross sectional areas of the two rivers were calculated.

Resource 3A shows two photographs, one of a river in a nature reserve (River A) and one of a managed river channel (River B). Resource 3B shows the data collected by your team to calculate the velocity of Rivers A and B.

(a) With reference to Resource 1 and Resource 2, suggest a suitable hypothesis for your group investigation. [1]

(b) Explain how your group would minimise the impact of your investigation differently at the two rivers shown in Resource 1 and Resource 2. [5]

(c) State two limitations of the data representation method shown in Resource 3 and suggest an alternative method to represent the average velocity of Rivers A and B over time. [5]

(d) Your group concluded that some of the discharge data collected may not be completely reliable and/or accurate. Explain how the process of data collection could be improved. [5]

(e) Evaluate the usefulness of the river velocity data shown in Resource 3 in helping to ascertain the flood risk at each of the two rivers. [9]

Section B

Theme 1: Climate and Climate Change

Flooding in Brisbane, Australia

2 Resource 4 shows wind direction over Africa in January and July. Resource 5 shows mass movement that have occurred in Ouagadougou and In Salah.

(a) Using Resource 4, suggest differences in the rainfall characteristics between Ouagadougou and In Salah. [3]

(b) Account for the differences in rainfall characteristics between Ouagadougou and In Salah. [4]

(c) Compare the two mass movement shown in Resource 5. [4]

(d) With reference to Resources 4 and 5, explain why mass movement processes may differ between Ouagadougou and In Salah. [5]

(e) Using Resources 4 and 5 and your own knowledge, discuss the view that floods in Ouagadougou are worse than In Salah. [9]

Theme 2: Development, Economy and Environment

Development in Costa Rica

3 Costa Rica has been hailed as a role model for other Latin American nations. It has experienced rapid economic growth since 2000 and today boasts a sterling record of 93% of its energy sources coming from renewable sources. The Costa Rican government aims for the country to be carbon neutral by the year 2012. Resource 6 shows imports, exports and the balance of trade for Costa Rica from 1992-2003. Resource 7 shows the GDP per capita for Costa Rica from 1980 to 2008. Resource 8 shows the employment structure of Costa Rica for 1995 and 2005. Resource 9 shows the location of Costa Rica.

(a) Using Resources 6 and 7, compare the trend between Costa Rica's balance of trade and its nominal GDP per capita. [4]

(b) With reference to Resource 8, describe the changes in employment structure in Costa Rica between 1995 and 2005. [2]

(c) Using Resources 6, 7 and 8, suggest reasons for the trend described in (a) [6]

(d) What are the limitations of the data representation method shown in Resource 8? Suggest an alternative method to represent the data shown. [5]

(e) Assess the usefulness of Resources 6, 7 and 8 in understanding the nature of economic development in Costa Rica during the period from 1992 to 2003? [8]

Theme 3: Sustainable Development

Urban Slums in Uganda

4 Resource 10 shows the population distribution of Uganda by settlements. Resource 11 shows the proportion of the urban population living in slums in Uganda. Resource 12 shows the urbanisation rate of Uganda over time. Resource 13 is a picture of Katanga slum in Kampala, the capital city of Uganda.

(a) Describe the population distribution of Uganda shown in Resource 10. [2]

(b) With reference to Resources 11 and 12, explain possible reasons for the trend shown in for the proportion of urban population living in slums. [5]

(c) With reference to Resource 13 and your own knowledge, explain why it is difficult for people to break out of poverty and relocate out of slums? [5]

(d) Using the aid of information from Resources 11 and 12, suggest possible strategies to address the challenges posed by slums in Uganda. [6]

(e) Critically evaluate the sustainability of slums such as the one shown in Resource 13. [7]

National Junior College
SH2 Preliminary Examinations 2017

GEOGRAPHY **9751/01**
Paper 1 Structured Essay Questions

3 Hours
Higher 2 **24 August 2017**

READ THESE INSTRUCTIONS FIRST

Write your index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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

This document consists of **3** printed pages.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Describe and explain the processes of weathering that are dominant in the humid tropics. [12]

(b) Evaluate the relative importance of the factors that affect the formation of karst landscapes in the humid tropics. [20]

2 **(a)** Explain how geology can influence the hydrological processes in a drainage basin. [12]

(b) With reference to examples, discuss the extent to which water is responsible for the occurrence of mass movements on slopes. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain how resources can be appraised in countries at low levels of development. [12]

(b) Consider the extent to which the extractive industry can bring about more harm than good to the environment. [20]

4 **(a)** Describe and explain the global production network (GPN) of a transnational corporation (TNC) which you have studied. [12]

(b) Assess the impacts that the activities of TNCs have on economies in which they operate. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain the causes of climate change since the last ice age. [12]

(b) "Global warming is more of a blessing than a curse."

Discuss. [20]

6 **(a)** Explain why urban traffic congestion occurs in countries at low levels of development. [12]

(b) To what extent have strategies to ease traffic congestion in cities been effective? [20]

National Junior College
SH2 Preliminary Examinations 2017

GEOGRAPHY **9751/02**
Paper 2 Data Response Questions

3 Hours
INSERT **28 August 2017**

This insert contains all the Resources referred to in the questions.

This document consists of **14** printed pages.

Resource 1 for Question 1
Map of Sites X, Y & Z along Punggol Waterway



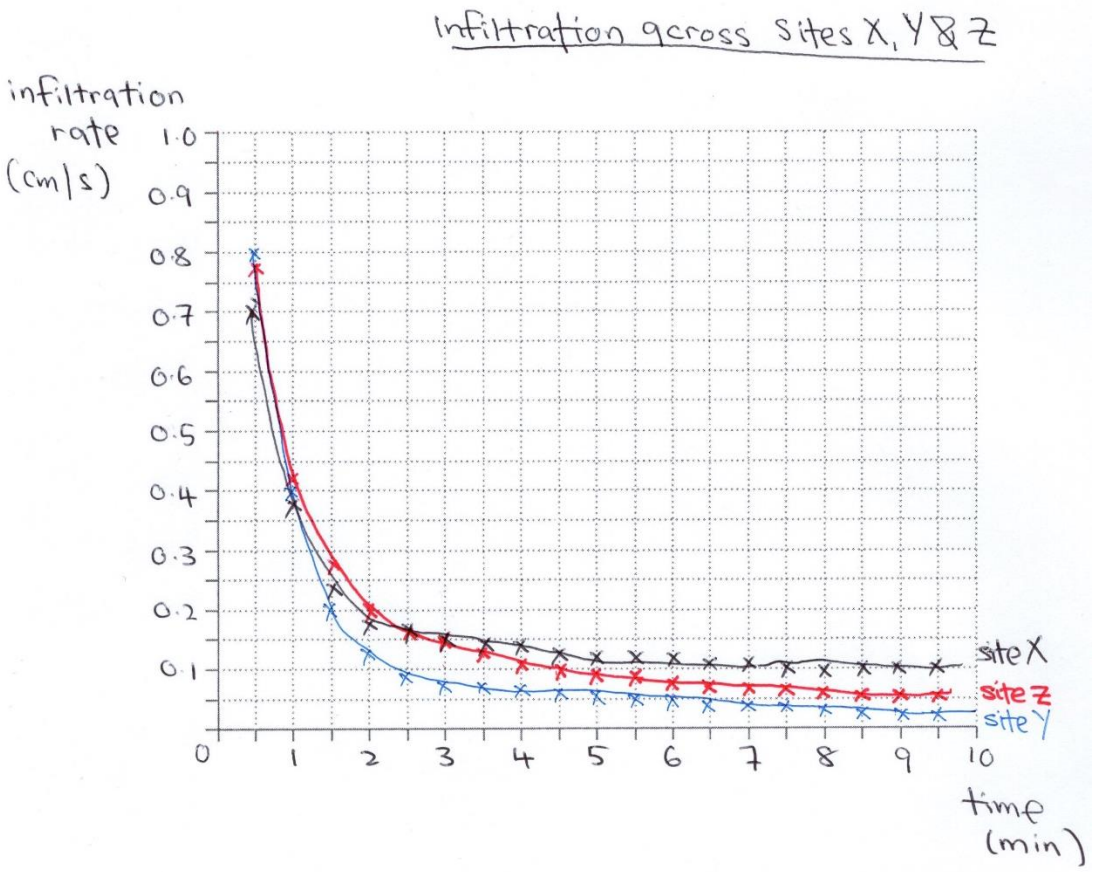
Source: http://punggolwaterway.com/wp-content/uploads/2014/07/PWWmap.jpg; amendments original

Resource 2 for Question 1
River velocity across Sites X, Y & Z

Velocity (m/s) via Float Method				
	Reading 1	*Reading 2*	*Reading 3*	*Average*
Site X	0.37	1.41	0.66	0.81
Site Y	0.75	1.21	1.07	1.01
Site Z	1.08	0.42	0.53	0.68

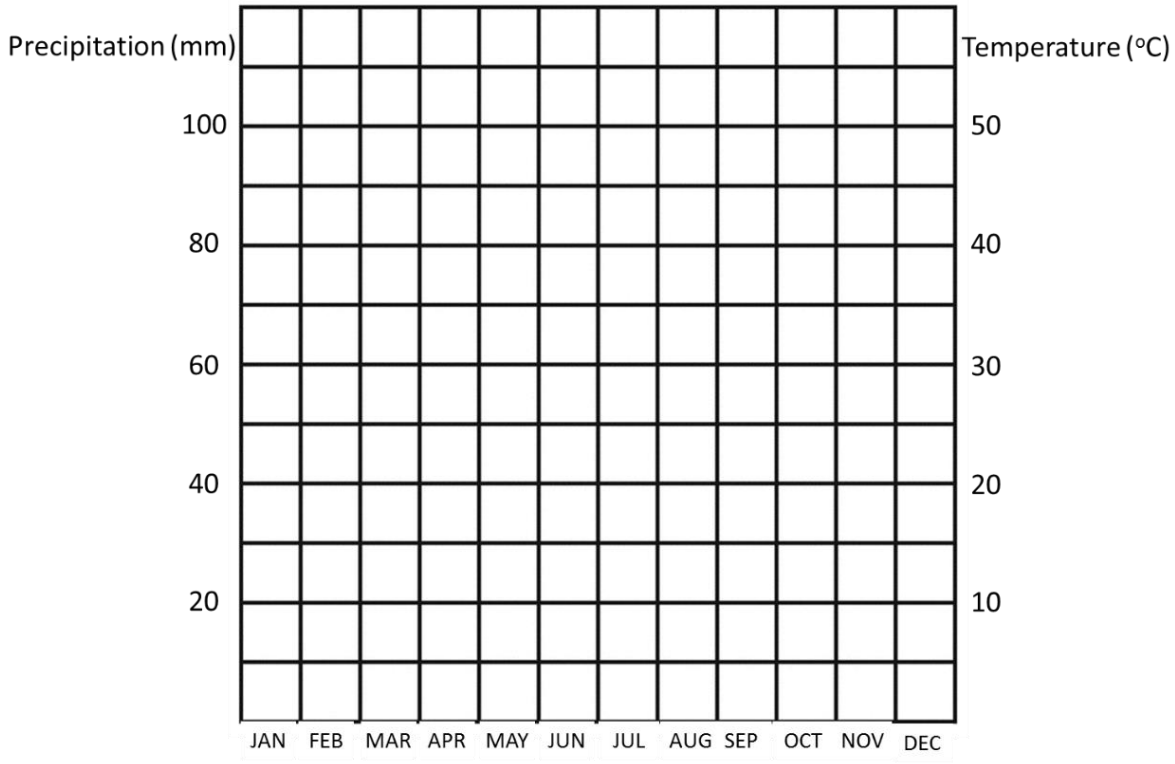
Source: Original

Resource 3 for Question 1
Infiltration curves at Sites X, Y & Z



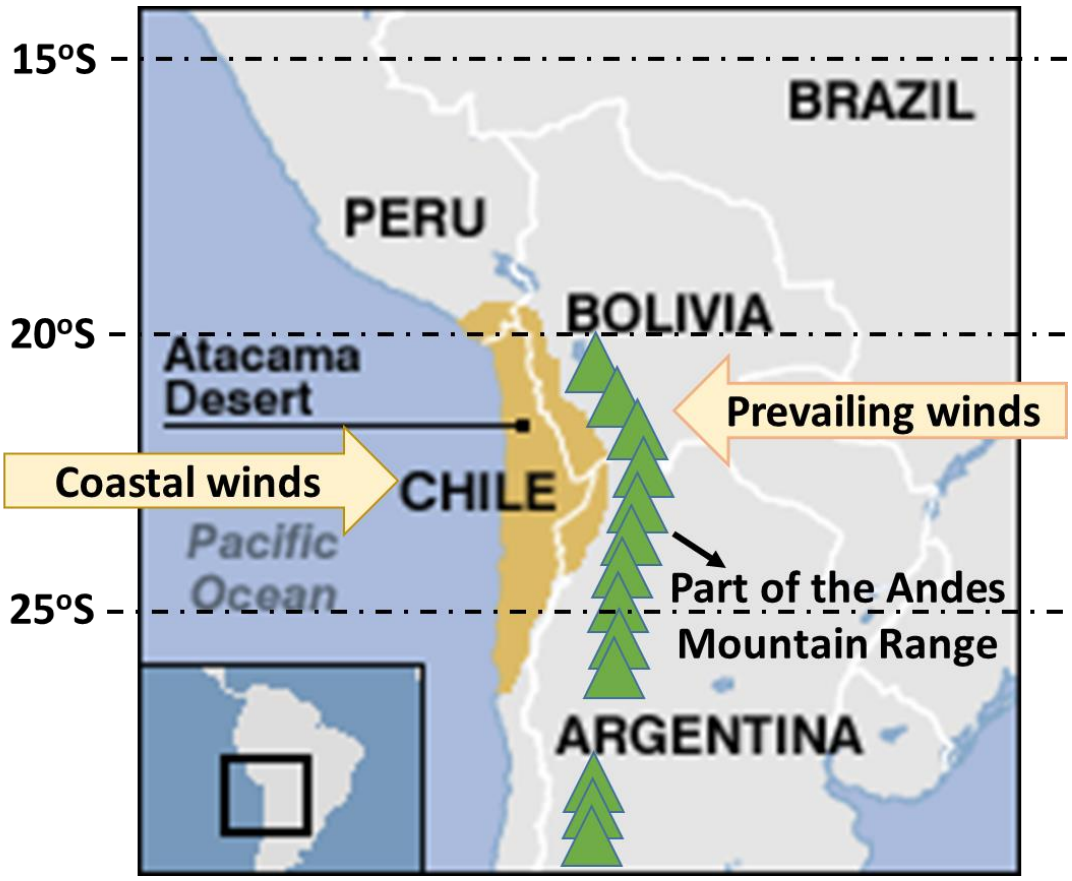
Source: Original

Resource 4 for Question 2
Climograph of the Atacama Desert



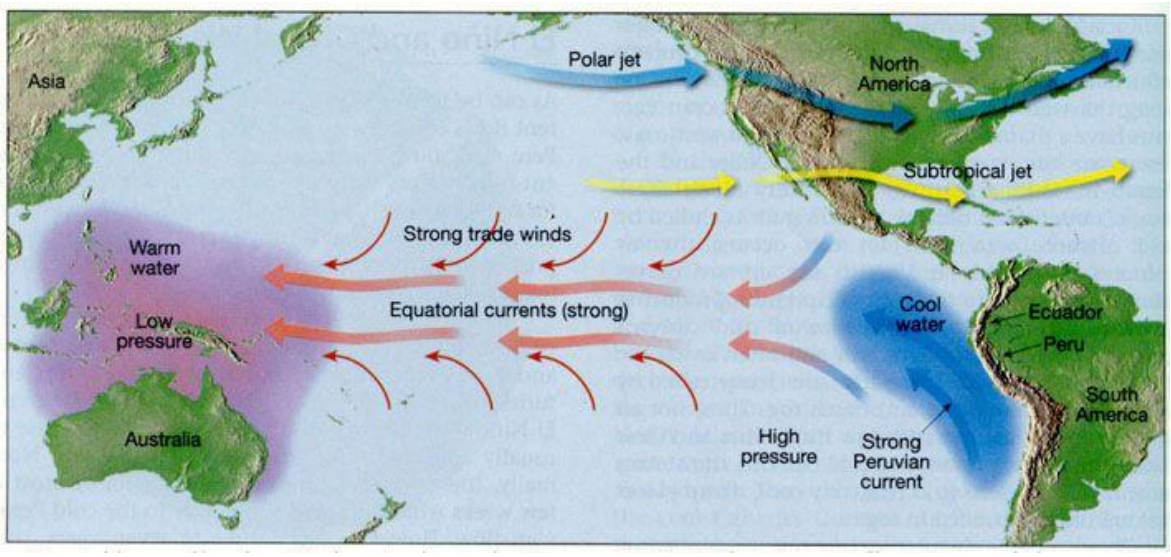
Source: Original

Resource 5 for Question 2
The location of the Atacama Desert



Source: http://origins.osu.edu/sites/origins.osu.edu/files/review44_img4.jpg; amendments original

Resource 6 for Question 2
Ocean current flows in the South Pacific Ocean



Source: http://origins.osu.edu/sites/origins.osu.edu/files/review44_img4.jpg

Resource 7 for Question 2
Landscape in the Atacama Desert



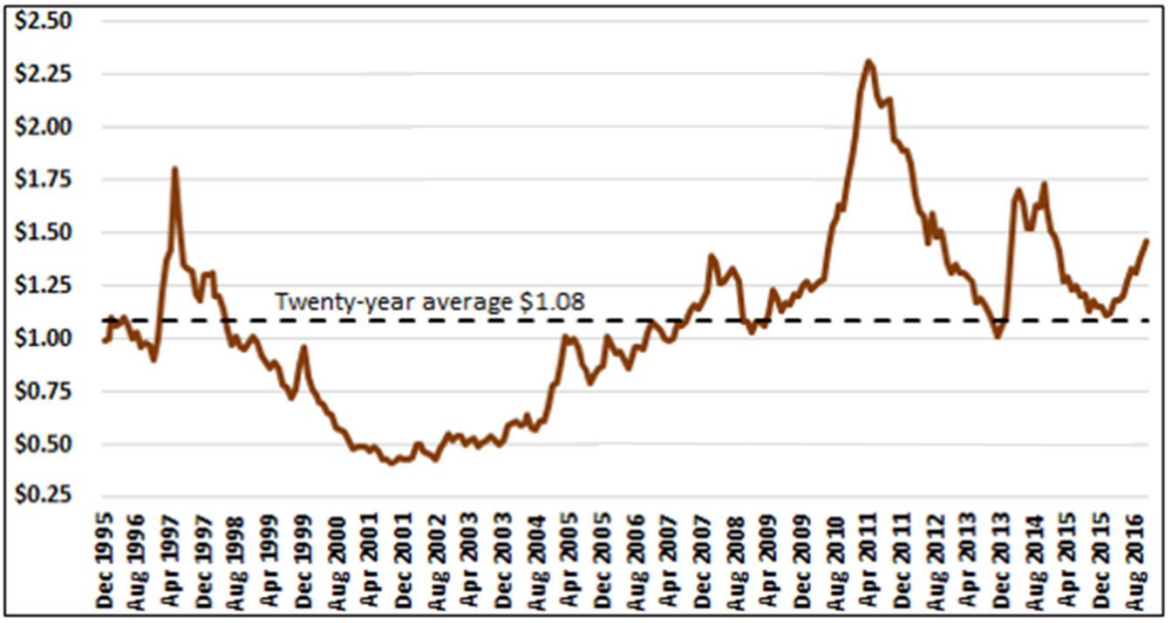
Source: http://www.nationalgeographic.com/travel/destinations/south-america/chile/explore-chile-atacama-desert-stargazing/#/valley-moon-atacama-desert-chile.jpg

Resource 8 for Question 3
Global coffee production



Source: https://u.osu.edu/ryanrichardscoffeecommoditychain/sample-page/

Resource 9 for Question 3
Average monthly coffee prices at source from Dec 1995 to Aug 2016



Source: https://fronteranews.com/news/global-macro/winners-and-losers-in-the-coffee-economy/

Resource 10 for Question 3
News article - "Gryphon blend: coffee with a cause" (2016)

Gryphon blend: coffee with a cause
Nov 23, 2016 10:00 AM by: Tony Saxon

A new coffee being sold and slurped in Guelph starting this weekend is a coffee with a cause.

Planet Bean will officially launch the new Gryphon blend coffee this Saturday at an event held at its Wyndham Street location from 10:30 to 12:30.

A joint venture between the University of Guelph and Planet Bean, the Gryphon blend has a strong social element, says Planet Bean's Bill Barrett.

The Gryphon coffee is a blend of Café Femenino beans from northern Peru. Café Femenino is a women's-only cooperative that sees women grow and sell their own coffee and keep the revenue it generates, empowering them and giving them more resources than they would traditionally have.

To maintain that connection, a portion of the sales generated by Gryphon blend will be used to fund women's athletic scholarships at the U of G.

"Ten years ago they asked us if we were interested in selling their coffee," said Barrett, who has visited Peru twice.

"The women control the whole supply chain. It's had a phenomenal impact on their lives. It's really an incredibly cool project."

Scott McRoberts, Director of Athletics at the U of G, said it's a great partnership.

"The proceeds are to support our ongoing commitment to growing female scholarship money for varsity athletes," McRoberts said.

"We're very proud to be working with a locally owned business who provides quality products and services and whose principles align with the Universities.

"We're committed to improving our student-athletes experience and through partnerships like this with leading local businesses we can continue to invest in our community and raise the profile of our programs," McRoberts said.

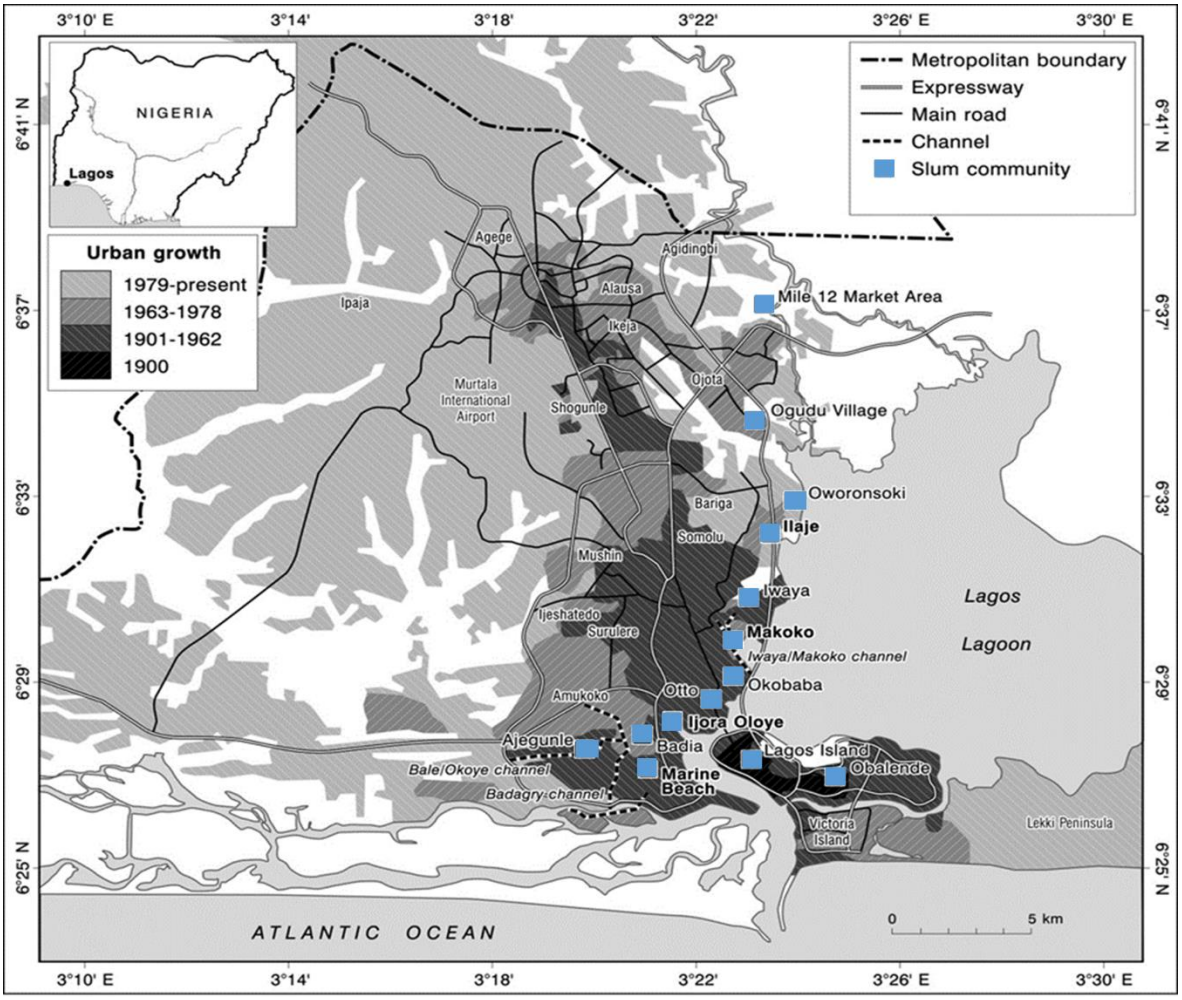
Gryphon blend will be sold by the cup and in bulk at Planet Bean's three main locations and it will be sold by the cup and bagged at the new kiosk opening on the U of G campus in the College of Business and Economics.

Barrett said it will be also sold by the bag at the U of G bookstore.

It is a dark blend, similar to Planet Bean's most popular Freedom Fighter grind.

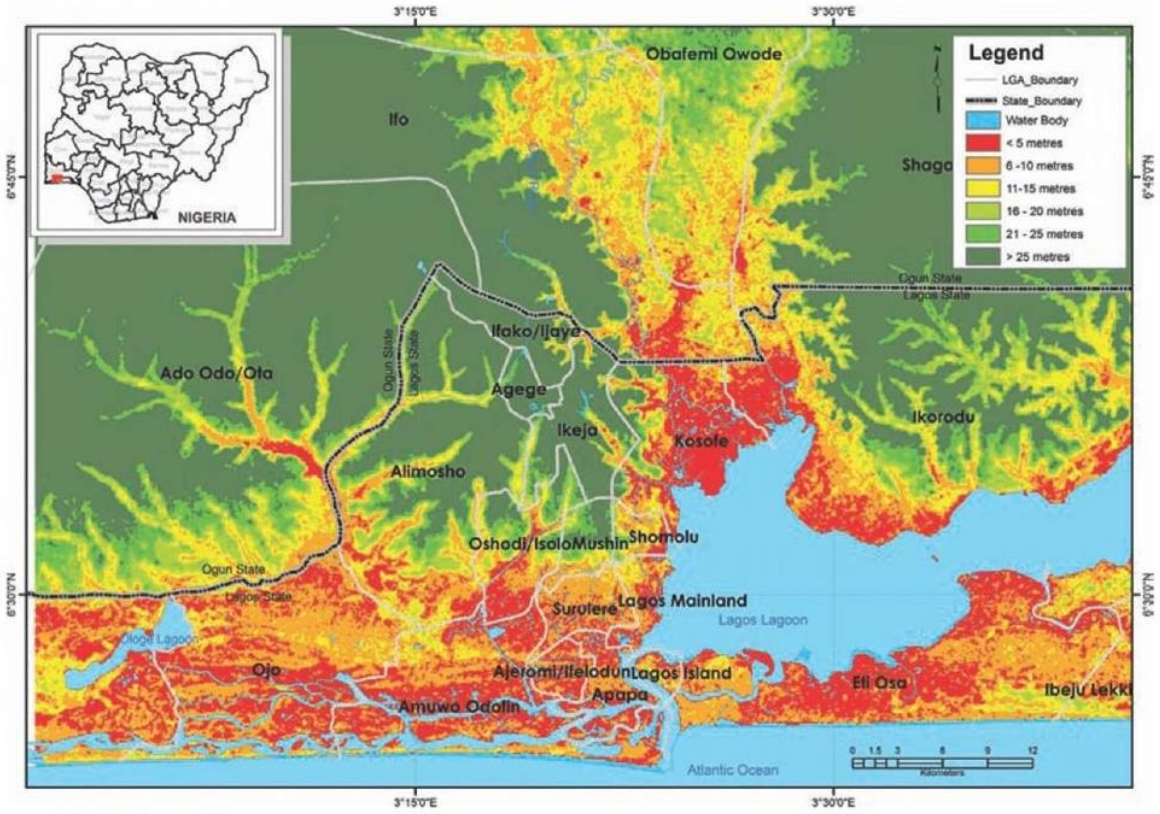
Source: https://www.guelphtoday.com/local-news/gryphon-blend-coffee-with-a-cause-470842

Resource 11 for Question 4
Urban growth and slum communities in Lagos



Source: http://slideplayer.com/slide/8484592/; amendments original

Resource 12 for Question 4
Topographic map of Lagos



Source: http://what-when-how.com/climate-change/climate-risk-assessment-in-selected-i-case-studies-cities-disasters-and-climate-risk-part-3/

Resource 13 for Question 4
Flooding in Lagos



Source: http://edition.cnn.com/2012/06/14/world/africa/lagos-climate-change-c40/index.html

National Junior College
SH2 Preliminary Examinations 2017

GEOGRAPHY **9751/02**
Paper 2 Data Response Questions

3 Hours
Higher 2 **28 August 2017**

READ THESE INSTRUCTIONS FIRST

Write your index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
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Candidates answer **all** questions.

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This document consists of **6** printed pages.

Section A

Theme 4 – Geographical Investigation

1 A group of budding student researchers were tasked to undertake a fieldwork exercise to ascertain which sites along the newly built Punggol Waterway are likely to flood. The sites are labelled in Resource 1 as Sites X, Y and Z.

The group was divided into three teams to measure the river velocity, the cross-sectional area of the river channel and the infiltration rates of the river bank at each site.

The first two teams were given the following equipment to gather the primary data on river velocity and cross-sectional area:

- 1 x Table tennis ball
- 2 x Tape measures
- 2 x Stop watch
- 1 x Meter ruler
- 4 x Range poles

To measure river velocity, the time taken for the table tennis ball to cover a pre-determined distance defined by two range poles at the side of the river was recorded for each site. The team noticed that the table tennis ball would stay stationary or even swerve its direction of movement momentarily.

To calculate the cross-sectional area, the width and depth of the river at each site had to be measured. The width was measured by laying the tape measure across the width of the river, and anchoring the tape to both banks of the river using the range poles. The tape measure had to be tight and taut. The depth was measured and recorded by using the meter rule at every 30-cm interval mark across the width. The data was then plotted and the cross-sectional area was calculated using the following formula:

Cross-sectional area = Width x Depth

At every site, the team collecting the river velocity data worked downstream from the team collecting the measurements for cross-sectional area.

The third team was given the following equipment to gather the primary data on infiltration rates:

- 1 x Infiltration ring
- 1 x Hammer
- 1 x 30-cm ruler
- 1 x Stop watch
- 2 x Water bottles (1.5l)

To measure the infiltration rate, the infiltration ring was hammered into a random spot along the river bank at each site, and the ruler was placed vertically into the ring to record the fall in water level. Water was then poured into the ring and the drop in the water level was taken every 30 seconds. This was recorded for about 10 minutes, and the data was plotted onto a graph.

Resource 1 shows a map of the Sites X, Y and Z along the Punggol Waterway. Resource 2 shows the river velocity data collected along all three sites. Resource 3 shows the infiltration curves for all three sites.

(a) With reference to Resource 1, state a suitable hypothesis for the fieldwork investigation and explain its suitability. [3]

(b) Explain how the teams should minimise the impact of their fieldwork investigations along the Punggol Waterway. [3]

(c) Explain whether the river velocity data collected in Resource 2 is reliable, and suggest how the data collection could be improved to increase its reliability. [5]

(d) Give reasons for the disparity in the infiltration rates across all three sites as shown in Resource 3. [5]

(e) To what extent has the fieldwork exercise been useful in ascertaining the flood risk at each of the sites along the Punggol Waterway? [9]

Section B

Theme 1: Tropical Environments

The Atacama Desert

2 The Atacama Desert is a plateau in South America desert located along the Pacific coast. It is the driest non-polar desert in the world.

A blank climograph is provided in Resource 4. Resource 5 shows the location of the Atacama Desert with respect to the Andes mountain range and the prevailing winds in the region. Resource 6 shows the ocean current flows in the South Pacific Ocean. Resource 7 shows a photograph of the landscape, comprising mainly of yardangs and salt deposits, in the Atacama Desert.

(a) With reference to Resource 5, describe the climate of the Atacama Desert using a climograph. You should use the blank climograph provided in Resource 4.

The completed climograph should be handed in with your script. [5]

(b) Using a well-labelled diagram, explain the impact of the strong Peruvian current shown in Resource 6 on precipitation in the Western Pacific region. [5]

(c) With the aid of Resources 5 and 6, as well as your own knowledge, account for the aridity of the Atacama Desert. [8]

(d) Explain the formation of yardangs and salt deposits shown in Resource 7. You may refer to the climatic conditions of the Atacama Desert as described in part (a), as well as Resource 5 in your answer. [7]

Section C

Theme 2: Development, Economy and Environment

Economic development and coffee production

3 Coffee is a cash crop that grows best at temperatures between 15°C and 28°C with rainfall of between 1500 and 2500mm per year.

Resource 8 shows the global distribution of coffee production. Resource 9 shows the average monthly coffee prices at source between December 1995 and August 2016. Resource 10 shows a news article on the introduction of a new blend of coffee in Guelph, Canada.

(a) With reference to Resource 8, describe and explain the global distribution of coffee production. [4]

(b) Suggest ways in which the production of coffee could possibly lead to economic development for the countries listed in Resource 8. [4]

(c) Countries which depend primarily on coffee production as a means of developing their economies tend not to perform well.

How does the data in Resource 9 help to explain this phenomenon? [4]

(d) Explain how initiatives like the blend of Café Femenino beans used in the new Gryphon coffee in Guelph, as discussed in Resource 10, could lead to bottom-up development in Peru. [4]

(e) To what extent is information from Resources 9 and 10 useful in assessing the level of economic development of countries where coffee production is high? You may make references to any of the resources as well as your own knowledge. [9]

Section D

Theme 3: Sustainable Development

Climate change and Lagos

4 The capital city of Nigeria, Lagos, is a megacity with over 15 million inhabitants. Given that half of these urban dwellers reside on land that is barely two metres above sea level, Lagos is vulnerable to the impacts of climate change.

The urban growth of Lagos and the locations of its slum communities are depicted in Resource 11. Resource 12 shows a topographic map of Lagos while Resource 13 shows a photograph of flooding in Lagos.

(a) Using Resource 11, describe how the city of Lagos has grown from 1900 to present. [4]

(b) Describe the distribution of the slum communities in Lagos as shown in Resource 11, and suggest reasons for their locations. [5]

(c) Explain how climate change can lead to flooding in the low-lying areas as shown in Resource 12. [4]

(d) Describe and explain the housing and transport problems that residents in Lagos face during flooding as shown in Resource 13. [8]

(e) Give **two** reasons why Nigerians continue to move to Lagos despite the problems the city experiences due to climate change, such as those shown in Resource 13. [4]

NANYANG JUNIOR COLLEGE
Year 2 Preliminary Examination

H2 GEOGRAPHY 9751/01

Paper 1 Structured Essay Questions 11 September 2017

3 hours

Additional Materials: Answer Paper
World outline map

READ THESE INSTRUCTIONS FIRST

Write your Centre number, index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **three** questions. One from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the questions.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A – Tropical Environments

Answer **one** question in this section.

1 (a) Explain the cross and long profiles of a typical river from source to mouth. [12]

1 (b) "Channel patterns evolve as a result of differences in channel processes operating to shape them." How far do you agree with this statement? [20]

2 (a) Explain the role of climate in influencing soil development in the arid tropics. [12]

2 (b) Wind erosion helps explain many of today's desert landforms. Discuss. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 (a) Explain the water problems faced by countries at low levels of development. [12]

3 (b) Do you agree that recycling wastewater is the most effective strategy in managing water scarcity for countries at low levels of development? Explain your answer. [20]

4 (a) Explain the factors influencing the appraisal of resources for countries with different levels of development. [12]

4 (b) "There is an inevitable tendency for populations to outgrow and negatively impact their resource base." To what extent do you agree with this statement with reference to the theories that you have studied. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 (a) With reference to countries at low levels of development, explain the political and economic challenges in attaining sustainable development. [12]

5 (b) Assess the effectiveness of strategies adopted by countries at different levels of development to mitigate and adapt to climate change. [20]

6 (a) Explain the impacts of traffic congestion on cities and urban dwellers in countries at high levels of development. [12]

6 (b) Do you agree that the needs of **either** the disabled **or** the migrants have been adequately responded by the governments of countries at high levels of development? Explain your answer. [20]

NANYANG JUNIOR COLLEGE
Year 2 Preliminary Examination

H2 GEOGRAPHY 9751/02

Paper 2 Data Response Questions 19 September 2017

INSERT

3 hours

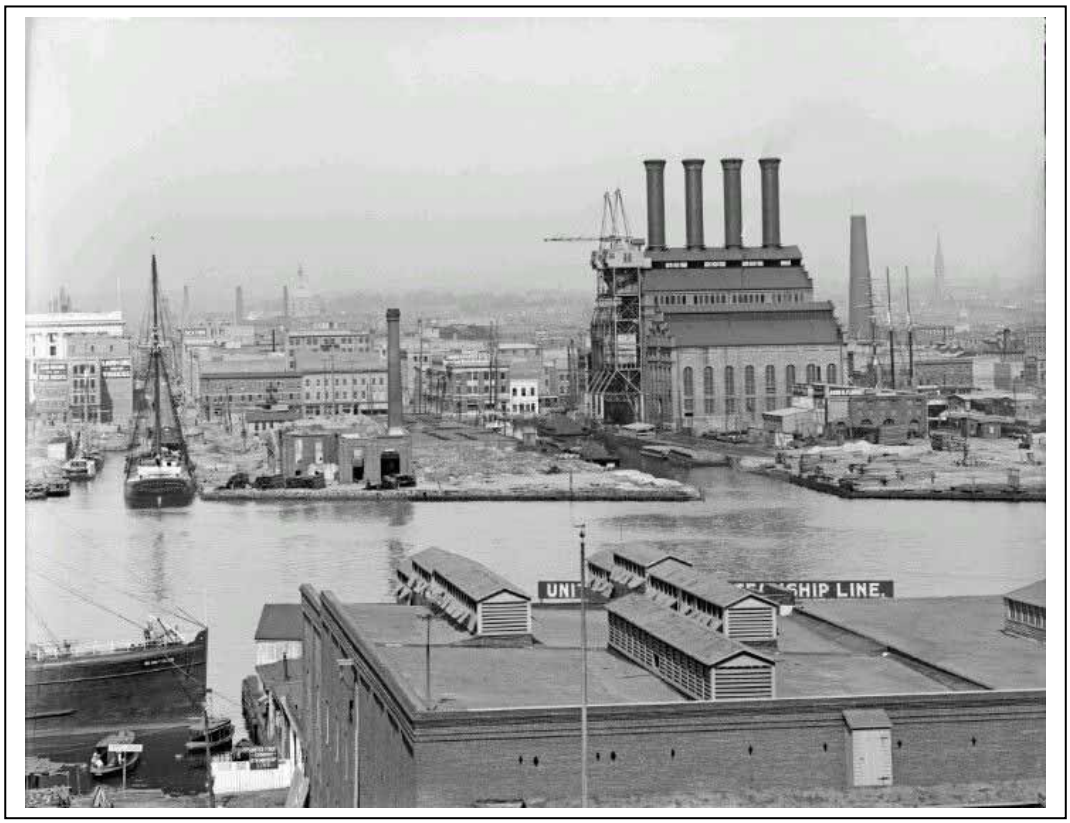
Additional Materials: Answer Paper
1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Photos showing Baltimore's Inner Harbour before and after reimaging



Source: https://www.pinterest.com/tdaviscork/baltimore/



Source: http://www.lisalance.com/blog/wp-content/uploads/2011/06/Baltimore-Inner-Harbor-cropped.jpg

Resource 2 for Question 1

Changes to land use and functions along Baltimore's Waterfront

Baltimore's Waterfront Continues to Change

The Inner Harbor was where Baltimore began to redevelop its waterfront in the 1970s and 1980s. Since then, developers have seen value in the harbor views and unique structures of Canton, Fells Point, and other waterfront communities. Here is a sample of the many industrial buildings that have found new life or have been razed to make way for new retail, office, and residential development.



1. **Tide Point**—Proctor & Gamble soap factory turned into an office complex for technology and service firms

2. **Phillips Foods Inc.**—Coca-Cola plant redeveloped into office and production space for the seafood manufacturer

3. **HarborView**—Luxury condominiums and apartment homes

4. **Inner Harbor East**—20-acre, mixed-use development includes two Marriott hotels, Sylvan Learning Centers headquarters, a luxury apartment building, and a planned entertainment complex

5. **Bagby Furniture Building**—Conversion of warehouse into Class-A office space

6. **Bond Street Wharf**—Class-A office complex built on site of warehouse

7. **Brown's Wharf**—Renovation of coffee warehouse to house offices and specialty retail

8. **Henderson's Wharf**—Renovation of tobacco warehouse into a residential complex, inn, and marina

9. **The Can Company**—American Can Co. plant converted into a retail and office center

10. **The Anchorage**—Luxury condominiums built near waterfront for marina access

11. **Canton Cove**—Redevelopment of factory into luxury condominiums

12. **Lighthouse Point**—Licorice factory renovated into a 16-acre development with apartments, retail and office space, and a marina

—Charles Gerena

Source: https://www.richmondfed.org/~/media/richmondfedorg/publications/research/region_focus/2003/spring/pdf/economic_history.pdf

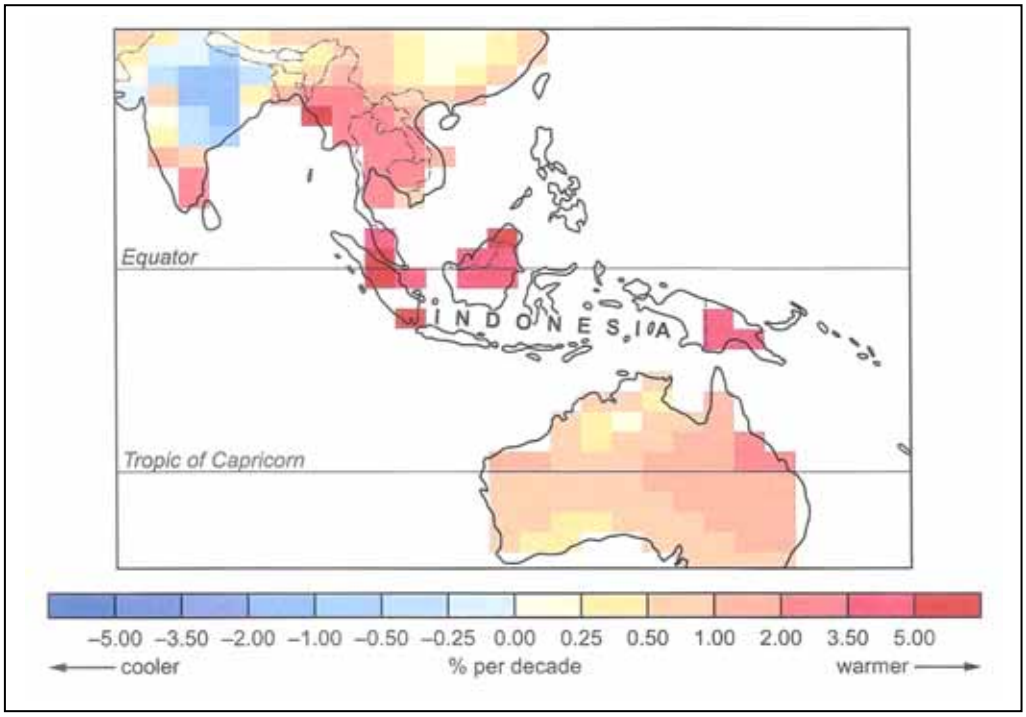
Resource 3 for Question 1

Survey results collected from 250 respondents during the investigative study

S/N	Question	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
1	The refurbishment of the Inner Harbour and Baltimore's Waterfront area has attracted more visitors to the place.	40	48	7	5
2	There is a larger variety of goods and services offered in this area since its refurbishment.	10	42	28	20
3	The area has created employment opportunities for the locals.	20	55	20	5
4	The integration of old and new buildings has helped to preserve the identity of this area.	27	65	8	0
5	The refurbishment of the Inner Harbour and the Baltimore's Waterfront has improved the overall image of Baltimore City.	15	40	25	20

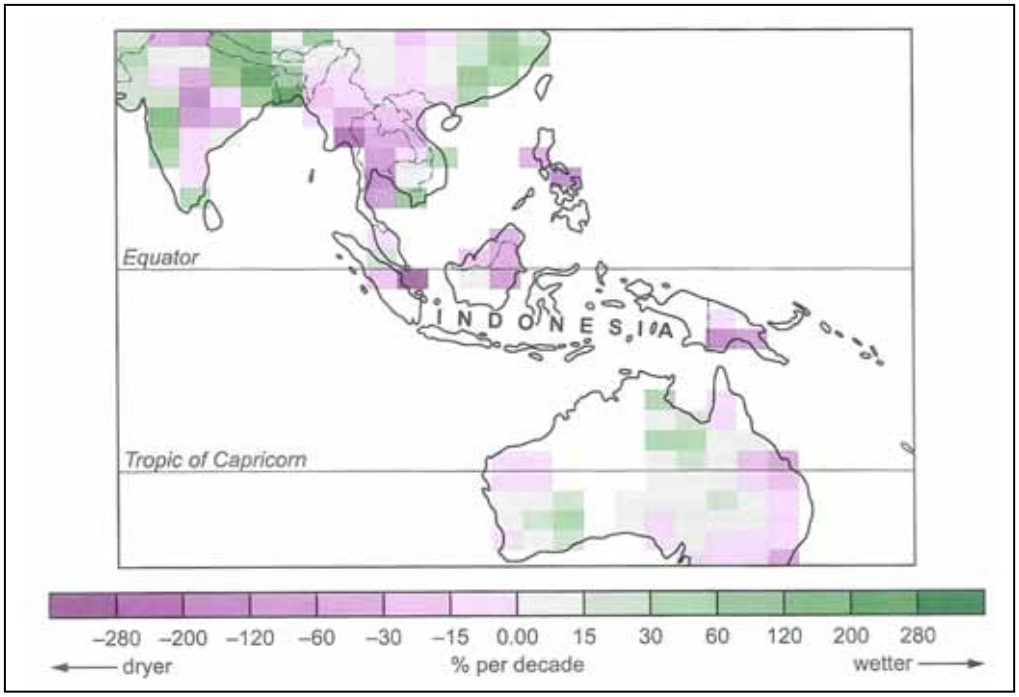
Resource 4 for Question 2

Annual average temperature change over parts of Asia-Pacific region (1968 - 2006) relative to the average temperature (1960 - 1990)



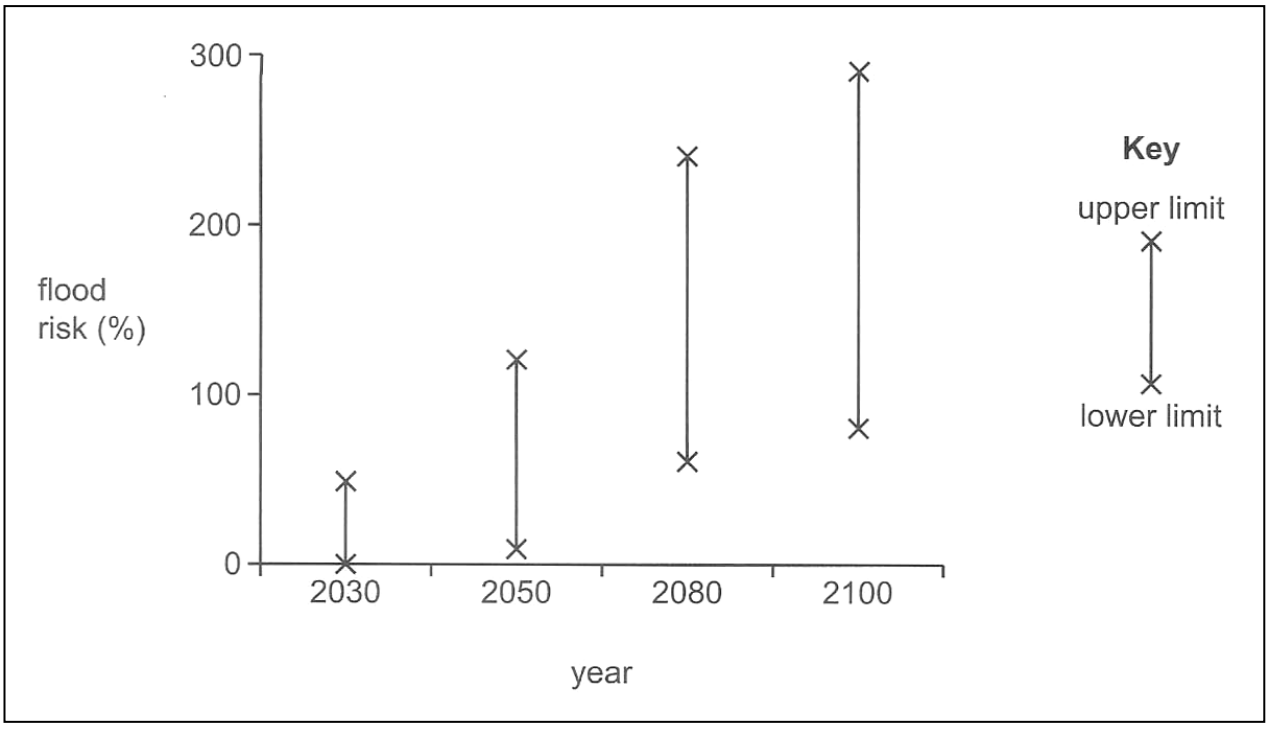
Resource 5 for Question 2

Annual average rainfall over parts of Asia-Pacific region (1986 - 2006) relative to the average rainfall (1960 – 1990)



Resource 6 for Question 2

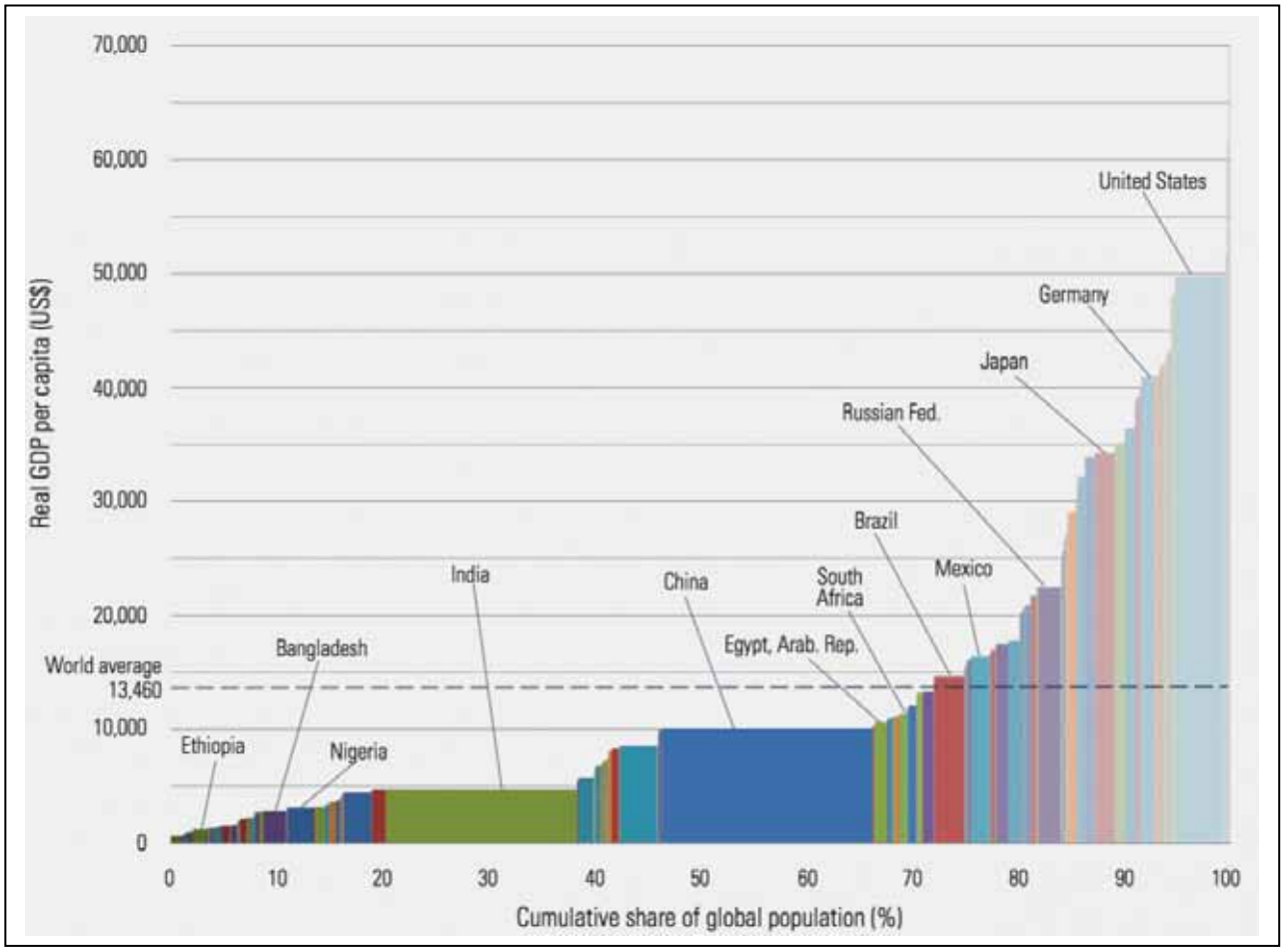
Predicted percentage change in flood risk in Indonesia 2030 – 2100 if current rainfall change trends continue



H1 Specimen Paper

Resource 7 for Question 3

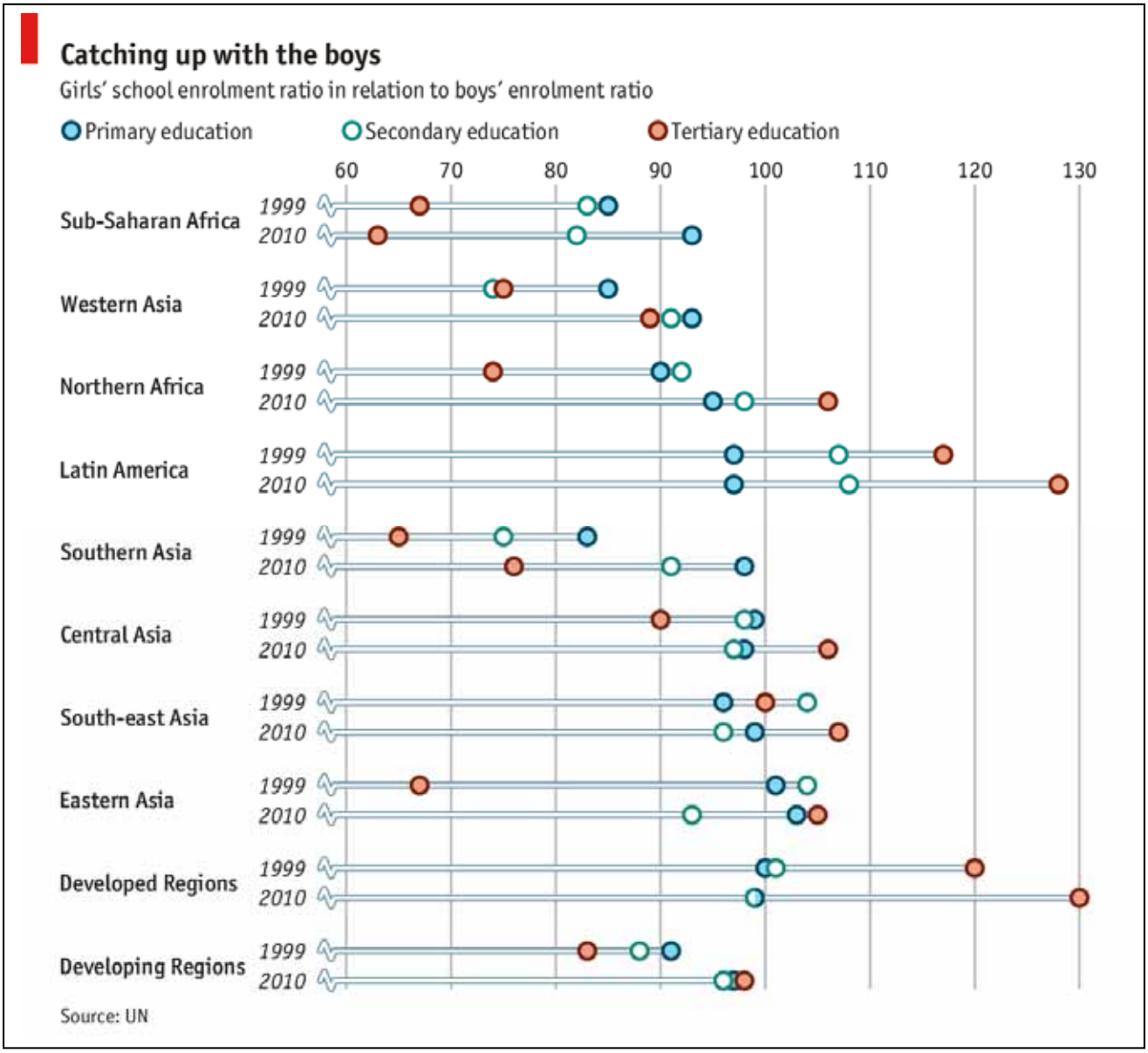
Real GDP per capita and shares of global population for selected countries



Source: http://www.oilandgaspress.com/real-gdp-per-capita-and-shares-of-global-population-icp-2011/

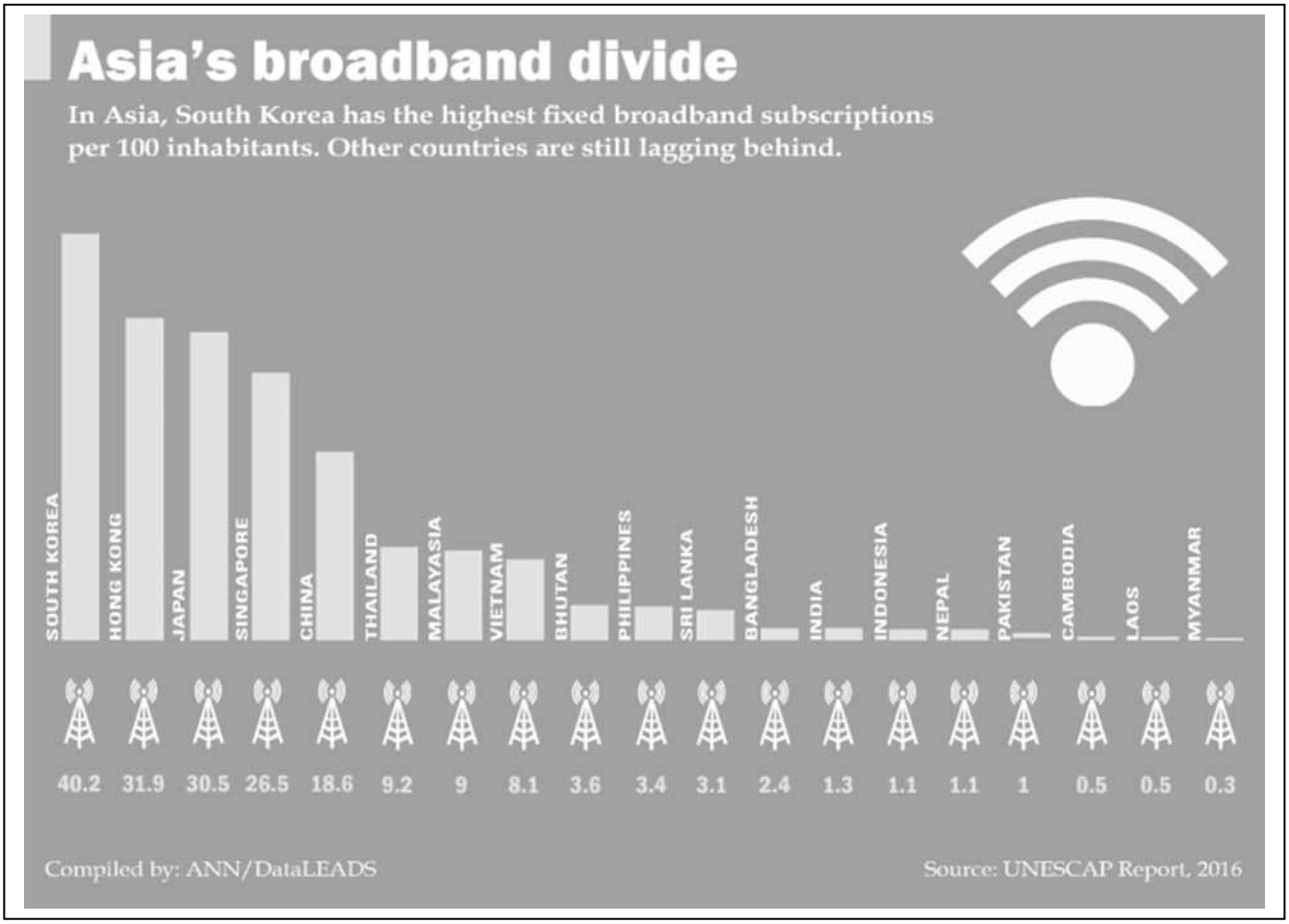
Resource 8 for Question 3

Girls' school enrolment ratio in relation to boys' enrolment ratio for developed and developing regions



Resource 9 for Question 3

Asia's broadband divide



Source: http://www.nationmultimedia.com/detail/Startup_and_IT/30297302

Resource 10 for Question 4

Global average waste collection rates by country per income level



Source: https://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/What_a_Waste2012_Final.pdf

Resource 11 for Question 4

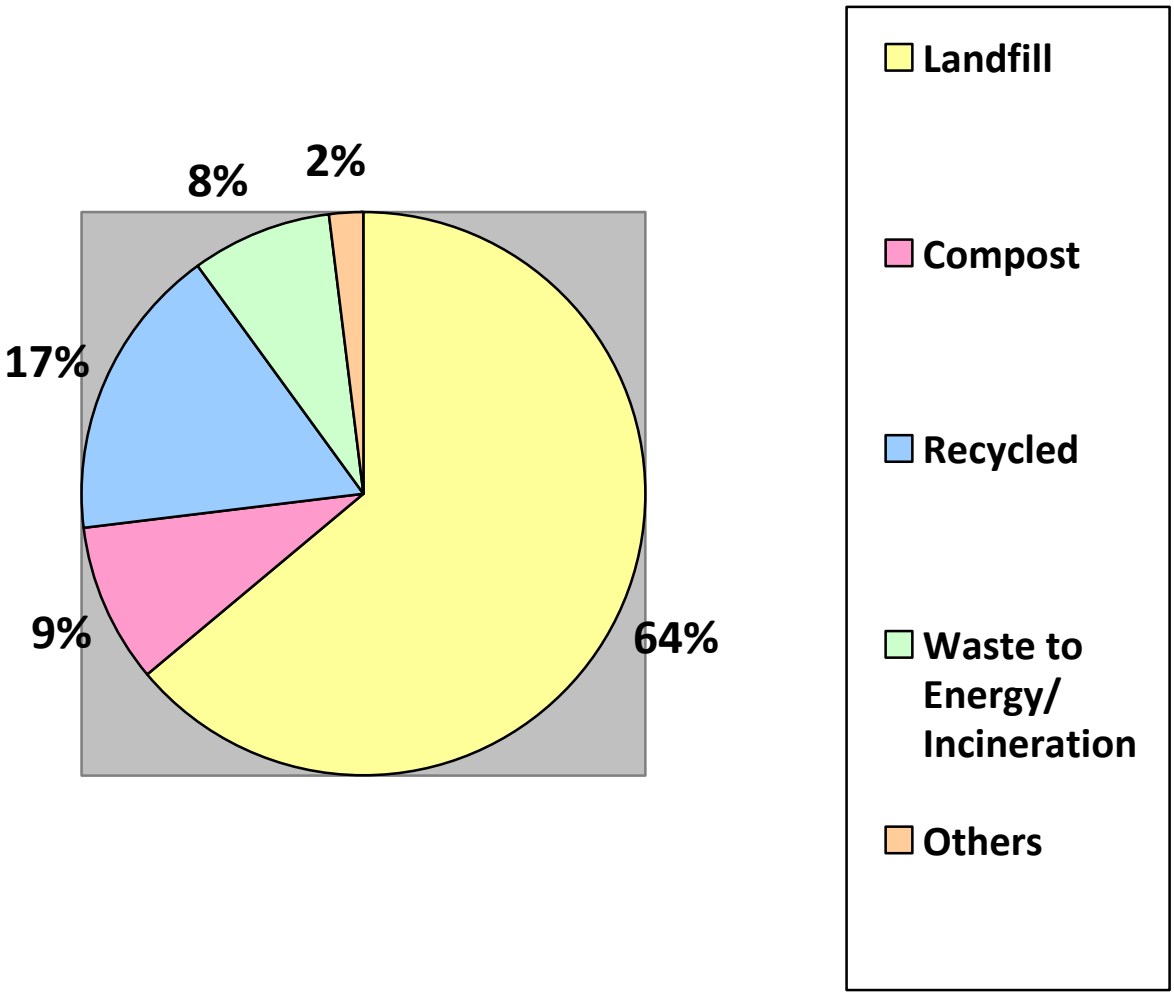
Rubbish collection calendar in Oldham, United Kingdom



Source: https://dianewilliamson.mycouncillor.org.uk/files/2015/08/New-Bin-Collection-1.jpg

Resource 12 for Question 4

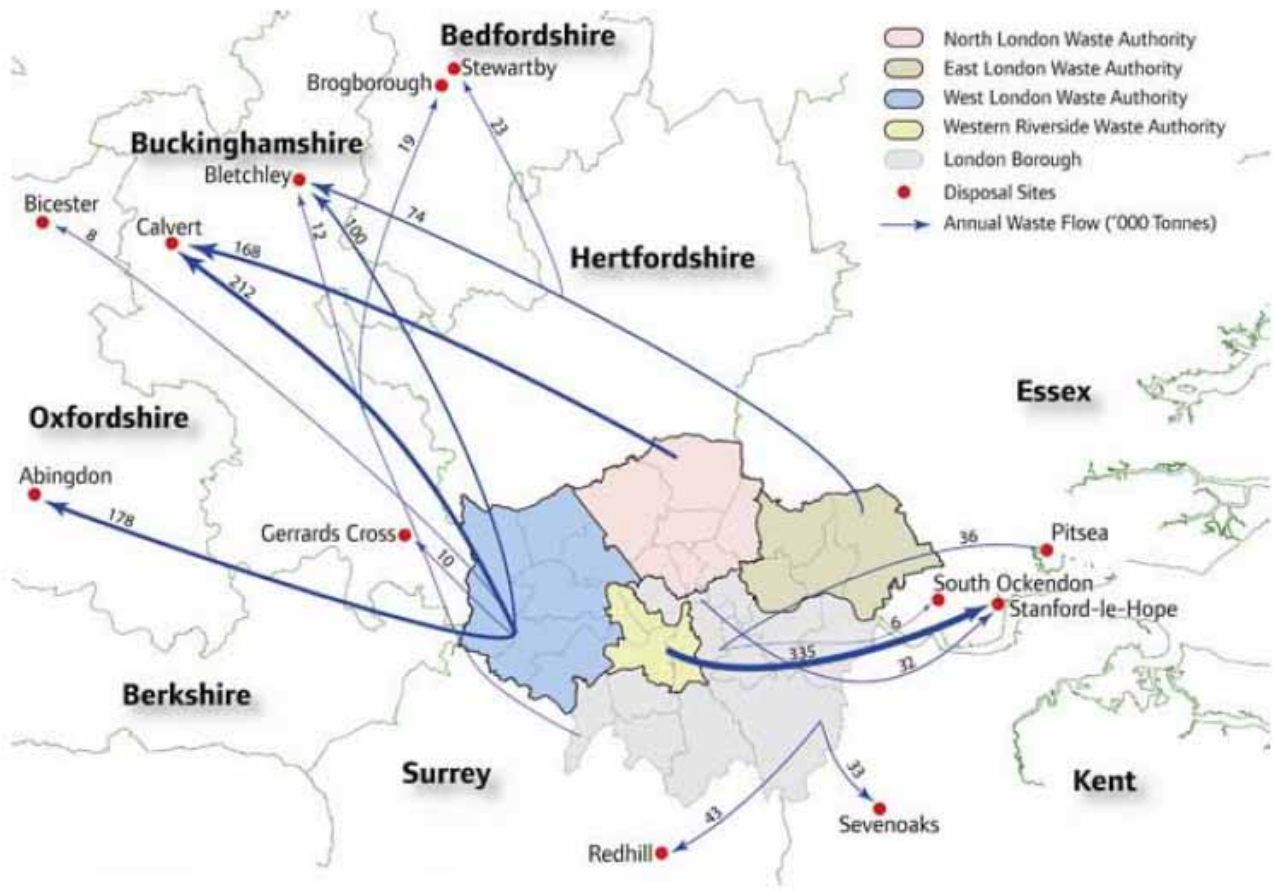
Waste disposal methods in The United Kingdom



Source: https://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/What_a_Waste2012_Final.pdf

Resource 13 for Question 4

Distribution of municipal waste to landfill sites around London



Source: https://www.london.gov.uk/sites/default/files/municipal_waste_final.pdf

NANYANG JUNIOR COLLEGE
Year 2 Preliminary Examination

H2 GEOGRAPHY 9751/02

Paper 2 Data Response Questions 19 September 2017

3 hours

Additional Materials: Answer Paper
1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

Write your Centre number, index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the questions.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A

Theme 4 – Geographical Investigation

1. Baltimore City is located in the State of Maryland, north of the U.S. capital Washington, D. C. As a result of deindustrialisation and the decline of the port in the 1950s, the city was on a downward trend leaving behind empty warehouses and industrial sites. Urban renewal efforts in the 1970s and 1980s brought retail projects, museums and attractions like the Aquarium to the Inner Harbour while commercial and residential developers recognised the value of other sites along Baltimore's Waterfront in the 1990s.

A group of 25 students from the State of Maryland University wanted to examine the economic and social impacts that urban reimaging (the Inner Harbour and Baltimore's Waterfront) has on the local community. The students set aside three different days during the December holidays to conduct the study via the use of a questionnaire.

Resource 1 shows photos of Baltimore's Inner Harbour before and after renewal. Resource 2 shows changes to land use and functions along Baltimore's Waterfront. Resource 3 shows the results collected from 250 respondents during the investigative study.

(a) With reference to Resource 1, identify the features in the photographs which show attempts to reimage the Inner Harbour. [4]

(b) Using Resource 2, suggest an appropriate hypothesis for the group's investigation. [1]

(c) Devise a plan for the group to conduct a questionnaire to help investigate the economic and social impacts of re-imaging (the Inner Harbour and Baltimore's Waterfront) on the local community. [7]

(d) Using information shown in Resource 3, draw a vertical bar graph to represent the responses for Question 1 and a pie-chart to represent the responses for Question 5. [4]

(e) To what extent do Resources 1, 2 and 3 support the argument that the local community has benefited from the efforts to reimage the Inner Harbour and Baltimore's Waterfront? [9]

Section B

Theme 1: Tropical Environments

Climate change in South East Asia

2. Resources 4 and 5 show changes in annual average temperature and annual average rainfall over parts of Asia-Pacific region respectively between 1968 and 2006. Resource 6 shows predicted percentage change in flood risk in Indonesia between 2020 and 2100.

(a) Describe the changes in temperature and rainfall shown in Resources 4 and 5 respectively. [6]

(b) Explain how the changes shown in Resources 4 and 5 could affect human activities. [4]

(c) Suggest three reasons for the rainfall changes shown in Resource 5. [3]

(d) Apart from rainfall, suggest three reasons why flood risk may change in Indonesia as shown in Resource 6. [3]

(e) With reference to Resource 6, evaluate the extent to which prediction can help to mitigate the effects of flooding in Indonesia. [9]

Theme 2: Development, Economy and Environment

Development Gap in Asia

3. Resource 7 shows real GDP per capita and shares of global production for selected countries. Resource 8 shows girls' school enrolment ratio in relation to boys' enrolment ratio for developed and developing regions. Resource 9 shows Asia's broadband divide.

(a) Describe the relationship between real GDP per capita and shares of global population amongst Asian countries shown in Resource 7. [3]

(b) With reference to Resource 8, compare Asian countries' school enrolment ratio amongst girls and boys for tertiary education between 1999 and 2010. [4]

(c) Give two possible reasons why girls lagged behind boys in gaining access to higher education in Asia. [4]

(d) Explain the usefulness of Resources 7, 8 and 9 in highlighting the development gap in Asia. [6]

(e) Suggest ways in which the income gap between Bangladesh and Japan could be narrowed. [8]

Theme 3: Sustainable Development

Waste Collection and Disposal in United Kingdom

4. Resource 10 shows the global average waste collection rates by country per income level in 2012. Resource 11 shows the rubbish collection calendar in Oldham, United Kingdom. Resource 12 shows the waste disposal methods in The United Kingdom. Resource 13 shows the distribution of municipal waste to landfill sites around London in 2010.

(a) Describe the global pattern of waste collection rates by country per income level shown in Resource 10. [2]

(b) Using Resources 10 and 11 and your own knowledge, explain the waste collection rate for high income countries. [5]

(c) With reference to Resource 10, suggest reasons for the waste collection rates for the other income categories. [6]

(d) With reference to Resource 12, explain the ecological footprint of London shown in Resource 13. [4]

(e) Using Resources 12, 13 and your own knowledge, recommend changes to London's waste disposal methods in order to achieve sustainable development. Justify your decision. [8]

PIONEER JUNIOR COLLEGE
Preliminary Examination
Higher 2

GEOGRAPHY 9751/01

Paper 1 Essay 11 September 2017

3 hours

Additional Materials: Answer Paper
World outline map

READ THESE INSTRUCTIONS FIRST

Write your Name, Class and Index Number on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do no use staples, paper clips, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
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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.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the climatic characteristics of tropical desert (BWh) climates. [12]

(b) To what extent does climate affect the formation of aeolian landforms in the arid tropics? [20]

2 **(a)** Explain the effects of tropical deforestation in countries at lower levels of development. [12]

(b) Discuss the strategies to manage tropical deforestation. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain the factors influencing resource appraisal in resource-rich countries. [12]

(b) 'Resources should be a blessing, not a curse. They can be, but it will not happen on its own. And it will not happen easily.' (The Guardian, 2012) [20]

To what extent do you agree with this statement with respect to resource rich countries?

4 **(a)** Explain the impact of privatisation of water resources in lower income countries. [12]

(b) 'Water conservation is the key to managing water scarcity.' To what extent do you agree with this view? [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain the effects of climate change on sustainable development of countries at lower levels of development. [12]

(b) 'Utilizing alternative energy sources is the most promising measure to combat against climate change.' To what extent do you agree with this statement? [20]

6 **(a)** Explain the difficulties of measuring urban liveability. [12]

(b) With reference to one social group in cities, evaluate the strategies that have been undertaken to improve the liveability of urban areas. [20]

END

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PIONEER JUNIOR COLLEGE
JC2 Preliminary Examination
Higher 2

GEOGRAPHY 9751/02

Paper 2 Data Response Questions 15 September 2017

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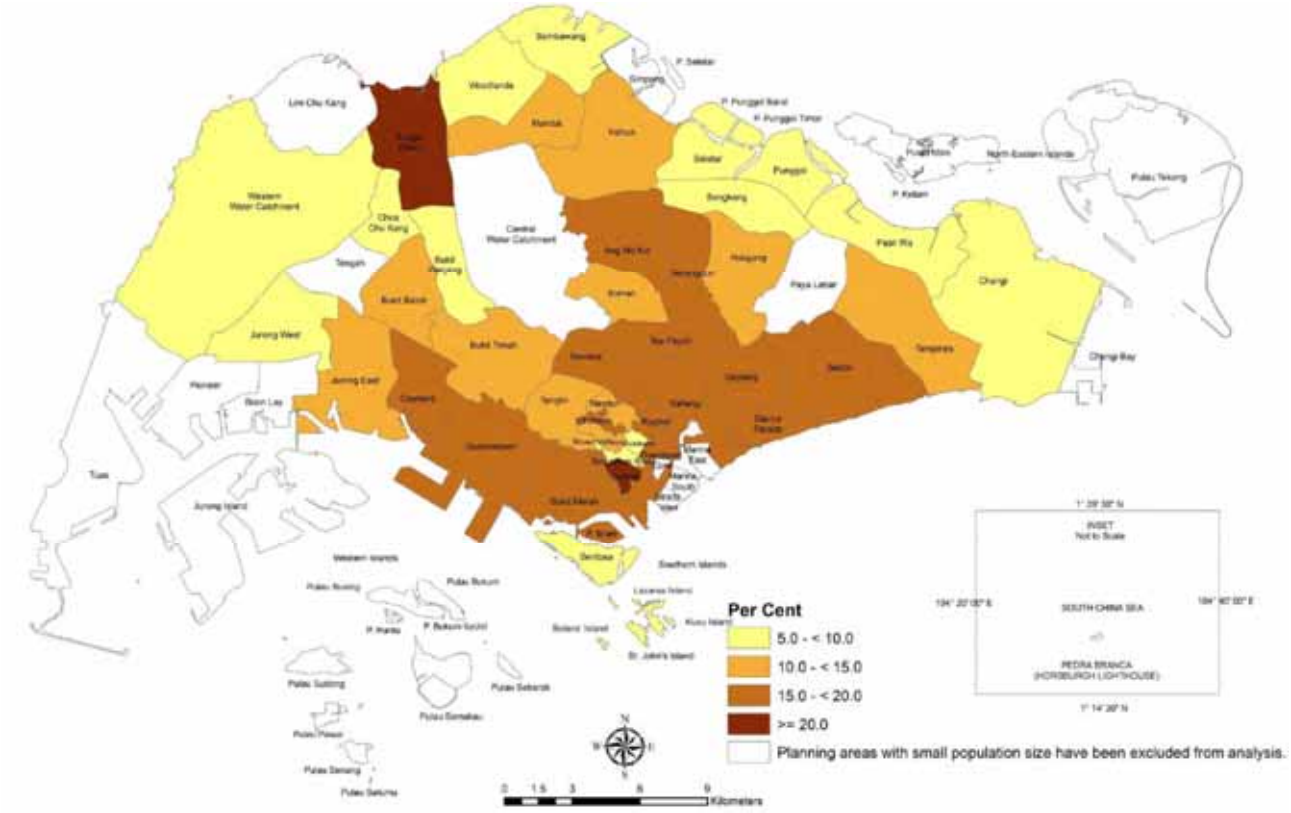
3 hours

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Proportion of elderly population aged 65 and above by planning area, 2016



Resource 2 for Question 1

Elderly friendly fixtures by type of dwelling, 2011 (%)

Contained elderly-friendly features	Total	Type of dwelling					
		Public flat	1–2 room flat	3 room flat	4 room flat	5 room or larger flat	Private flat/house
Yes	25.9	26.0	48.5	25.5	20.7	26.0	24.8
No	74.2	74.0	51.5	74.5	79.3	74.0	75.2

Resource 3 for Question 1

Sources of Social Activity for Elderly, 2014

	At least once a month
Family and friends	
Get-together with family members (children, grandchildren or siblings)	88.9%
Get-together with friends or neighbours	62.4%
Community events	
Participate in grassroots or community activities	8.4%
Use a senior activity club	6.9%
Others	
Attend a course or class	8.8%
Attend a religious gathering	39.4%

Resource 4 for Question 1

Living arrangement of elderly by age, 2011 (%)

Living arrangement	65-74	75 and above
Total	100	100
Living alone	17.5	16.6
Living with spouse only	15.4	11.8
Living with spouse and children/grandchildren	38.7	26.9
Other living arrangements (e.g with other relatives, nursing homes)	28.4	44.7

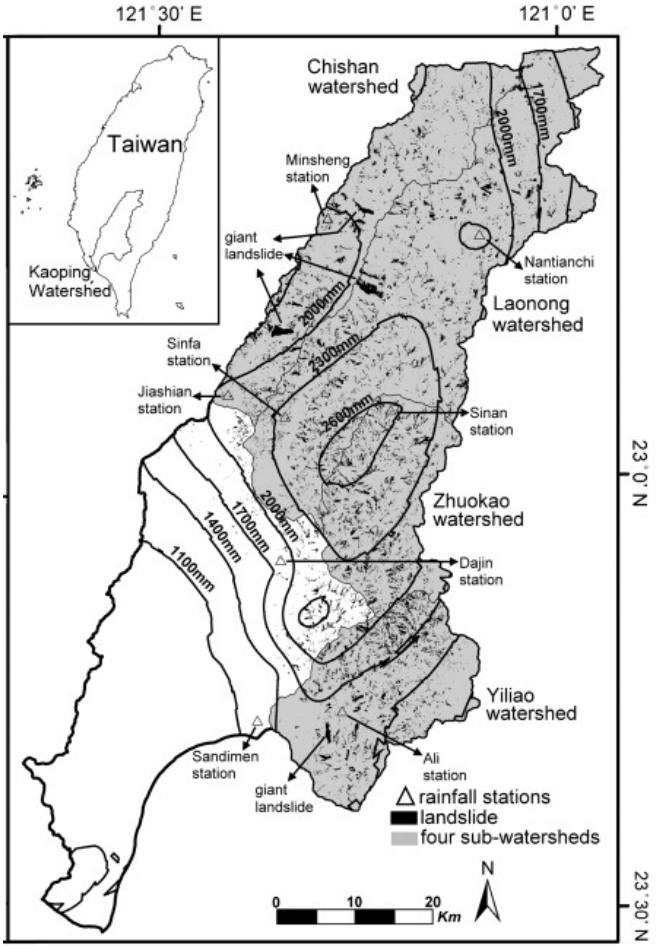
Resource 5 for Question 2

Path of Typhoon Morakot



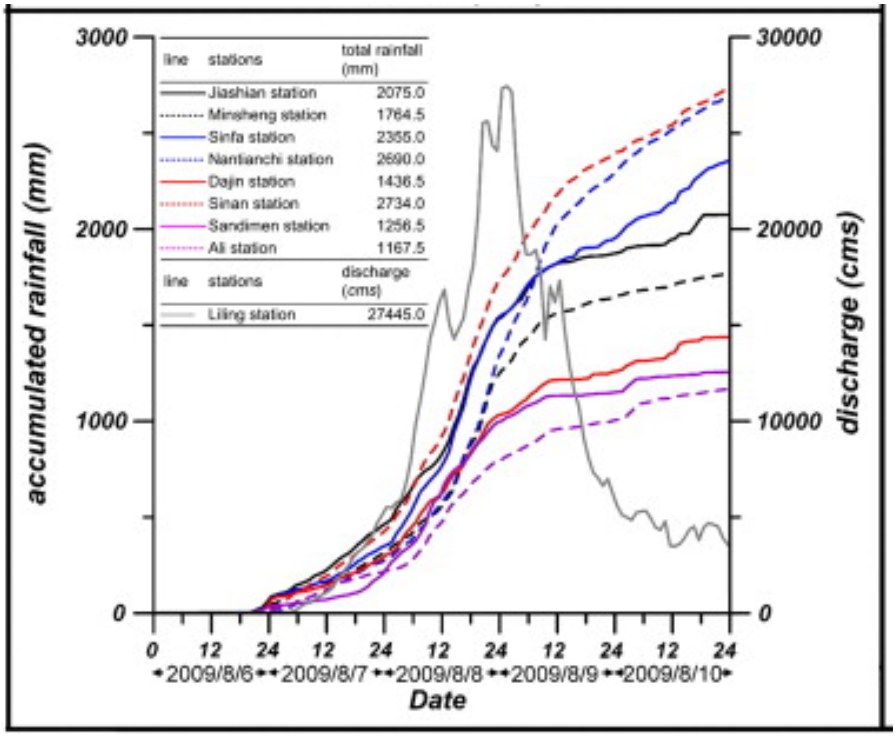
Resource 6A for Question 2

Distribution of Rainfall in Taiwan after the passing of Typhoon Morakot



Resource 6B for Question 2

Accumulated rainfall and river discharge at the various rainfall stations



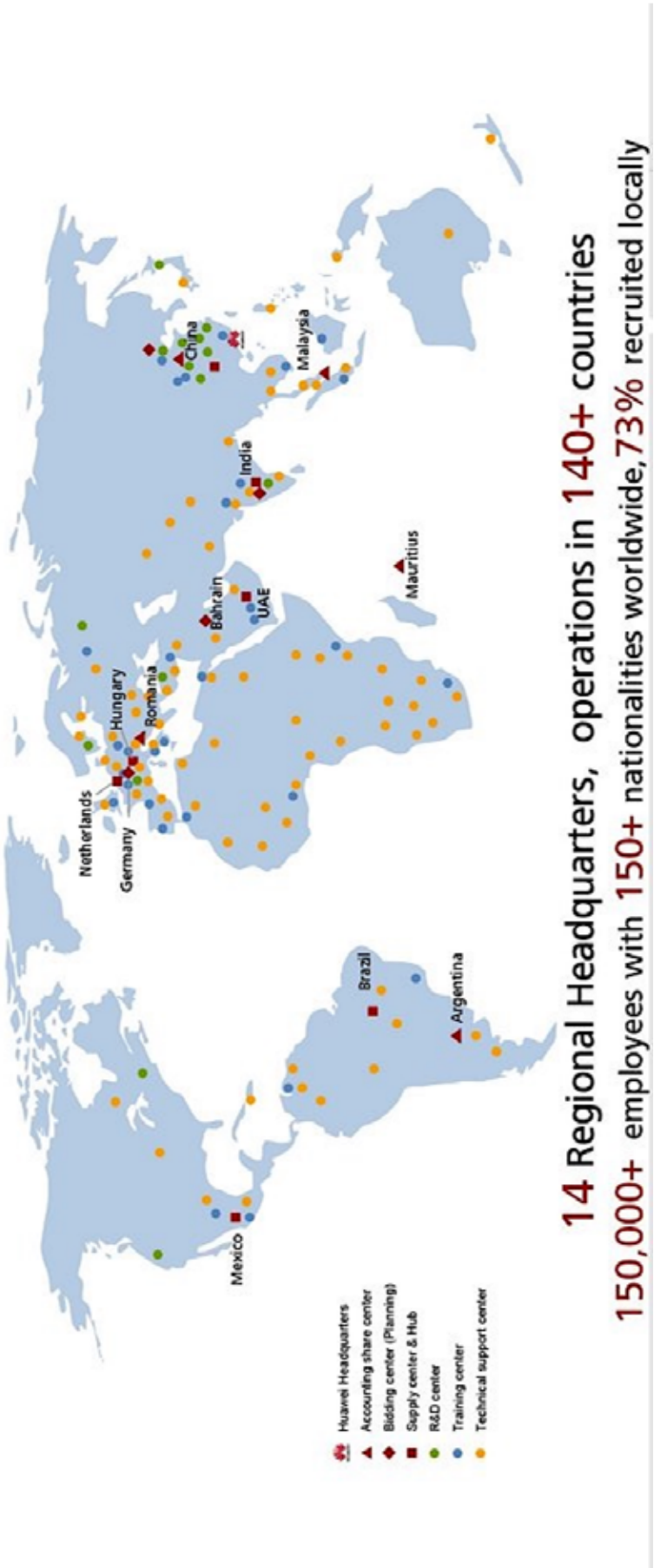
Resource 7 for Question 2

Mass Movement in Southern Taiwan after Typhoon Morakot



Resource 8 for Question 3

Huawei's Global Production Network



Resource 9 for Question 3

Market share ranking of Smartphone brands based on annual global production volume

Rankings	2015 Company	Market Share	2016 Company	Market Share	2017 Company	Market Share
1	Samsung	24.70%	Samsung	22.80%	Samsung	22.60%
2	Apple	18.20%	Apple	15.30%	Apple	15.60%
3	Huawei	8.30%	Huawei	9.60%	Huawei	11.10%
4	Lenovo	5.40%	OPPO	7.20%	OPPO	8.50%
5	LG	5.20%	BBK/vivo	6.00%	BBK/vivo	7.10%

Resource 10 for Question 3

Article on Huawei in India

Huawei sets up biggest global service centre in Bangalore, invests Rs 136 crore

Huawei is setting up its biggest Global Service Centre (GSC) in Bangalore at an investment of Rs 136 crore ($21,309,934 USD).

The new GSC will to support Huawei's domestic and international telecom carrier customers in 30-plus markets across Asia, Africa and Middle East. It will handle over 50 projects across these global markets.

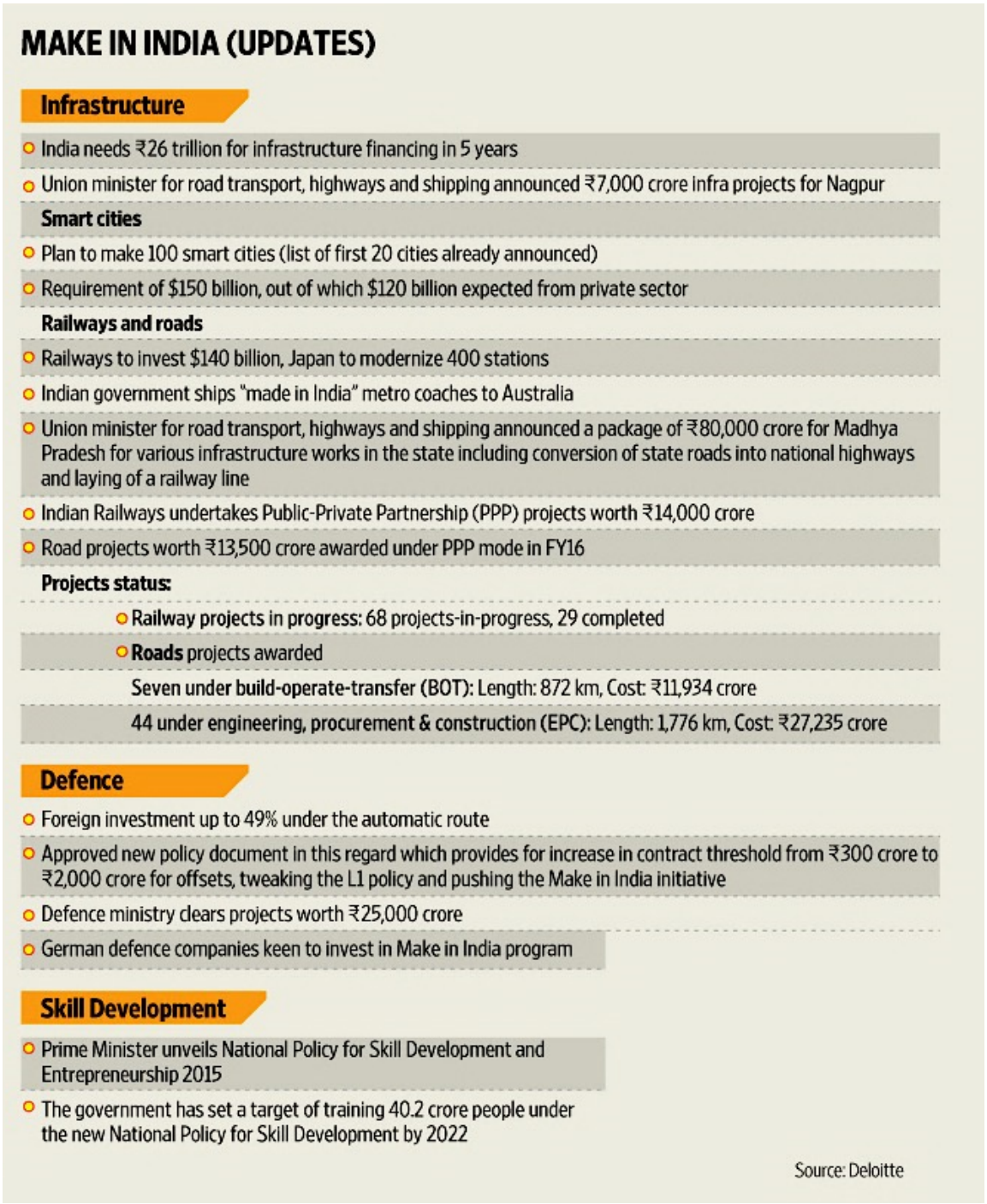
"Some 1,000-odd techies, comprising engineers and network operations specialists at the GSC will deliver the gamut of network monitoring/management related services to clients in India and overseas markets," Huawei India CEO Jay Chen said Friday.

The new GSC, he said, supports Huawei's `Make In India vision' by harnessing local talent, coupled with the infusion of hi-tech R&D expertise".

Source:http://economictimes.indiatimes.com/articleshow/53875236.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Resource 11 for Question 3

India's 'Make In India' Initiative



MAKE IN INDIA (UPDATES)

Infrastructure

- India needs ₹26 trillion for infrastructure financing in 5 years
- Union minister for road transport, highways and shipping announced ₹7,000 crore infra projects for Nagpur

Smart cities

- Plan to make 100 smart cities (list of first 20 cities already announced)
- Requirement of $150 billion, out of which $120 billion expected from private sector

Railways and roads

- Railways to invest $140 billion, Japan to modernize 400 stations
- Indian government ships "made in India" metro coaches to Australia
- Union minister for road transport, highways and shipping announced a package of ₹80,000 crore for Madhya Pradesh for various infrastructure works in the state including conversion of state roads into national highways and laying of a railway line
- Indian Railways undertakes Public-Private Partnership (PPP) projects worth ₹14,000 crore
- Road projects worth ₹13,500 crore awarded under PPP mode in FY16

Projects status:

- **Railway projects in progress:** 68 projects-in-progress, 29 completed
- **Roads** projects awarded

Seven under **build-operate-transfer (BOT):** Length: 872 km, Cost: ₹11,934 crore

44 under **engineering, procurement & construction (EPC):** Length: 1,776 km, Cost: ₹27,235 crore

Defence

- Foreign investment up to 49% under the automatic route
- Approved new policy document in this regard which provides for increase in contract threshold from ₹300 crore to ₹2,000 crore for offsets, tweaking the L1 policy and pushing the Make in India initiative
- Defence ministry clears projects worth ₹25,000 crore
- German defence companies keen to invest in Make in India program

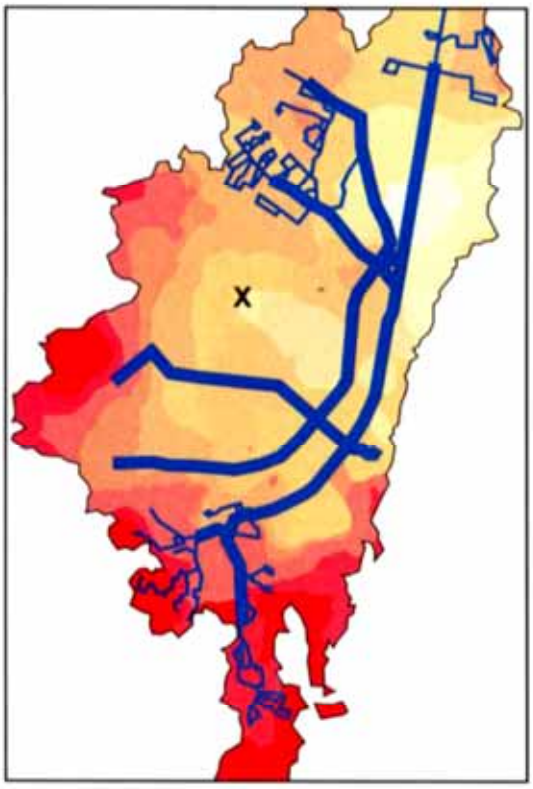
Skill Development

- Prime Minister unveils National Policy for Skill Development and Entrepreneurship 2015
- The government has set a target of training 40.2 crore people under the new National Policy for Skill Development by 2022

Source: Deloitte

Resource 12 for Question 4

The TransMilenio network



Key

TransMilenio route

feeder route

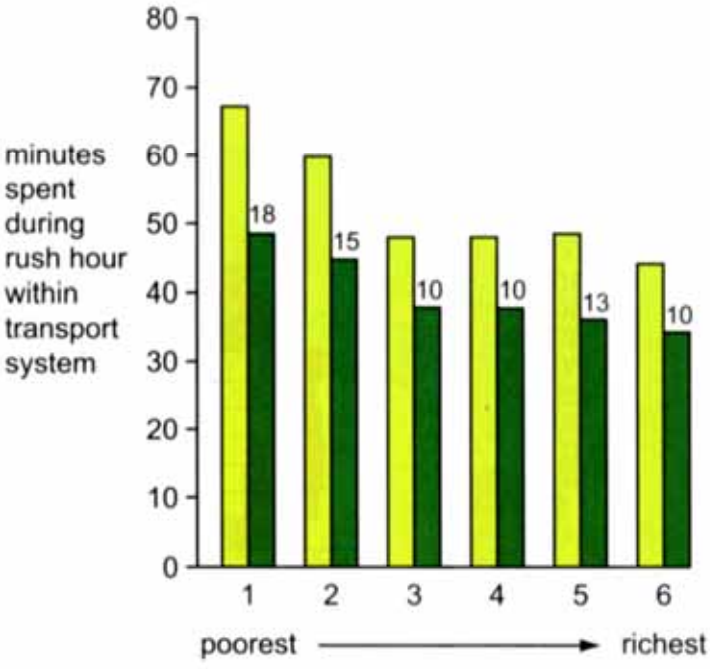
city boundary

residential poverty

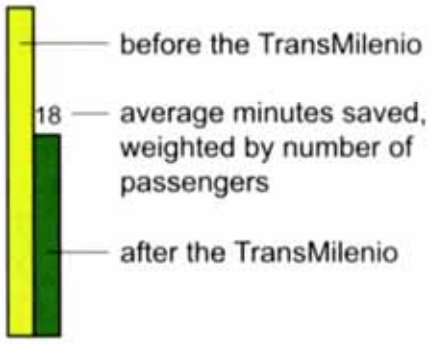
low → high

Resource 13 for Question 4

Effects on journey times



Key



Resource 14 for Question 4
Photograph of the BRT during morning rush hour



END OF PAPER

PIONEER JUNIOR COLLEGE
JC2 Preliminary Examination
Higher 2

GEOGRAPHY 9751/02

Paper 2 Data Response Questions 15 September 2017

3 hours

Additional Materials: Writing Paper
World outline map

READ THESE INSTRUCTIONS FIRST

Write your Name, Class and Index Number on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do no use staples, paper clips, glue or correction fluid.

Answer **ALL** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagram and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A

Theme 4: Geographical Investigation

1 A group of 24 eighteen-year-old students from Singapore wanted to examine the needs of the elderly in different neighbourhoods in Singapore. They had access to census and survey information on geographical spread of elderly residents aged 65 and above, elderly living arrangements in Singapore, their sources of social activity and whether elderly friendly fixtures were available in their homes.

The students wanted to obtain more information on specific neighbourhoods by assessing the needs of the elderly in Ang Mo Kio and Sengkang in terms of physical infrastructure in these neighbourhoods as well as social needs. They were allocated three days for field investigation. The three days were spread across the beginning, in the middle and at the end of November 2016.

Resource 1 shows the proportion of elderly population by planning area in 2016. Resource 2 shows proportion of households having elderly friendly fixtures in 2011. Resource 3 shows sources of social activity amongst the elderly in 2014. Resource 4 shows living arrangement of elderly by age in 2011.

(a) Suggest a suitable research question for the students' investigation. [1]

(b) With reference to Resource 1, outline why Ang Mo Kio and Sengkang are appropriate locations for the students' research. [4]

(c) Suggest a plan for the students to investigate needs of the elderly in Ang Mo Kio and Sengkang. [7]

(d) With reference to Resource 4, sketch a bar chart to represent living arrangements of the elderly in Singapore. [4]

(e) Evaluate the usefulness of Resources 2, 3 and 4 in understanding the needs of the elderly in Singapore. [9]

Section B

Theme 1: Tropical Environments

Typhoon Morakot in Taiwan

2 Resource 5 shows the path of Tropical Cyclone Morakot which crossed the South China Sea in August 2009. Resource 6 shows the effects of Typhoon Morakot on rainfall and discharge at various rainfall stations across Taiwan. Resource 7 shows a photograph of a mass movement that occurred in Southern Taiwan during Tropical Cyclone Morakot.

Commented [CKL1]: Are there 2 separate issues? Rainfall and Landslide?

(a) Describe the development and passage of Typhoon Morakot as seen in Resource 5. [5]

(b) With reference to Resource 5 and your own knowledge, suggest how tropical storms are generated. [6]

(c) With reference to Resource 6, explain how Typhoon Morakot could have impacted the river channels in Taiwan. [5]

(d) With reference to Resources 6, 7 and your own knowledge, discuss the role of Typhoon Morakot in triggering the mass movement as seen in Resource 7. [9]

Theme 2: Development, Economy and Environment

Huawei's Global Production Network

3 Huawei Technologies is a Chinese transnational networking and telecommunications equipment and services company headquartered in Shenzhen, Guangdong. Resource 8 shows the spatial organisation of Huawei's firm activities. Resource 9 depicts market share rankings of Top 5 smartphone brands. Resource 10 shows an article of Huawei opening a Global Service Centre in India. Resource 11 shows updates on the Indian government's 'Make in India' initiatives.

(a) With reference to Resource 8, describe the spatial organisation of Huawei's operations. [3]

(b) Suggest two reasons for the locations of Huawei's supply centers and hubs shown in Resource 8. [4]

(c) Explain why Huawei's market share of smartphones could have changed as shown in Resource 9. [5]

(d) With reference to Resource 10, explain the economic impacts of Huawei's Global Service centre on India. [5]

Commented [CKL2]: Impact or impacts?

(e) Using Resource 11 and your own knowledge, assess the influence of 'Made In India Initiatives' on TNCs such as Huawei. [8]

Theme 3: Sustainable Development

Urban transport in Bogota, Columbia

4 TransMilenio is a Bus Rapid Transit (BRT) system that serves Bogotá, the capital of Colombia which is a Less Developed Country in South America. Resource 12 shows the layout of the TransMilenio network. Resource 13 shows the TransMilenio's effects on journey times. Resource 14 shows a photograph of the BRT during the morning rush hour.

(a) Describe the feeder routes shown in Resource 12. [3]

(b) Suggest two reasons for the absence of TransMilenio routes in 2008 in the area marked X on Resource 12. [4]

(c) Explain how the BRT system depicted in Resource 14 can ease traffic congestion. [5]

(d) Outline the challenges that cities face in implementing public transport measures such as the BRT system as shown in Resource 14. [5]

(e) Bogotá's policy of urbanisation includes meeting the needs of the city's 3 million poor. To what extent do Resources 12 and 13 support the view that the TransMilenio has helped the poor more than the rich? [8]

Commented [CKL3]: Need to spell in full?

Commented [CKL4]: Qn 3b was '2'.
Pls align – either spell or number

2017 Preliminary Exams
H2 Geography Paper 1 Marking Guide
All essays to be marked according to these generic level descriptors:

A H2 Generic Level Descriptors for 12m SEQ sub-part (a)

Level	Marks	Descriptors
4	10–12	Response is consistently analytical and comprises purposeful explanations. Response addresses the question fully using accurate and detailed knowledge. Depth of relevant knowledge and understanding is evident throughout. Response is coherent and use of terminology is accurate throughout.
3	7–9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates relevant knowledge and understanding. The response is coherent and the use of terminology is mostly accurate.
2	4–6	Response includes analysis and explanation but is generally dominated by description. Response reflects understanding of the question and is generally relevant. Some parts of the response may be unclear. Use of terminology is limited.
1	1–3	Response lacks focus on the question. Response is generally fragmentary and lacks a clear structure and organisation. There may be many unsupported, brief or incomplete assertions and/or arguments with some inaccurate use of terminology.
0	0	No creditworthy response.

Note: The assessment involves qualitative rather than quantitative evaluation. Judgements on the level to be awarded to an answer will be based on the principle of 'best fit' determined by the descriptors within each level.

B H2 Generic Level Descriptors for 20m SEQ sub-part (b)

Level	Marks	Descriptors
5	17–20	Response is perceptive, logical and has strong evaluative elements. Evaluation is relevant and comprehensive. Strong evidence of synoptic thinking where knowledge from different topics is synthesised purposefully. Response fully addresses the demands of the question and features detailed and accurate knowledge reflecting depth of understanding of the subject content. The argument or discussion is coherent and well supported by relevant material. Use of terminology is accurate.
4	13–16	Response displays a sound evaluative element . There is some evidence of synoptic thinking through synthesising knowledge from different topics. Response is generally focussed on the demands of the question and features accurate knowledge, reflecting depth of understanding of the subject content. The argument or discussion is coherent and supported by relevant material. Use of terminology is accurate and appropriate.
3	9–12	Response is broadly evaluative rather than descriptive. Response addresses the question and features accurate knowledge, reflecting some understanding of the subject content. Argument or discussion is mainly coherent and supported by material which is largely relevant. Use of terminology is relevant and mostly accurate.
2	5–8	Response is largely descriptive. Response attempts to provide an argument to address the question. The weakest responses in this level may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Some lapses in use of terminology though generally accurate.
1	1–4	Response lacks focus on the question and may be largely irrelevant to it. Response is fragmentary and lacks clarity. There may also be unsupported assertions and/or arguments with limited or no use of relevant terminology.
0	0	No creditworthy response.

Note: The assessment involves qualitative rather than quantitative evaluation. Judgements on the level to be awarded to an answer will be based on the principle of 'best fit' determined by the descriptors within each level.

Section A – Tropical Environments

Answer **one** question from this section.

1 (a) Explain the climatic characteristics of tropical desert (BWh) climates. [12]

Commented [CKL1]: Should this entire page be in Font Size 12?

Indicative content:

- Climatic characteristics: temperature, rainfall, to look at annual amount and fluctuation patterns
- Temperature
  - Description: Annual temperature: fluctuating, Large diurnal temperature range
  - Explanation: due to shift in position of overhead sun, high sun vs low sun season, cloud cover to explain the diurnal temperature range
- Rainfall
  - Description: Low annual rainfall, episodic rainfall
  - Explanation: dominance of STHP, episodic rainfall due to localised convectional activity, unexpected roaming of low pressure cells which could be triggered by climate change

- Higher level responses to show spatial differences in the different tropical desert characteristics where some deserts may experience higher rainfall due to orographic rainfall at windward side or lower rainfall due to cold ocean currents

(b) To what extent does climate affect the formation of aeolian landforms in the arid tropics? [20]

Indicative content:

- Candidates should **ONLY** focus on **Aeolian erosional and depositional landforms** and not the fluvial ones.
- Aeolian erosional landforms: yardangs, desert pavement, ventifacts and Aeolian depositional landforms: sand dunes and loess deposits
- Climatic factors would include wind, rain and temperature
- Other factors: rock geology, mass movements, climate change and anthropogenic activities
- Higher level responses will evaluate the role of wind (in relation to other factors) with spatial and temporal variations in the landforms created, i.e. in terms of scale and morphology (shape and size of landforms)
- Opportunities for synoptic link: Theme 2.2 Development of Extractive industries and impact on landform formation, Theme 3.2 Urbanisation and impact of landform formation

2 (a) Explain the effects of tropical deforestation in countries at lower levels of development. **[12]**

Indicative content:

- Candidates should explain effects of deforestation on developing countries such as landslides, soil erosion and sedimentation, disruption of ecosystems and loss of biodiversity, disruption of biogeochemical cycles and release of stored carbon.
- Good examples to utilize will be rapid deforestation which has taken place in Indonesia and countries traversing the Amazon rainforest such as Brazil, Peru, Bolivia and Ecuador.
- Higher level responses will include an analysis of why countries at lower levels of development are more likely to suffer from the LT impacts of such widespread deforestation and acknowledge the balance that must be reached between development and the environment.

- Suggested points
  - **Disruption of ecosystems/habitats**
  - **Soil erosion**
  - **Landslides**
  - **Release of stored carbon**
  - **Disruption of biogeochemical cycles**

(b) Discuss the strategies to manage tropical deforestation. **[20]**

Indicative content:

- Candidates should discuss and assess the effectiveness of various strategies to manage deforestation which includes international, national as well as strategies on a community level. This can include legislation, designation of protected areas, reforestation etc
- Higher level responses will highlight the dilemma between development and the environment when it comes to developing countries. Deforestation is often due to clearing areas for agriculture, urban/industrial expansion and therefore there is often a conflict. There is often a tendency to pass the blame to developing countries but loss of forest cover may be larger in developed countries.

Strategies can include:

- **International strategies like REDD+**
- **Engaging in more sustainable practices**.
- **Role of NGOs and TNCs (can be synoptic link) in reducing deforestation and logging**
- **Individual level:** Making informed daily choices by reducing consumption, eating sustainable food, and choosing recycled or certified sustainable wood products.

Opportunities for synoptic link: Theme 2.1 Role of govt/TNC/NGOs, Theme 2.2 Extractive industries, Theme 3.1 Sustainable Development

Section B – Development, Economy and Environment

Answer **one** question from this section.

Commented [CKL2]: Pls repeat this instructions for all the sections below

3 (a) Explain the factors influencing resource appraisal in resource-rich countries. **[12]**

Indicative content:

- Candidates can discuss the role of cultural (e.g. perception of gold elevating market values in India), socioeconomic (income levels, education, profitability), technological (e.g. whether sufficient technology is available to extract resources like oil in Nigeria and diamonds in Tanzania) and political factors (national resource policies and IOs like OPEC) in affecting the appraisal of resources in resource rich countries.
- Higher level responses will analyse these factors and weigh the relative influence of these factors in resource rich countries. They may acknowledge temporal variations in the appraisal of resources (e.g. the value of cobalt due to its usage in smartphone batteries)

(b) 'Resources should be a blessing, not a curse. They can be, but it will not happen on its own. And it will not happen easily.' (The Guardian, 2012) **[20]**

To what extent do you agree with this statement with respect to resource rich countries?

Indicative content:

- Candidates should be able to discuss how resources can be a blessing to resource rich countries which can utilize them to their advantage to pursue development. At the same time, they should be able to discuss the challenges associated with doing so (price volatility, governance, overdependence on a narrow economic base etc)
- They should also include a discussion of why often resources may end up to be a 'curse' in many resource rich countries.
- Higher level responses will include spatial and temporal variations in terms of resource rich countries undergoing economic development and growth.
- Opportunities for synoptic link: Theme 2.1 Role of government/ TNCs, Theme 3.1 Sustainable Development, Theme 1.2 Deforestation

4 (a) Explain the impact of privatisation of water resources in lower income countries. **[12]**

Indicative content:

- Candidates should be able to explain both positive as well as negative impacts of privatisation of water resources in the context of lower income countries (which may be characterised with weak or inefficient governance, high level of debts or lack of funds)
- Positive impacts can include greater efficiency of provision, larger funds for provision of infrastructure such as piped water etc
- Negative impacts can include increased water prices which could lead to lack of access for lower income groups, disregard for environmental concerns in extraction of water etc
- Higher level responses should be able to weigh these impacts in relation to examples that they have studied and analyse the impact of

privatisation. They could present alternative solutions such as public-private partnerships or role of NGOs/international agencies

(b) 'Water conservation is the key to managing water scarcity.' To what extent do you agree with this view? **[20]**

Indicative content:

- Candidates should be able to discuss the role of water conservation in managing water scarcity with reference to various countries which have implemented these measures and seen different levels of success. They should consider both absolute and relative scarcity and evaluate the role of conservation in tackling scarcity. Issues of mindset, sustainability of schemes to conserve water etc can be considered as well
- They should also consider alternative measures such as desalination, treatment of used water (Newater) which are increasingly used in countries to increase their potable water supply.
- On the other hand, conservation schemes may do little to address issue of relative water scarcity that many developing countries faced where they lack resources/technology/funds to access the water available. In these cases, perhaps the role of private firms, international organizations, NGOs can be considered to assist in water provision.
- Higher level responses can consider the challenges of managing water scarcity in the long term as a result of global concerns such as climate change, rapid population growth etc which can exacerbate the issue of scarcity. They can also acknowledge spatial variations in issues of scarcity which cannot be addressed through conservation alone.
- Opportunities for synoptic link: How climate change can threaten water supplies and cause scarcity (3.1) / sustainable development (3.1)/ role of government (2.1)

Section C – Sustainable Development

Answer **one** question from this section.

5 (a) Explain the effects of climate change on sustainable development of countries at lower levels of development. **[12]**

Indicative content:

- Candidates can discuss social, economic and environmental effects of climate change in countries at lower levels of development. Sustainable development incorporates all 3 dimensions.
- Social (loss of homes/lives, disrupts way of life, health concerns due to spread of diseases like malaria etc)
- Economic (Loss of livelihoods due to threats to agricultural production, destruction of property/infrastructure due to floods etc)
- Environmental (Impact on ecosystems, animals, plants etc)
- Link must be made to sustainable development (e.g. social justice, LY implications etc)
- Specific locational examples should be incorporated when explaining the effects

- Higher level responses could analyse these factors and discuss why climate change is likely to affect countries at lower levels of development more adversely and threaten their long term developmental prospects

(b) 'Utilizing alternative energy sources is the most promising measure to combat against climate change.' To what extent do you agree with this statement? **[20]**

Indicative content:

- Candidates should evaluate the use of alternative energy sources such as solar and wind energy and demonstrate an understanding of both benefits and limitations.
- Candidates should acknowledge that utilising alternative sources of energy may be just one solution and it needs to be complemented with other measures as well for managing climate change such as international agreements to cur carbon emissions or adaptation measures such as drought resistant crops or managing coastline retreat.
- A higher level response would acknowledge spatial and temporal variations in tackling climate change with financing and technology as a key concern for lower income countries. Candidates can also question whether it is even possible to combat against climate change.
- Opportunities for synoptic link: 2.1 Role of govt/international organizations in embarking on strategies to cope with climate change, 2.2 dam construction, 2.1 Variations in development of countries

6 (a) Explain the difficulties of measuring urban liveability. **[12]**

Indicative content:

- Candidates can explain why it is difficult to define and measure urban liveability due to these considerations:
  - Deciding on which factors need to be considered in measurement
  - Varying perceptions amongst age and income groups
  - Difficulty of assigning a value to intrinsic factors which cannot be quantified/measured (e.g. fear of crime)
  - Difficulty of tracking changes over time
  - Difficulty of establishing common standards of comparison across cities of differing developmental levels.
  - There could be spatial variations within cities, even across neigbourhoods
- Higher level responses will analyse these difficulties and provide a rational for why it may still be important to measure urban liveability. They could also consider liveability at different scales such as between cities, within cities, between neighbourhoods etc

(b) With reference to one social group in cities, evaluate the strategies that have been undertaken to improve the liveability of urban areas. **[20]**

Indicative content:

- Candidates can choose either the elderly or disabled/migrants in order to discuss the strategies undertaken which can include aspects such as transport, living environment, employment etc
- Specific examples must be given of cities and strategies must be evaluated for effectiveness

- Higher level responses should acknowledge spatial variations in these strategies with cities at lower level of development having less of such comprehensive strategies due to different developmental priorities. They could also incorporate intangible aspects such as inclusivity within the city which can affect the liveability of a social group as well.
- Opportunities for synoptic link: 2.1 Role of government, 3.1 Sustainable development and social equity

H2 Prelims 2017 Paper 2
Marking Guide

Section A

Theme 4: Geographical Investigation

1 A group of 24 eighteen-year-old students from Singapore wanted to examine the needs of the elderly in different neighbourhoods in Singapore. They had access to census and survey information on geographical spread of elderly residents aged 65 and above, elderly living arrangements in Singapore, their sources of social activity and whether elderly friendly fixtures were available in their homes.

The students wanted to obtain more information on specific neighbourhoods by assessing the needs of the elderly in Ang Mo Kio and Sengkang in terms of physical infrastructure in these neighbourhoods as well as social needs. They were allocated three days for field investigation. The three days were spread across the beginning, in the middle and at the end of November 2016.

Resource 1 shows the proportion of elderly population by planning area in 2016. Resource 2 shows proportion of households having elderly friendly fixtures in 2011. Resource 3 shows sources of social activity amongst the elderly in 2014. Resource 4 shows living arrangement of elderly by age in 2011.

(a) Suggest a suitable research question for the students' investigation. **[1]**

Award 1 mark for a suitable research question.
Possible research questions include:

- Does Sengkang have higher % of dwellings with elderly friendly fixtures?
- Do the elderly in Ang Mo Kio have more sources of social activity compared to elderly in Sengkang?

(b) With reference to Resource 1, outline why Ang Mo Kio and Sengkang are appropriate locations for the students' research. **[4]**

Award 2 marks for each reason to a maximum of 4 marks.
Possible responses include:

- Ang Mo Kio has the second highest proportion of elderly aged over 65 with 15-20% whilst Sengkang has a low proportion of elderly 5-10% → able to provide a good contrast
- Locations are of close proximity (they are next to each other as seen in Resource 1) → ease of access to conduct research

Point marked.

(c) Suggest a plan for the students to investigate needs of the elderly in Ang Mo Kio and Sengkang. **[7]**

Indicative Content:

- establish the data needed to examine the research question e.g. quantitative data through surveys conducted with elderly or qualitative data through interviews/ focus group discussions with the elderly
- identify appropriate methods for collecting primary and secondary data e.g. using convenience sampling in Ang Mo Kio and Sengkang neighbourhoods to interview/survey elderly or systematic sampling in identified blocks (e.g. every 5th floor) to interview elderly
- consider research ethics e.g. list the key points that would be shared with the interviewees about their research purpose, minimize noise disturbance
- Limitations e.g. reasonable number of hours conducting one-to-one interviews

with elderly for 24 students over three days
- Minimise potential risks in undertaking investigation e.g. stop fieldwork before sunset, use appropriate language during interviews, work in pairs

Levels marked:

Level	Marks	Descriptors
3	**6-7**	Response demonstrates accurate knowledge of geographical investigation methods. Outlines a relevant and coherent plan with reference to data collection, methods, investigation limitations and risk mitigation strategies. Response is relevant to context of question throughout
2	**3-5**	Response demonstrates some knowledge of geographical investigation methods. Outlines a clear plan with some reference to data collection, methods, investigation limitations and risk mitigation strategies. Response is mostly relevant to context of question but may lack clarity and coherence.
1	**1-2**	Response demonstrates limited or no knowledge of geographical investigation methods. Outline of plan is limited and may not refer to one or more of the facets of an investigation in their outline plan. Much of the response may not be relevant to context of question.
0	**0**	No creditworthy response

(d) With reference to Resource 4, sketch a bar chart to represent living arrangements of the elderly in Singapore. **[4]**

For bar graph, 1 mark awarded for each of the following:

- Title
- Accuracy of proportion of sectors/height of bars.
- Clear and relevant labels.
- Axis

(e) Evaluate the usefulness of Resources 2, 3 and 4 in understanding the needs of the elderly in Singapore. **[9]**

- Intro: Opinion/Stand?
- Resource 2 shows that only a quarter of elderly residents have elderly friendly features in their living environment→ shows that there is a lack of infrastructure within the living environment to cater to physical needs of the elderly in Singapore. Moreover, there are variations between the types of households the elderly stay in. 1-2 room households fare the best with 48.5% having elderly friendly features while 4 room households are the worst with only 20.8%. But resource is outdated (2011) and does not show spatial variations amongst different neighbourhoods.
- Resource 3 shows that most important source of social activity for elderly is through family/friends with more 88.9% and 62.4% meeting them at least once a month. However, the frequency is not shown in detail by the source as social needs of the elderly may not be fulfilled by once a month meetups. Therefore frequency of such get-togethers will be more useful in reflecting social needs of the elderly.
- Resource 4 reflects variations in age of the elderly and living environments→ those aged 75 and above are likely to have more healthcare needs as well as need for social support as they are likely to have more health concerns at

an older age. Living arrangements: Elderly living alone will need the greatest support in terms of social needs compared to those living with relatives/nursing homes. The largest % of elderly for 65-74 age group have greater social support as they live with spouse & children/grandchildren. In comparison, the largest % of 75 and above have alternative living arrangements which may highlight very different social and financial needs.

- Though all sources combined reflect some aspects of physical, social needs of the elderly, they may be limited as they reflect Singapore's statistics in general and not location specific. Moreover, they are from 2011 and 2014 which may be outdated.
- Sum up. Reiterate stand

Level	Marks	Descriptors
3	7–9	Response demonstrates accurate knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides a logical and well-developed evaluation, which may include perceptive insights for the strongest responses. Reflects strong critical thinking skills and a good understanding of the requirements of the question.
2	4–6	Response demonstrates good knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides an evaluation, which may be limited in depth and detail. Response reflects critical thinking skills in general but may not always be relevant to the question.
1	1–3	Response shows inadequate knowledge and understanding of geographical investigation skills and methods. Response has some, though limited, relevance to the given context. Provides little or no evaluation. May include material that is irrelevant to the question.
0	0	No creditworthy response.

Note:

1. The assessment involves qualitative rather than quantitative evaluation. Judgements on the level to be awarded to an answer will be based on the principle of 'best fit' determined by the descriptors within each level.

2. The descriptors in each level may be worded differently in actual assessment to link them more to the questions set. However, regardless of the wordings used, the quality of responses expected of candidates in each level would not deviate from that stated in the generic level descriptors.

Section B

Theme 1: Tropical Environments

Typhoon Morakot in Taiwan

2 Resource 5 shows the path of Tropical Cyclone Morakot which crossed the South China Sea in August 2009. Resource 6 shows the effects of Typhoon Morakot on rainfall and discharge at various rainfall stations across Taiwan. Resource 7 shows a photograph of a mass movement that occurred in Southern Taiwan during Tropical Cyclone Morakot.

Commented [CKL1]: Are there 2 separate issues? Rainfall and Landslide?

(a) Describe the development and passage of Typhoon Morakot as seen in Resource 5. [5]



- Typhoon Morakot was formed in the Pacific Ocean and it developed and travelled towards Taiwan and China in the western direction
- Typhoon Morakot started in 3 August as a tropical depression in the Pacific Ocean
- The typhoon increased in size to tropical storm on 4 August and upgaded to Typhoon 1 on 6 August and Typhoon 2 on 7 August.
- It downgraded to tropical storm as it passed East China Sea and made landfall at Fujian, China on 9 August.
- It downgraded further from tropical storm to tropical depression as it advanced to Zhejiang on 10 August.

Point marking. Answer to include the 1) start and 2) passage/route, general direction, 3) development in terms of size.

(b) With reference to Resource 5 and your own knowledge, suggest how tropical storms are generated. [6]

Answer to include both surface and atmospheric conditions (to elaborate on 2-3 conditions with relation to resource)

Atmospheric conditions favouring the development of tropical cyclone

(a) A location at least 5° N or S of equator.
(b) A location on the western side of oceans [can relate to Resource where cyclone was initiated on the western side of the Pacific Ocean]

(c) The presence of an upper atmosphere air rotation which spreads air outwards (anticyclonic circulation).

(d) The absence of a vertical wind shear

Surface conditions favouring the development of tropical cyclone

(e) A location over the sea with sea surface temperatures above 27°C. [can relate to the warm Pacific Ocean]

Level	Marks	Descriptors
3	**5-6**	**Response demonstrates accurate knowledge of conditions of cyclone. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.**
2	**3-4**	**Response demonstrates adequate knowledge and understanding of the conditions of cyclone. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.**
1	**1-2**	**Response demonstrates limited or no knowledge and understanding of the conditions leading to cyclones. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.**

(c) With reference to Resource 6, explain how Typhoon Morakot could have impacted the river channels in Taiwan. [5]

Possible answer:

- Sinan station has the greatest increase in discharge to 27000cms on 10 August (data from resource 6B) with 2600mm of rainfall (data from resource 6A)
- Possible answer: may lead to occurrence of fluvial floods with the large contribution of rainfall on the river

- As seen from Resource 6A, there is a giant landslide in Minsheng station where there is an increase in discharge to 18000cms by 10 August
- Depending on context on the location of the river in relation to the slope where landslide can occur
- Typhoon can lead to occurrence of landslide → landslide can lead to sedimentation in the river → result in displacement of river flow
- Typhoon can lead to fluvial flood, which can undercut the base of the slope and leads to landslide.

Level	Marks	Descriptors
3	**5**	Response demonstrates accurate knowledge of conditions of how cyclone can affect rivers. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	**3-4**	Response demonstrates adequate knowledge and understanding of how cyclone can affect rivers. Explanation is valid but may be

		somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource.
1	**1-2**	Response demonstrates limited or no knowledge and understanding of how cyclone can affect rivers. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.

(d) **With reference to Resources 6, 7 and your own knowledge, discuss the role of Typhoon Morakot in triggering the mass movement as seen in Resource 7.** **[9]**

Indicative content:

Possible mass movement: landslide/mudflow

How excessive rainfall can trigger the occurrence of landslide

- By increasing shear stress and decreasing in shear strength and when shear stress exceeds shear strength, landslide can happen

How excessive rainfall can affect the attributes of the mass movement

- Excessive rainfall increase the water content of the soil, increase the speed of the landslide
- The excessive rainfall can result in a structure-less landmass with a hummocky surface

Other factors can also play a part in leading to the occurrence of the mass movement. These factors play a contributory role to the occurrence of mass movement

- Slope with unconsolidated materials
- Slope with a high angle of repose
- Slope with a weaker rock, more joints
- Human activities such as urbanisation, overloading, steepening, construction etc

Higher level responses would analyse the keyword of trigger and discuss the influence of the typhoon.

Level	Marks	Descriptors
3	**7-9**	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. **OR** • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	**4-6**	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. • Provides and evaluation, which may be limited in depth and insufficient evidence and support used. **OR** • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	**1-3**	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. • Provides little or no evaluation.

		OR • Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.
0	**0**	No creditworthy response.

Theme 2: Development, Economy and Environment

Huawei's Global Production Network

3 Huawei Technologies is a Chinese transnational networking and telecommunications equipment and services company headquartered in Shenzhen, Guangdong. Resource 8 shows the spatial organisation of Huawei's firm activities. Resource 9 depicts market share rankings of Top 5 smartphone brands. Resource 10 shows an article of Huawei opening a Global Service Centre in India. Resource 11 shows updates on the Indian government's 'Make in India' initiatives.

(a) With reference to Resource 8, describe the spatial organisation of Huawei's operations. **[3]**

Possible responses can include:

- Greatest spatial distribution are technical support centres→located in all continents
- Important functions like HQ and R&D largely clustered in China with close to 7 centres here
- All major continents like Asia, Europe, N America and S America have at least 4 different functions located here except for Africa with only 2 functions of technical centres and training centres

Point marked, award 1 mark for each valid response.

(b) Suggest two reasons for the locations of Huawei's supply centers and hubs shown in Resource 8. **[4]**

Possible responses include:

- One supply centre is located in most continents, with 2 in Asia and Europe→ to cater to larger markets in Europe and Asia
- This could also be due to need to save transport costs of materials and goods and to have a ready stock to cater to changing demands in a regional market
- Could be due to a need to cater to different tastes and preferences of products in different markets

Point marked, award 2 marks for each elaborated response.

(c) Explain why Huawei's market share of smartphones could have changed as shown in Resource 9. **[5]**

Indicative content:

- Huawei is No 3 smartphone manufacturer in terms of market size, however, has increased its market share from 8.3% to 11.1% within 3 years
- This could be due to various reasons such as
  - Reaching out to more countries in terms of marketing and sales
  - Improving in product quality
  - Pricing product competitively relative to close competitors like Apple and Samsung
  - Catering to local tastes and preferences in terms of advertisements/product specifications

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of Huawei as a TNC and market share. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of Huawei as a TNC and market share Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource,
1	1-2	Response demonstrates limited or no knowledge and understanding of Huawei as a TNC and market share. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.
0	0	No creditworthy response

(d) **With reference to Resource 10, explain the economic impacts of Huawei's Global Service centre on India.** **[5]**

Commented [CKL2]: Impact or impacts?

Indicative content:

- Increased FDI can contribute to more economic revenue to be channelled to various sectors
- Increased employment with more than 1000 'techies' employed in higher skilled jobs such as engineering and IT
- Multiplier effect→ could attract other related industries to locate in India which can generate more revenue and employment
- Training of workforce
- Caters to market in Asia, Middle east, Africa→ increases global prescence, connectivity

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of **economic impacts of Huawei's Global Service centre on India.** Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of **economic impacts of Huawei's Global Service centre on India.** Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource,
1	1-2	Response demonstrates limited or no knowledge and understanding of **economic impacts of Huawei's Global Service centre on India.** Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.
0	0	No creditworthy response

Commented [CKL3]: Impact or impacts?

Commented [CKL4]: Impact or impacts?

Commented [CKL5]: Impact or impacts?

(e) **Using Resource 11 and your own knowledge, assess the influence of 'Make In India Initiatives' on TNCs such as Huawei.** **[8]**

Indicative content:

- Opinion/stand?
- Make in India initiatives can exert a positive influence on TNCs such as Huawei and increases attractiveness of India as a destination
    - Investment in transport networks such as roads and shipping (7000 crore) will improve efficiency in transporting finished products
    - Smart cities will allow greater technological infrastructure which can enhance communication networks for TNCs
    - Increased investment in defence→ can improve safety/security of

FDI
  - National policy for skills development→ improve quality of labour force which can be attractive for TNCs
- However:
  - Remains to be seen whether projects will be completed as in plan→ bureaucracy, inefficiencies in implementing programs such as transport improvements and training people
  - There could be spatial differences in such improvements where only some areas could benefit from these initiatives→ TNCs located in other areas may not be influenced by such initiatives
  - TNCs may not find these initiatives the main reason (or influential enough) for investing in India→ there could be other more important considerations such as political stability, labour cost, land cost, large market size etc
- Sum up

Level	Marks	Descriptors
3	7-8	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. **OR** • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. • Provides and evaluation, which may be limited in depth and insufficient evidence and support used. **OR** • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. • Provides little or no evaluation. **OR** • Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.
0	0	No creditworthy response.

Theme 3: Sustainable Development

Urban transport in Bogota, Columbia

4 TransMilenio is a Bus Rapid Transit (BRT) system that serves Bogotá, the capital of Colombia which is a Less Developed Country in South America. Resource 12 shows the layout of the TransMilenio network. Resource 13 shows the TransMilenio's effects on journey times. Resource 14 shows a photograph of the BRT during the morning rush hour.

Commented [CKL6]: Need to spell in full?

(a) Describe the feeder routes shown in Resource 12. [3]

Possible responses can include:

- Network of feeder routes do not cover the entire city, only a dense network at Northwest part of the city and South & Southwest part of the city
- Northern part of the city is where the residential poverty is moderate whilst Southern part of the city, residential poverty is high

- Central portion of Transmilenio route is not supported by feeder routes.
- At the northern portion, feeder routes are more grid like and more complex in pattern whilst in the Southern portion, it is more branch like

Award 1 mark for each valid point.

(b) **Suggest two reasons for the absence of TransMilenio routes in 2008 in the area marked X on Resource 12.** **[4]**

Possible responses can include:

- The area marked X is a place of low residential poverty which may be home to high income earners. Bus rapid transport may perhaps be secondary or insignificant to them as they may have private car ownership. This therefore defeats the purpose of establishing the bus transit
- Could be a very low residential population making investment in the TransMilenio there not worthwhile
- Environmental reason for its absence from X, such as a protected environment, or steep terrain making construction difficult.

Award 2 marks for each elaborated reason.

(c) **Explain how the BRT system depicted in Resource 14 can ease traffic congestion.** **[5]**

Indicative content:

- Dedicated bus lanes for BRT system→ eases traffic congestion as traffic flow is not impeded by other vehicles
- BRT→ can accommodate more people on the buses (seen in resource with a larger sized bus, many buses in line)→ less people using private transport→ less congestion
- Overhead pass to direct passengers to board buses→ reduces human traffic on the roads→ may ease traffic congestion

Level	Marks	Descriptors
3	**5**	Response demonstrates accurate knowledge of BRT system and traffic congestion. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	**3-4**	Response demonstrates adequate knowledge and understanding of BRT system and traffic congestion. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource,
1	**1-2**	Response demonstrates limited or no knowledge and understanding of BRT system and traffic congestion.. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.
0	**0**	No creditworthy response

(d) **Outline the challenges that cities face in implementing public transport measures such as the BRT system as shown in Resource 14.** **[5]**

Indicative content:

- Challenges in accommodating to populations in cities, especially those with rapidly growing populations in less developed countries. As seen in the resource, long queues of people for the buses
- Challenges in maintaining the BRT system due to need for financing and manpower as large volumes of buses are needed and they need to be serviced regularly
- Challenges in convincing people to use the system as it requires a mindset change from people able to afford private vehicles

Commented [CKL7]: Qn 3b was '2'.
Pls align – either spell or number

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of implementation of public transport. Explanation is detailed, thorough and relevant. Reference made to resource in response and information from resource used to substantiate response.
2	3-4	Response demonstrates adequate knowledge and understanding of implementation of public transport. Explanation is valid but may be somewhat limited in relevance and detail. Some of the response may not fully address the context of the question. Limited reference made to resource,
1	1-2	Response demonstrates limited or no knowledge and understanding of implementation of public transport. Explanation lacks detail. Overall the response does not the address the context of the question. No reference made to resource.
0	0	No creditworthy response

(e) **Bogotá's policy of urbanisation includes meeting the needs of the city's 3 million poor. To what extent do Resources 12 and 13 support the view that the TransMilenio has helped the poor more than the rich?** **[8]**

- Stand/opinion?
- In Resource 12 the TransMilenio serves areas inhabited by moderate poverty in the North and high poverty in the South
- In Resource 12, no feeder routes are reaching out to the higher income residential areas
- In Resource 13, the poorest saved more minutes off their journeys (18) than the richest (10)
- However in Resource 12 some of the areas of highest residential poverty (the red) were not served by the TransMilenio at all, such as in the extreme west and the extreme south of Bogotá.
- Also using Resource 13 journey times remained significantly longer for the poor (approximately 48 minutes) than for the rich (36 minutes), even though they had been shortened; or that categories 3, 4 and 6 all saved 10 minutes' journey time.
- Higher level responses can be distinguished by further comments, such as on the limitations of the evidence (for instance, giving time but not cost information); or the use of averages, such as the lived experience of the poor or the rich may be much better or worse than that given.

Level	Marks	Descriptors
3	7-8	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response. • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. **OR** • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response. • Provides and evaluation, which may be limited in depth and insufficient evidence and support used. **OR** • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1-3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited, relevance to the question. Source(s) is not used or not accurately used to support the response. • Provides little or no evaluation. **OR** • Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders.

0	**0**	No creditworthy response.

Raffles Institution

2017 Year 6 Preliminary Examination

Level: Year 6 **H2 GEOGRAPHY** Time: 3 hours

9751 Paper 1

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READ THESE INSTRUCTIONS FIRST

Write your Index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagram and sketch maps should be drawn whenever they serve to illustrate an answer.
World outline maps will be provided if you request for them. They may be annotated and handed in with the relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Answer every question on a fresh sheet of writing paper.

SECTION A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the effect of the El Nino Southern Oscillation (ENSO) on atmospheric circulation in the tropics. [12]

(b) To what extent is local heating the main factor influencing rainfall in the tropics? [20]

2 **(a)** Explain the processes of erosion in the tropics. [12]

(b) Evaluate the strategies that have been used to manage deforestation in the tropics. [20]

SECTION B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain the relationship between population and resources, with reference to the various theories. [12]

(b) 'Transboundary water conflicts are mainly due to the perception that water is a common property.'

Discuss. [20]

4 **(a)** Explain the considerations when assigning ownership of water resources in countries with different levels of development. [12]

(b) Assess the role of non-state actors in their ability to alleviate the negative impacts of transnational corporations (TNCs). [20]

SECTION C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain the evidence for climate change since the last ice age. [12]

(b) "International cooperation is the only way to solve climate change".

Discuss. [20]

6 **(a)** Explain why the strategies to mitigate the effects of pluvial floods may be more limited in certain cities. [12]

(b) 'Some countries have built their economic success on the exploitation of migrant workers without fairly addressing their needs.'

Discuss. [20]

Raffles Institution
2017 Year 6 Preliminary Examination

Level: Year 6 **H2 GEOGRAPHY** Time: 3 hours
9751 Paper 2

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READ THESE INSTRUCTIONS FIRST:
This Insert contains all the Resources referred to in the question paper.

INSERT

Resource 1 for Question 1

Main attraction	Specific attractions	Operating hours	Entrance fees (SGD)	Costs of building (estimated in SGD)
Gardens by the Bay	• Supertrees • Cloud Forest • Flower Dome	5am – 2am	$8 – $28	$400 million
Marina Bay Sands Hotel	• 2,561-room hotel with Skypark Observation Deck • 120,000m2 Convention Exhibition centre • 74,000m2 The Shoppes at Marina Bay Sands mall, a museum, two large theatres, "celebrity chef" restaurants, two floating Crystal Pavilions, a skating rink • Casino with 500 tables and 1,600 slot m • achines	24 hours	$17 – $23 for visiting Skypark Observation Deck $100 for Singaporeans visiting the Casino	$8 billion
ArtScience Museum	• Seasonal exhibitions, including world famous Van Gogh Alive, The Art of the Brick, Dinosaurs: Dawn to Extinction.	10am – 7pm	$17 – $30	Costs included in Marina Bay Sands Hotel

Resource 2 for Question 1

Attraction	Number of annual visitors (estimated in 2015)
Gardens by the Bay	6.4 million
Marina Bay Sands Hotel	9.1 million
ArtScience Museum	3.7 million

Resource 3 for Question 1

Realising the Marina Bay Vision

The vision for Marina Bay is that of a high-quality, 24/7 live-work-play environment, one that encapsulates the essence of the global city that Singapore can be. The aim is to raise the international profile of Singapore while spurring growth and investment.

The Master Plan for Marina Bay focuses on encouraging a mix of uses – commercial, residential, hotel and entertainment – to ensure that the area is vibrant round the clock. The concept of 'white' site zoning also gives developers more flexibility on the mix of uses for each site, including housing, offices, shops, hotels, recreational facilities and public spaces. Along the waterfront and fronting key open spaces, building heights are kept low to maximise views for developments further away from the waterfront. This enhances their attractiveness and will create a dynamic 'stepped-up' skyline profile and more pedestrian scaled areas.

The successful development of Marina Bay is supported by state-of- the-art infrastructure. To date, the government has pumped in more than S$4.5 billion into the area's development. An extensive road and rail network has also been planned, with three MRT stations to be built in the area as part of the new Downtown rail line.

Bayfront will be linked to Marina Centre by a new vehicular bridge and a 280m dynamic double helix pedestrian bridge – the longest in Singapore. The bridge leads to a new waterfront promenade, creating a continuous walking loop connecting the necklace of attractions and open spaces around the Bay.

Global investors are quick to spot a good opportunity and the Marina Bay project has attracted some S$16.5 billion in private investments to date from investors and developers from the US, Hong Kong, Australia, Europe and the Middle East.

Adapted from URA Skyline publication, Jul-Aug 2008

Resource 4 for Question 1

	Survey Questions
1.	Why have you decided to visit Marina Bay (Gardens by the Bay/MBS/ArtScience Museum)?
2.	How often do you visit this attraction?
3.	What do you like about the attraction?
4.	What don't you like about the attraction?
5.	What needs to be improved about the attraction?
6.	How did you hear about/exposed to this attraction?
7.	After visiting the attraction, does it measure up to your perception of it?

Resource 5 for Question 2



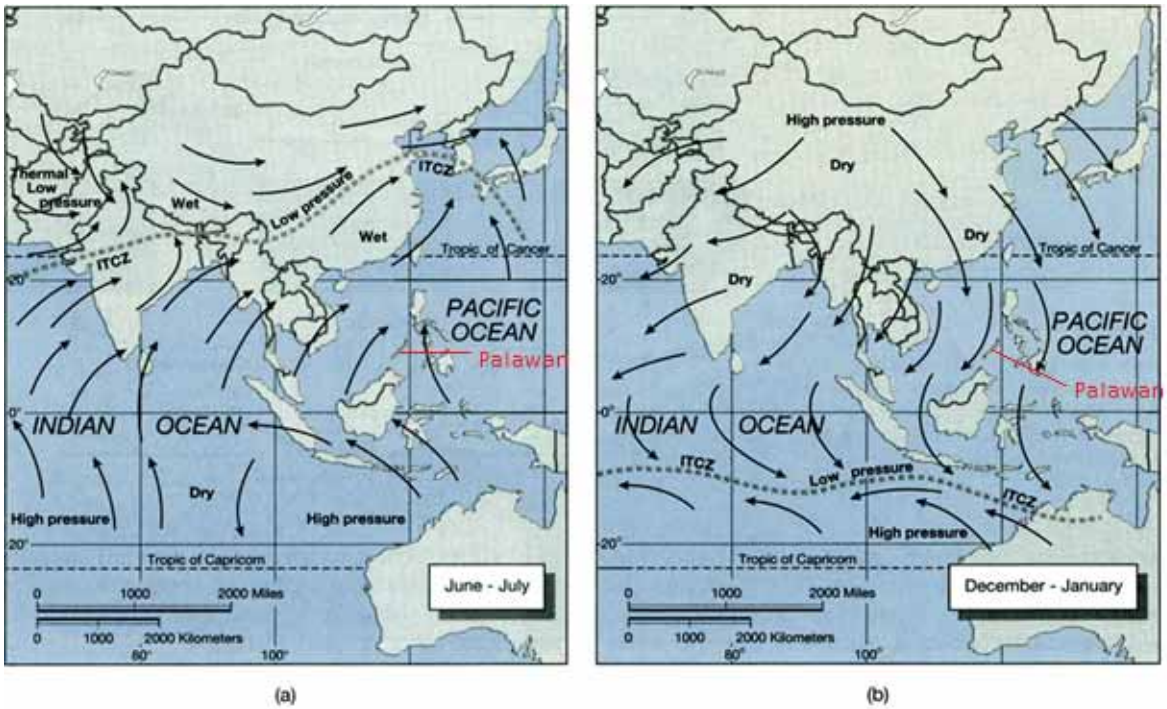
Resource 6 for Question 2



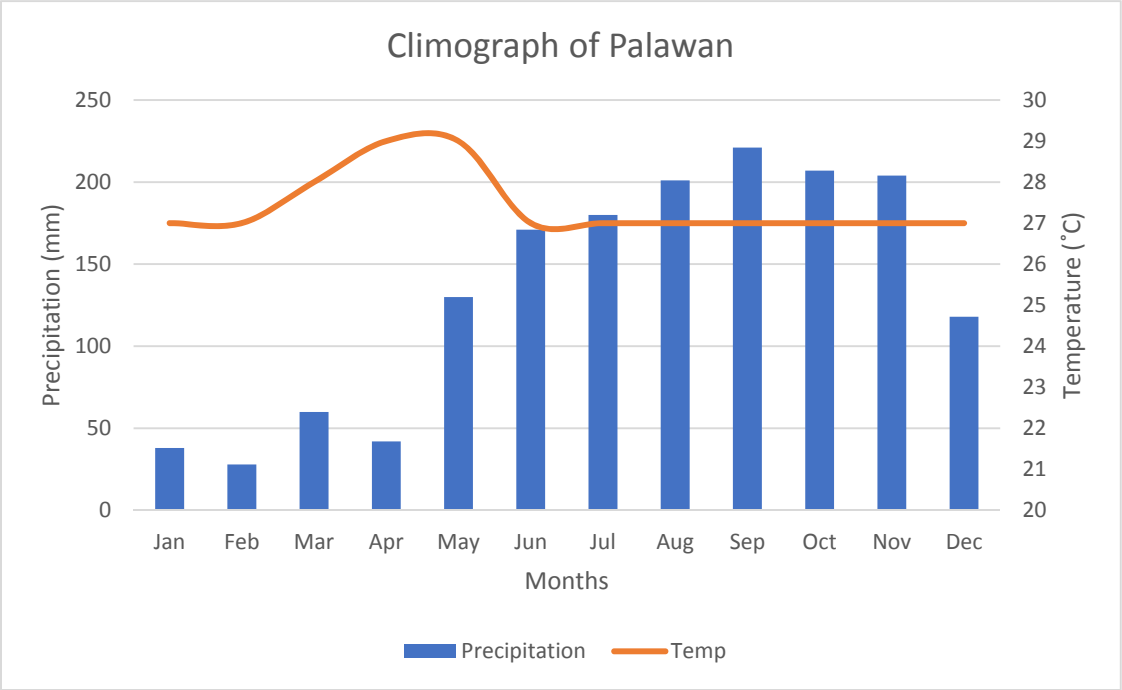
Resource 7 for Question 2



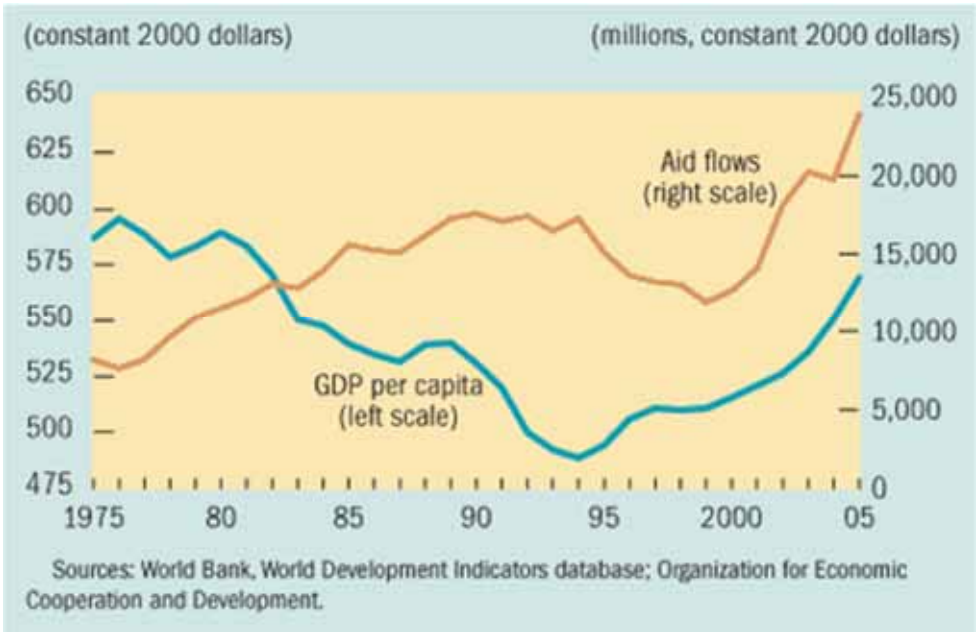
Resource 8 for Question 2



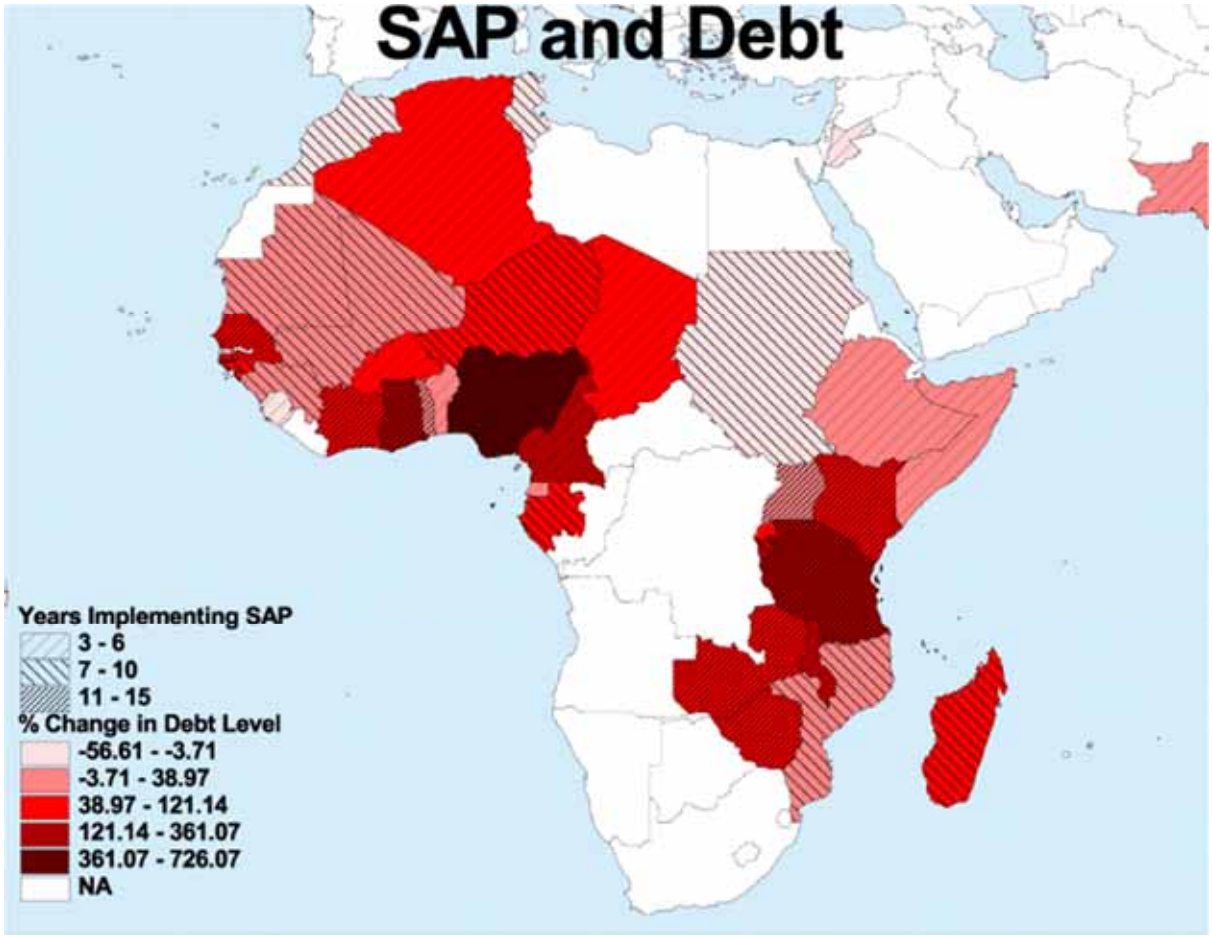
Resource 9 for Question 2



Resource 10 for Question 3



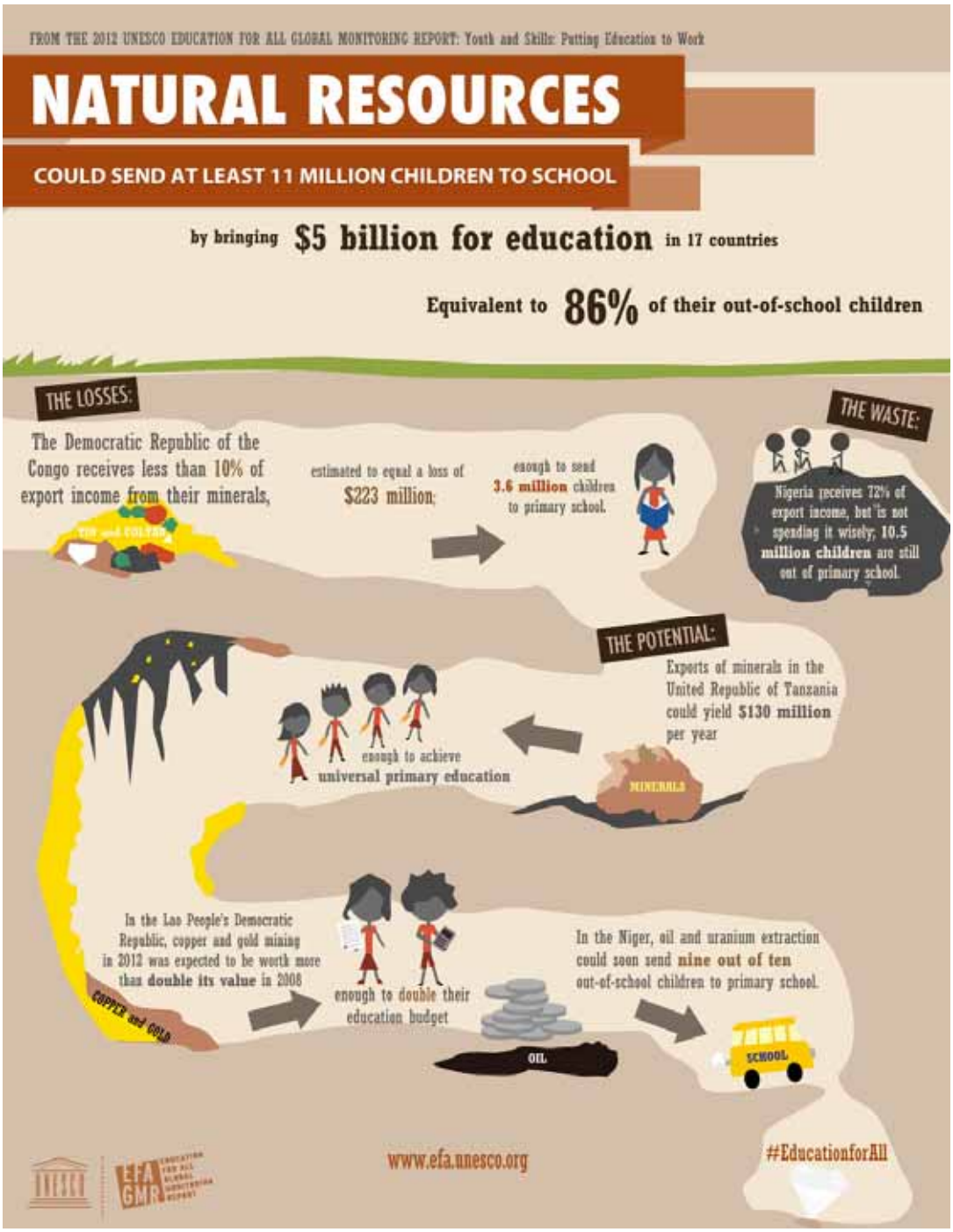
Resource 11 for Question 3



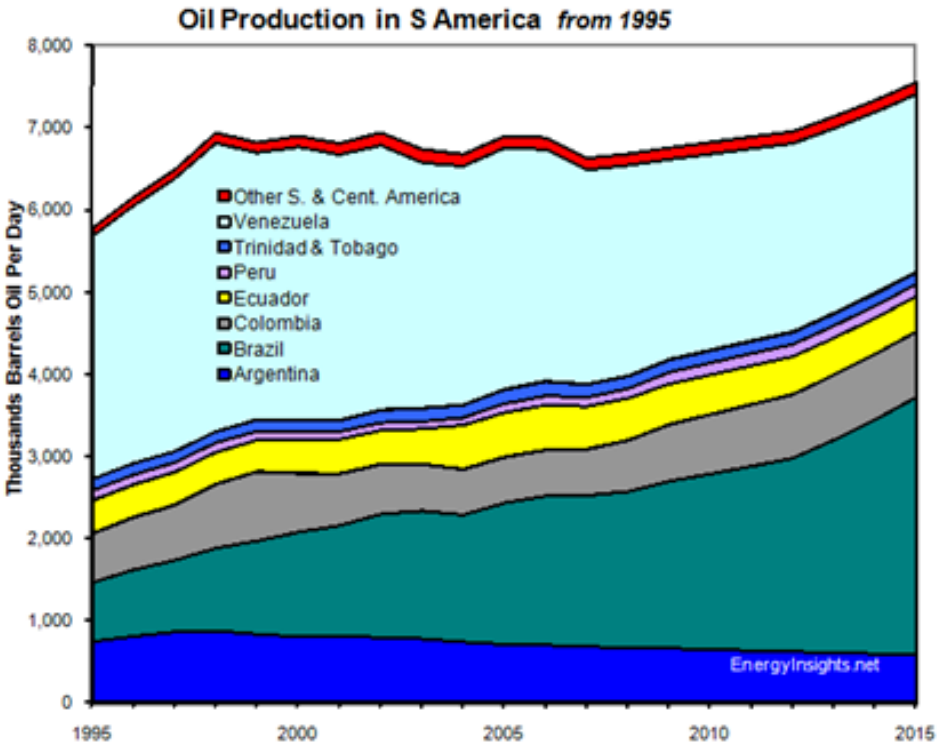
Resource 12 for Question 3



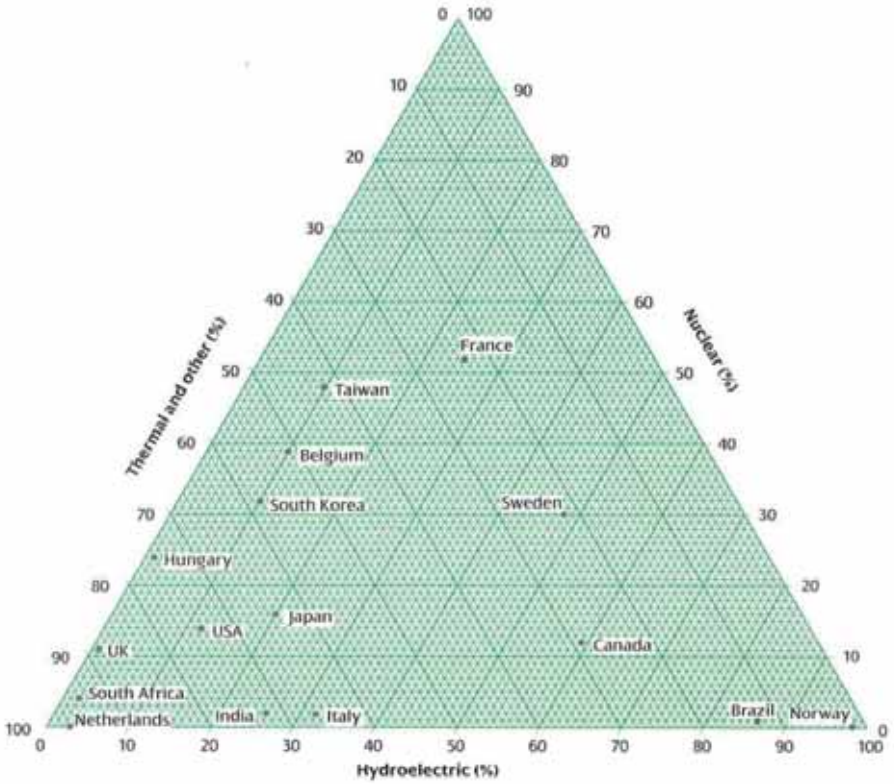
Resource 13 for Question 3



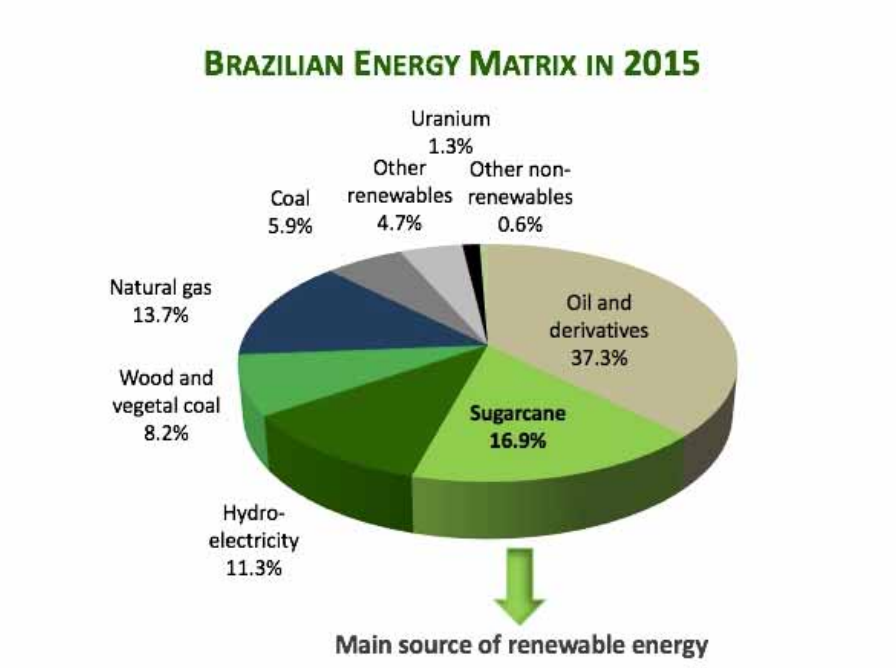
Resource 14 for Question 4



Resource 15 for Question 4

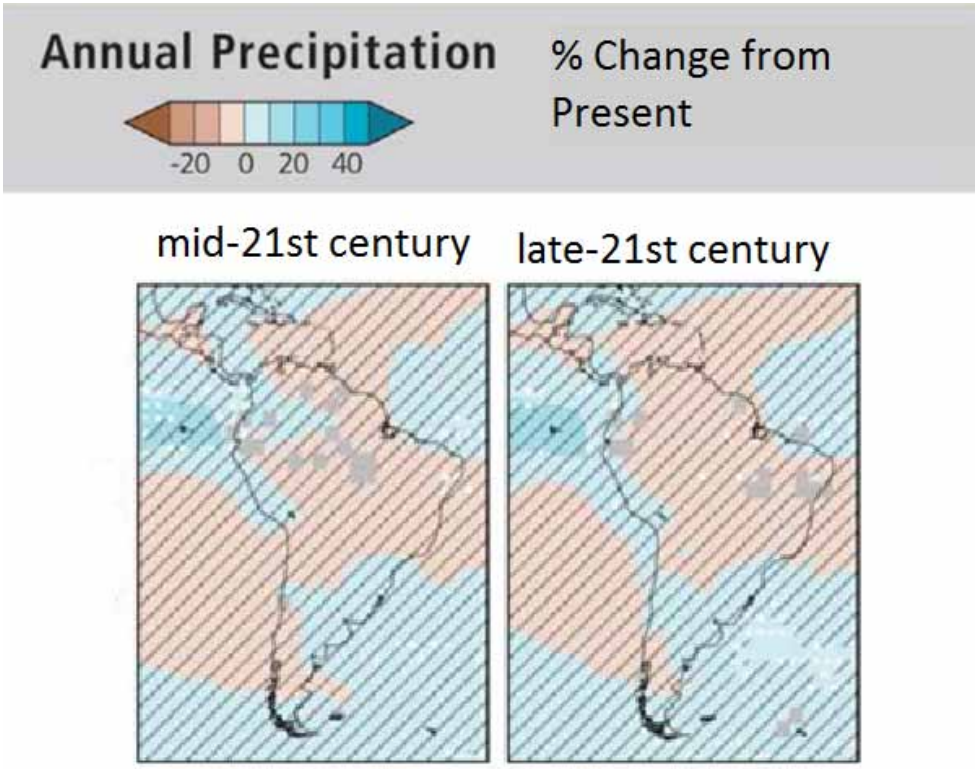


Resource 16 for Question 4



Source: Balanço Energético Brasileiro BEN (2016). Compiled by UNICA

Resource 17 for Question 4



Resource 18 for Question 4



Raffles Institution

2017 Year 6 Preliminary Examination

Level: Year 6 **H2 GEOGRAPHY** Time: 3 hours

9751 Paper 2

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READ THESE INSTRUCTIONS FIRST

Write your Index number and name on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
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World outline maps will be provided if you request for them. They may be annotated and handed in with the relevant answers.
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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.

Answer every question on a fresh sheet of writing paper.

SECTION A

Theme 4: Geographical Investigation

1 A group of four 18-year-old students were tasked to access the impact of urban imaging on urban dwellers in the Marina Bay area. As part of the study, the group have selected three large flagship projects in the area, including the Gardens by the Bay, Marina Bay Sands Hotel, and the ArtScience Museum. Each of these three developments are world renowned, iconic, have a unique architecture, and feature prominently in marketing images of Singapore across the world.

The group conducted a systematic random sampling survey of people visiting the three attractions, asking them a series of open ended questions on how the development of Marina Bay has impacted them. The students decided to use 3 days for the fieldwork at the start of their June school vacation. The students wandered around the various attractions to gather respondents between 9am to 12pm.

Resource 1 is a fact sheet on the three attractions. Resource 2 shows the breakdown of visitor numbers to the three attractions. Resource 3 is an article discussing the various developments in the Marina Bay area by the Urban Redevelopment Authority (URA). Resource 4 shows the survey questions which the students intend to use.

(a) With reference to Resource 1 and 2, suggest a suitable research question for the group's investigation, and suggest two reasons why it is viable. [3]

(b) With reference to Resource 2, outline what further information about visitor numbers may be needed. [3]

(c) With reference to Resource 4, explain how the students can process the data collected. [6]

(d) With reference to Resources 1, 2 and 4, suggest **two** limitations of the group's chosen method of data collection and suggest how it can be improved. [4]

(e) Evaluate the usefulness of secondary sources shown in Resource 3 in helping to understand the concept of urban imaging in the Marina Bay area. [9]

SECTION B

Theme 1: Tropical Environments

Limestone in Palawan

2 Palawan is an island which forms part of the Philippine archipelago. The St Paul area, near the northern tip of the island, is an area of Miocene limestone formed approximately 23 million years ago. Resource 5 is an aerial view of St Paul's Ridge. Resource 6 is a picture of an underground cave river in the same region. Resource 7 is a map of Palawan. Resource 8 is a map of atmospheric pressure and wind direction over Asia. Resource 9 shows a climograph of Palawan.

(a) Describe the landform as seen in Resource 5. [4]

(b) Explain how geological factors led to the formation of the karst landform as seen in Resource 5. [6]

(c) Suggest how the underground river in Resource 6 would influence drainage density in the region. [4]

(d) Using evidence from Resources 7 and 8, explain the climate of Palawan. [5]

(e) With reference to Resource 9, explain how climate affected the development of karst in Palawan. [6]

Theme 2: Development, Economy and Environment

Aid and Investment into Africa

3 Resource 10 shows GDP per capita and Aid flows into Africa from 1975 to 2005. Resource 11 shows the length of duration of Structural Adjustment Policies (SAPs) by the World Bank/IMF on countries in Africa and the percentage change in debt levels. Resource 12 shows a snapshot of China's global foreign aid by the end of 2009. Resource 13 is an infographic on the benefits a country can reap from natural resources.

(a) Describe the pattern of GDP per capita and International Aid flows as shown in Resource 10. [3]

(b) Suggest **two** possible reasons for increase in Aid flows from 2000 onwards as shown in Resource 10. [4]

(c) With reference to Resource 11, outline, and suggest reasons for, the trends in the years of implementing SAP and percentage change in debt level. [5]

(d) Explain why China chose to invest the heaviest in Africa, as opposed to other regions, as shown in Resource 12. [6]

(e) With the help of Resource 13, explain how resource rich countries can avoid falling into the trap of the 'resource curse'. [7]

Theme 3: Sustainable Development

Energy use in Brazil

4 The energy mix of a country is the amount and type of each form of energy used. Resource 14 shows the changes in oil production in South America from 1995 to 2015. Resource 15 shows the energy mix of various countries in 1988. Resource 16 shows the energy mix of Brazil in 2015. Resource 17 is a map of expected changes in precipitation in the 21st century. Resource 18 is a map of countries in South America.

(a) Outline and explain the impact of oil production in Brazil on the global climate as shown in Resource 14. [4]

(b) Describe the pattern of energy mix for the different countries as shown in Resource 15. [5]

(c) Suggest reasons for the energy mix in Brazil in 2015 with reference to Resources 14 and 16. [4]

(d) Using Resources 17 and 18, explain how climate change may affect Brazil's energy mix in future. [3]

(e) Evaluate the sustainability of using hydropower as an energy source. [9]

RIVER VALLEY HIGH SCHOOL
General Certificate of Education Advanced Level
Preliminary Examination 2 2017
Higher 2

GEOGRAPHY 9751/01

Paper 1 Structured Essay Questions **13 September 2017**

3 hours

Additional Materials: Answer Paper
World outline map
Cover Page

READ THESE INSTRUCTIONS FIRST

Write your name, admission number and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
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The world outline map may be annotated and handed in with relevant answers.
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At the end of the examination, fasten all your work below the cover page securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of 3 printed pages and 1 blank page.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Using examples, explain the role of precipitation in influencing the nature of mass movements on slopes in the humid tropics. [12]

(b) 'The weakening of the Walker Circulation has a significant impact on the precipitation patterns of localities in the humid tropics.'

How far do you agree with the above statement? [20]

2 **(a)** With reference to countries at low levels of development, explain the causes of tropical deforestation. [12]

(b) 'The greatest impact of large-scale deforestation is on the hydrology of the local catchment area.'

To what extent do you agree with the above statement? [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** With reference to countries at low levels of development, explain bottom-up development. [12]

(b) The use of composite indicators like the Human Development Index (HDI) and the Multidimensional Poverty Index (MPI) are ideal to measure the development of countries. Do you agree?

Discuss. [20]

4 **(a)** Explain the factors that may lie behind a TNC's decision to engage in inter-firm relationships in countries at low levels of development. [12]

(b) With reference to one particular industry, evaluate the range of socio-economic and environmental impacts a TNC can bring to the host economy. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain the natural and anthropogenic drivers of climate change since the Holocene epoch. [12]

(b) 'Decarbonising the economy is the best way to mitigate and adapt to climate change'.

To what extent do you agree with this statement? [20]

6 **(a)** Explain why urban traffic congestion occurs in countries at high levels of development. [12]

(b) Assess the effectiveness of strategies to ease traffic congestion in cities. [20]

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RIVER VALLEY HIGH SCHOOL
General Certificate of Education Advanced Level
Preliminary Examination 2 2017
Higher 2

GEOGRAPHY 9751/02

Paper 2 Data Response Questions **15 September 2017**

3 hours

Additional Materials: Answer Paper
1 Insert
World outline map
Cover Page

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Write in dark blue or black pen on both sides of the paper.
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Section A

Theme 4 – Geographical Investigation

Answer **one** question from this section.

1 On August 12 2017, Kampung Admiralty welcomed its first residents and the elderly residents received the keys to their newly-completed studio apartments from Transport Minister Khaw Boon Wan.

Kampung Admiralty is the first development in Singapore to integrate housing for the elderly with a medical centre, eldercare and childcare centres, a community park, vegetable farm, as well as a 900-seat hawker centre and nearly 20 dining and retail outlets. Resource 1 illustrates some of the key features of this integrated development and Resource 2 shows the development site of Kampung Admiralty in Singapore. Resource 3 captures how some of the facilities are integrated within the premises of Kampung Admiralty.

As announced by Minister Khaw at the ground-breaking ceremony of the project, Kampung Admiralty is a project developed by the Housing and Development Board, along with the Ministry of Health, the National Environment Agency, National Parks Board, Land Transport Authority and Early Childhood Development Agency. It is intended as a 'retirement kampung' for elderlies to live near their married children and parents, and is one of 15 projects to have won this year's Minister's Team Awards 2017 for its degree of innovation, teamwork and impact.

Catering to the growing cycling population at Admiralty, Minister Khaw also announced that Kampung Admiralty residents will be able to try out Singapore's first fully automated underground bicycle parking system when it is completed in August 2017. Resource 4 shows an artist's impression of the automated bicycle parking system. Similar to the ones in Spain and Japan, cyclists can push their bicycles into a lift where they will be given a code or token for retrieval, and their bicycles will be transported underground, sorted and then stored in a cylindrical shaft. This automated bicycle parking system aims to provide secure and convenient storage of over 500 bicycles.

You and a group of classmates are tasked to conduct a needs analysis of the elderly living in Kampung Admiralty during the upcoming December school holidays. One of your group members came up with the below research question:

'How well are the needs of the elderly catered for in Kampung Admiralty as compared to the other housing estates in Singapore?'

Your Geography teacher commented that this may be an unrewarding research question but did not further elaborate.

(a) Suggest how you would improve upon your group member's research question. Explain your answer. [3]

(b) Design a recording sheet that you and your group can use to conduct the primary fieldwork for your research question. Include some examples of questions you would use for the fieldwork. [6]

(c) Suggest some challenges that you and your group might face when conducting the geographical investigation. [4]

(d) Explain how the introduction of the automated bicycle parking system may impact on the ecological footprint of residents at Kampung Admiralty. [3]

(e) Explain how urban liveability for residents at Kampung Admiralty can be measured. [9]

Section B

Theme 1: Tropical Environments
Arid Landforms in the Tropics

2 Resource 5 shows a climograph and map of Koro Toro in Chad, a country in Sub-saharan Africa. Resource 6 shows a close-up satellite image of the area marked 'Y' in Resource 5. Resource 7 shows Sossusvlei, a clay pan in the Namib desert under typical conditions (A), and after a rare flood (B). (C) details the river Tsauchab that feeds into the Sossusvlei.

(a) With reference to Resource 5, explain the factors contributing to the climate of Koro Toro in Chad. [4]

(b) With the help of an annotated cross-sectional diagram of transect PQ in Resource 6, explain the processes that have led to the formation of the landform shown. [5]

(c) With reference to Resource 7, describe the channel form of the Tsauchab river. [4]

(d) Citing evidence from the resources, compare the characteristics of dryland hydrology with hydrology typical of the humid tropics. [5]

(e) Using examples, discuss the notion that aeolian processes are the most influential in the development of landforms in the arid tropics. [7]

Theme 2: Development, Economy and Environment
Water Scarcity and Privatisation of water resources

3 Resource 8 shows the global estimate of the internal renewable water resources (IRWR) reported by the Food and Agriculture Organisation (FAO) of the United Nations. The IRWR figures refer to the volume of water resources (surface water and groundwater) generated from precipitation within a country or catchments. Resource 9 shows the areas of physical and economic water scarcity at the basin level in 2007. Resource 10 shows the global pattern of per capita consumption of bottled water by countries.

(a) With reference to Resources 8 and 9, identify the region(s) most likely to suffer from the effects of water stress. Support your answer with data from the two resources. [3]

(b) With reference Resource 9, outline the differences between physical water scarcity and economic water scarcity. [5]

(c) Suggest the range of socio-economic and political problems that can occur in societies facing water scarcity. [5]

(d) Describe the trends in the global bottled water consumption shown in Resource 10. [3]

(e) Can the bottled water be a viable solution to the problems of water scarcity experienced around the world? Discuss. [9]

Theme 3: Sustainable Development
Energy in Vietnam

4 Resource 11 shows energy consumption in Vietnam in 2005 and 2010 and forecasts of its energy consumption for 2015 and 2020. Resource 12 shows total primary energy supply and Resource 13 shows electricity generation by fuel type, in Vietnam, 1975-2008. Resource 14 gives information about the potential for growing Jatropha, a biofuel, in Vietnam and locates the country's regions on a map.

(a) Describe the trends in energy consumption shown in Resource 11. [3]

(b) Compare the changing contribution of fossil fuels and non-fossil fuels to Vietnam's primary energy supply shown in Resource 12. [5]

(c) With reference to Resource 13, explain the changing environmental impact of electricity generation in Vietnam. [6]

(d) With references to Resources 12 and 13, explain the issues that may affect the sustainability of Vietnam's energy supply. [6]

(e) With the help of Resource 14, explain why Jatropha could contribute to ensuring the sustainability of Vietnam's future energy supply. [5]

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Higher 2

GEOGRAPHY 9751/02

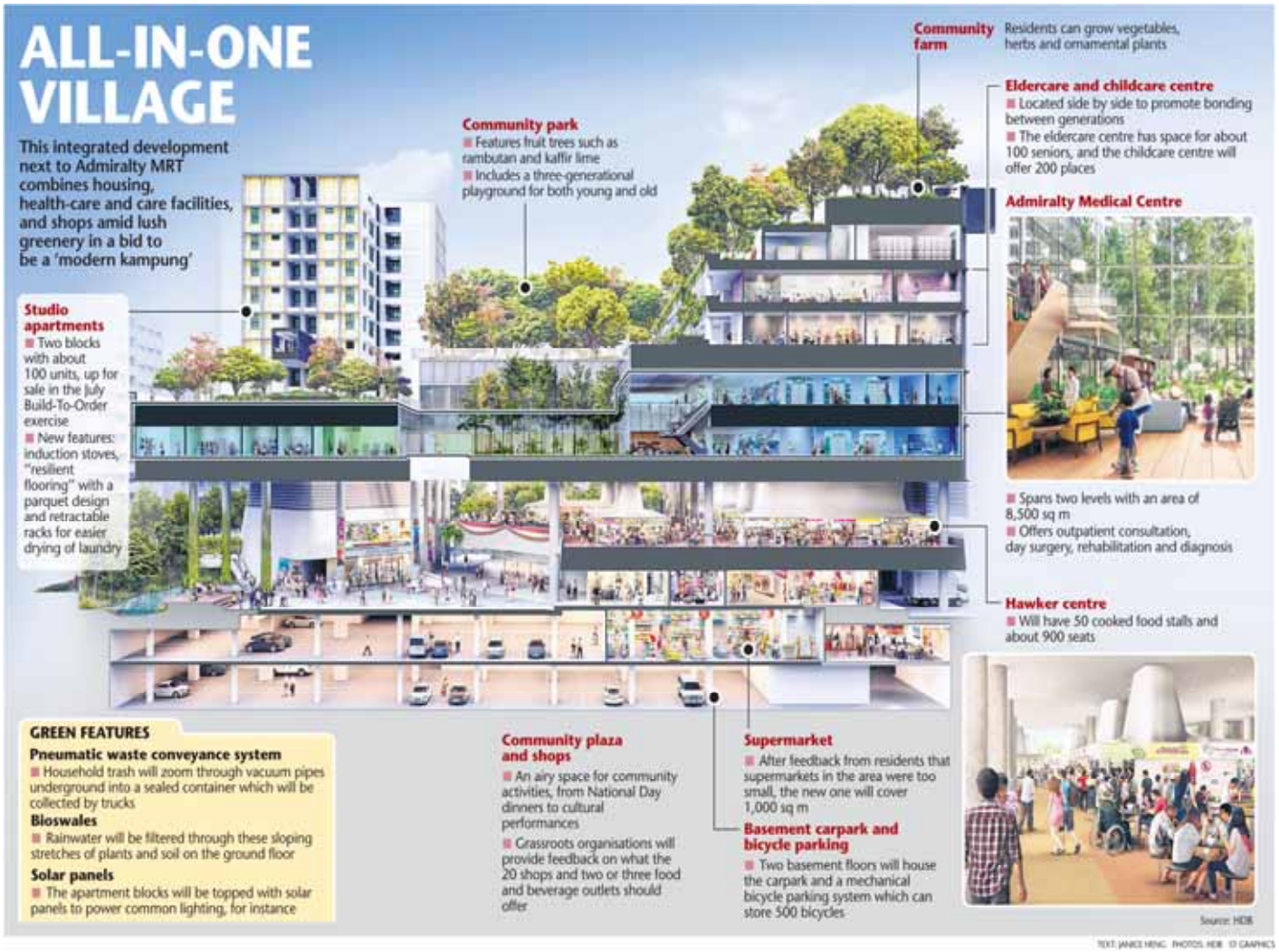
Paper 2 Data Response Questions **15 September 2017**

INSERT **3 hours**

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This Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1
The all-in-one Kampung Admiralty includes two blocks of Housing Board studio apartments, centres for medicine, childcare and eldercare, and shops



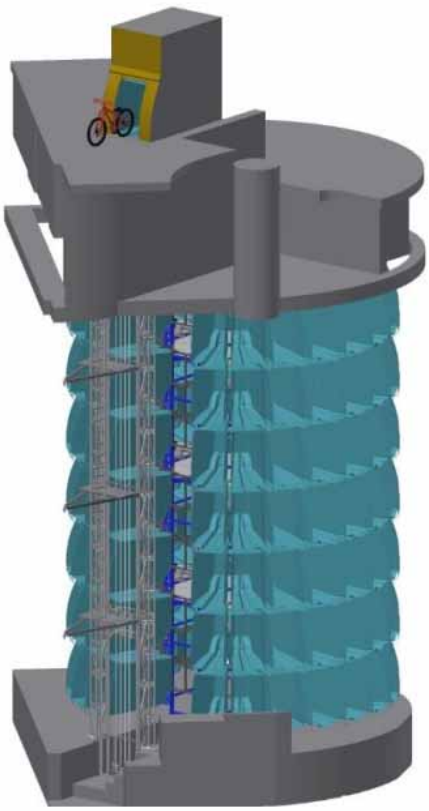
Resource 2 for Question 1
The location of Kampung Admiralty



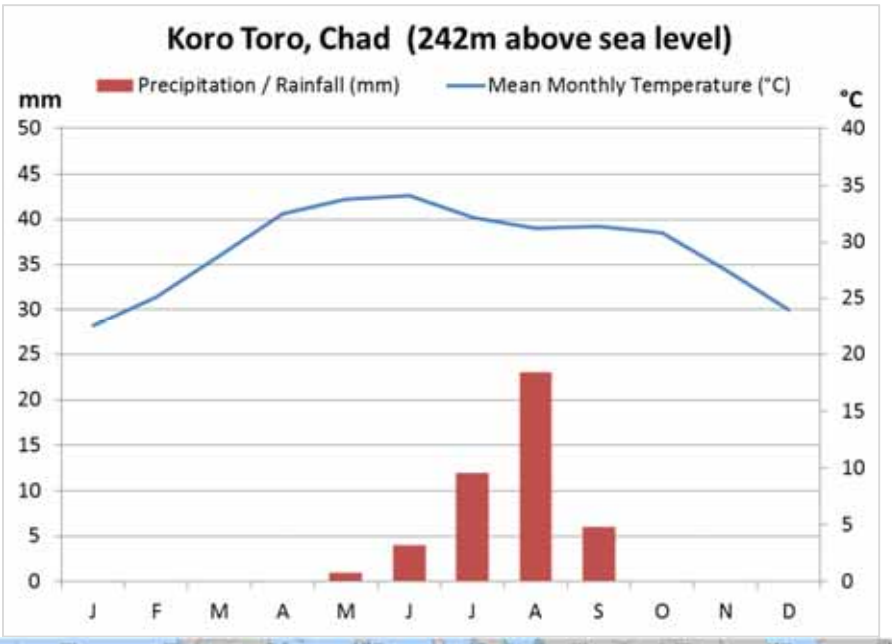
Resource 3 for Question 1
The integration of facilities at Kampung Admiralty

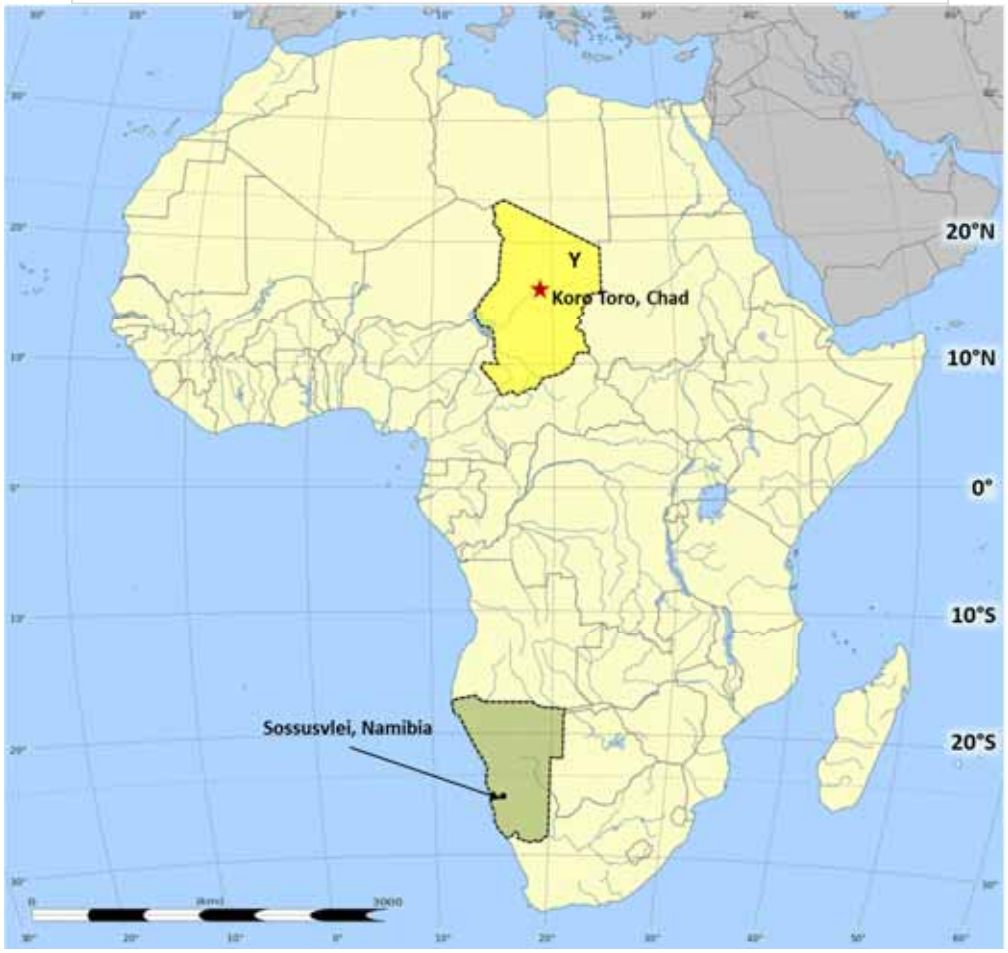


Resource 4 for Question 1
Automated Bicycle Parking System



Resource 5 for Question 2
Climograph and Map of Koro Toro, Chad





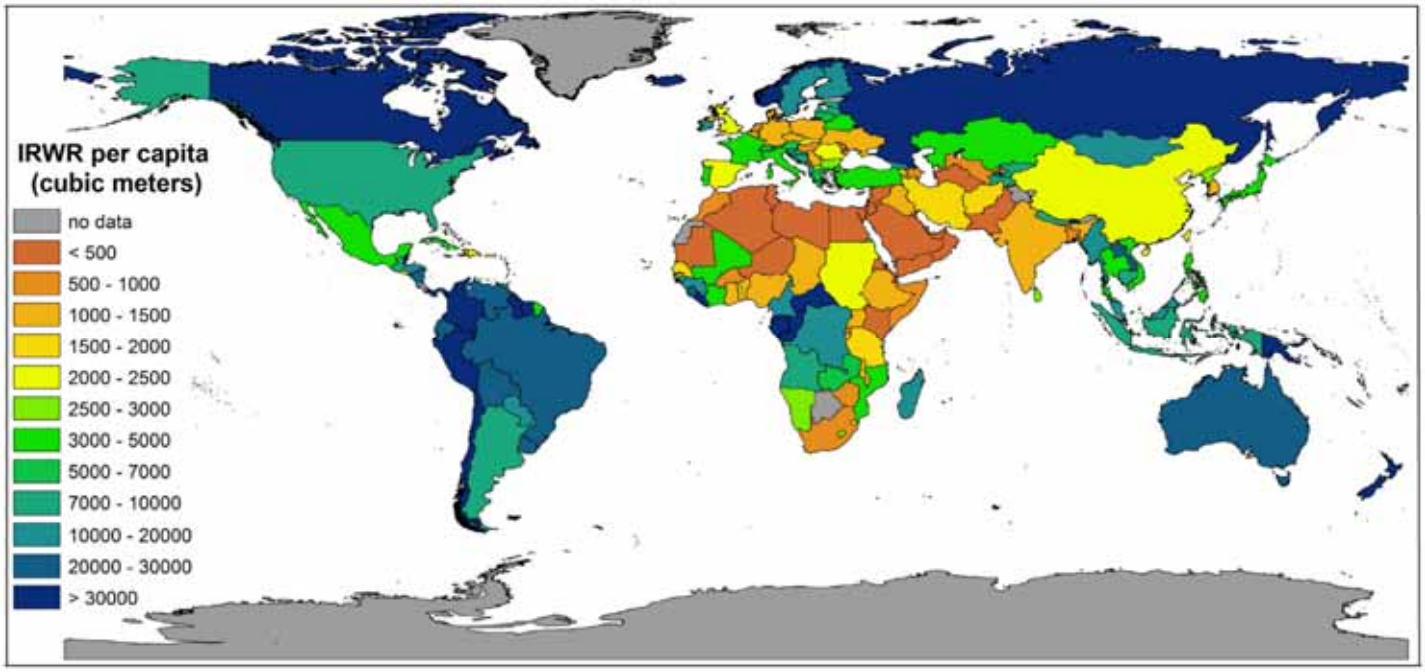
Resource 6 for Question 2
Close up Satellite Image of the Area Marked 'Y'



Resource 7 for Question 2
Sossusvlei, a Clay Pan in the Namib Desert



Resource 8 for Question 3
World map of internal renewable water resources (IRWR) per country in 2012



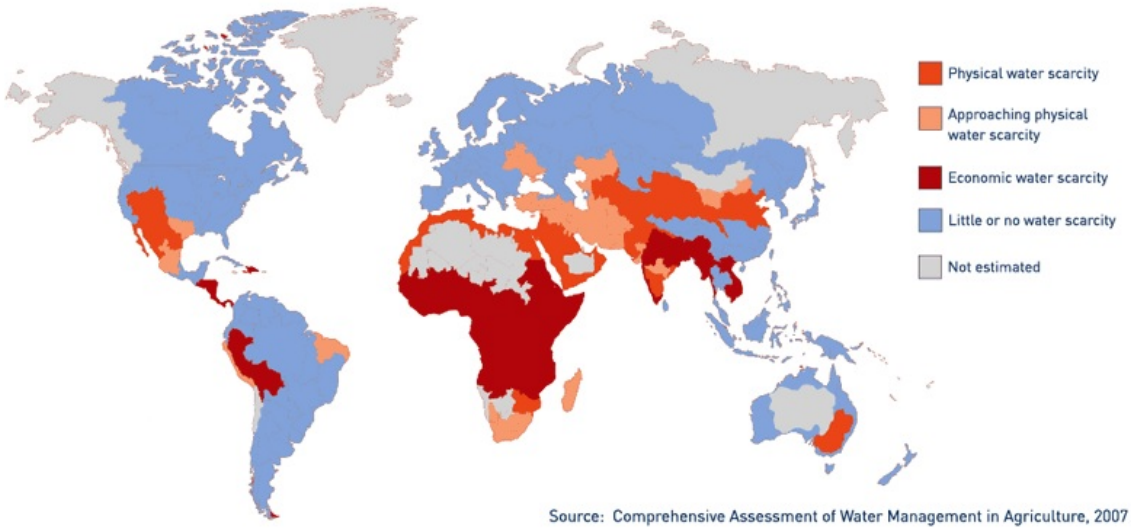
Resource 9 for Question 3
Areas of physical and economic water scarcity

Physical water scarcity water resources development is approaching or has exceeded sustainable limits). More than 75% of the river flows are withdrawn for agriculture, industry, and domestic purposes (accounting for recycling of return flows). This definition—relating water availability to water demand—implies that dry areas are not necessarily water scarce.

Approaching physical water scarcity. More than 60% of river flows are withdrawn. These basins will experience physical water scarcity in the near future.

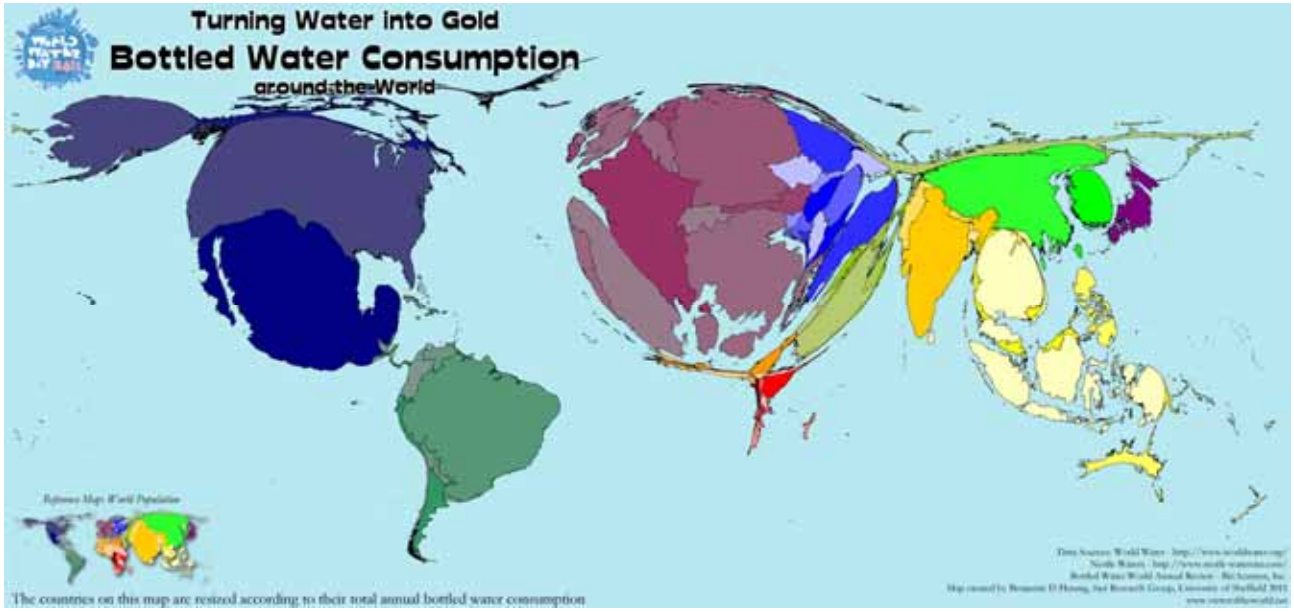
Economic water scarcity (human, institutional, and financial capital limit access to water even though water in nature is available locally to meet human demands). Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.

Little or no water scarcity. Abundant water resources relative to use, with less than 25% of water from rivers withdrawn for human purposes.

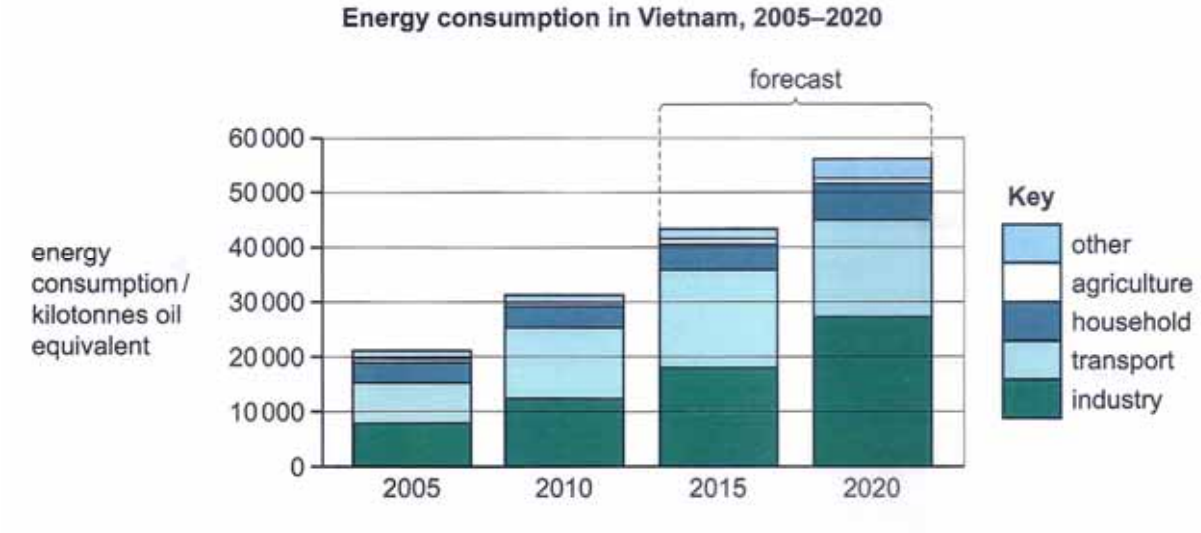


Source: Comprehensive Assessment of Water Management in Agriculture, 2007

Resource 10 for Question 3
Global Bottled Water Consumption

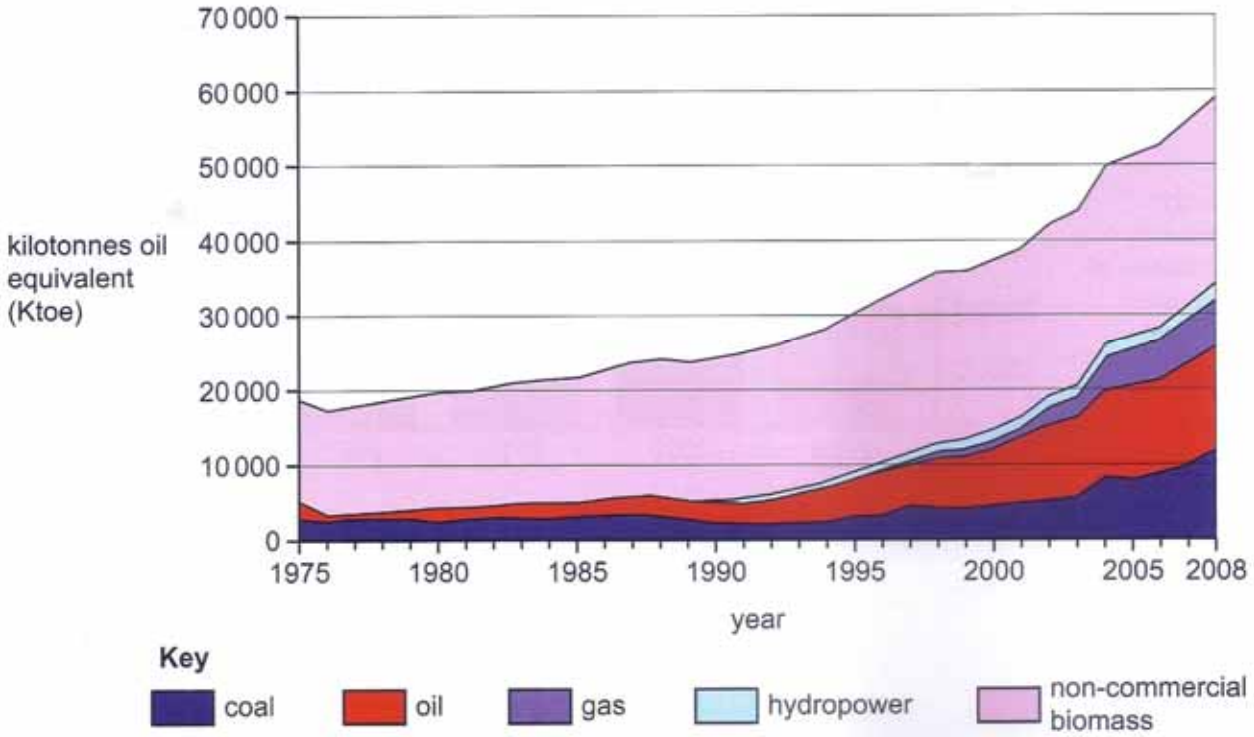


Resource 11 for Question 4



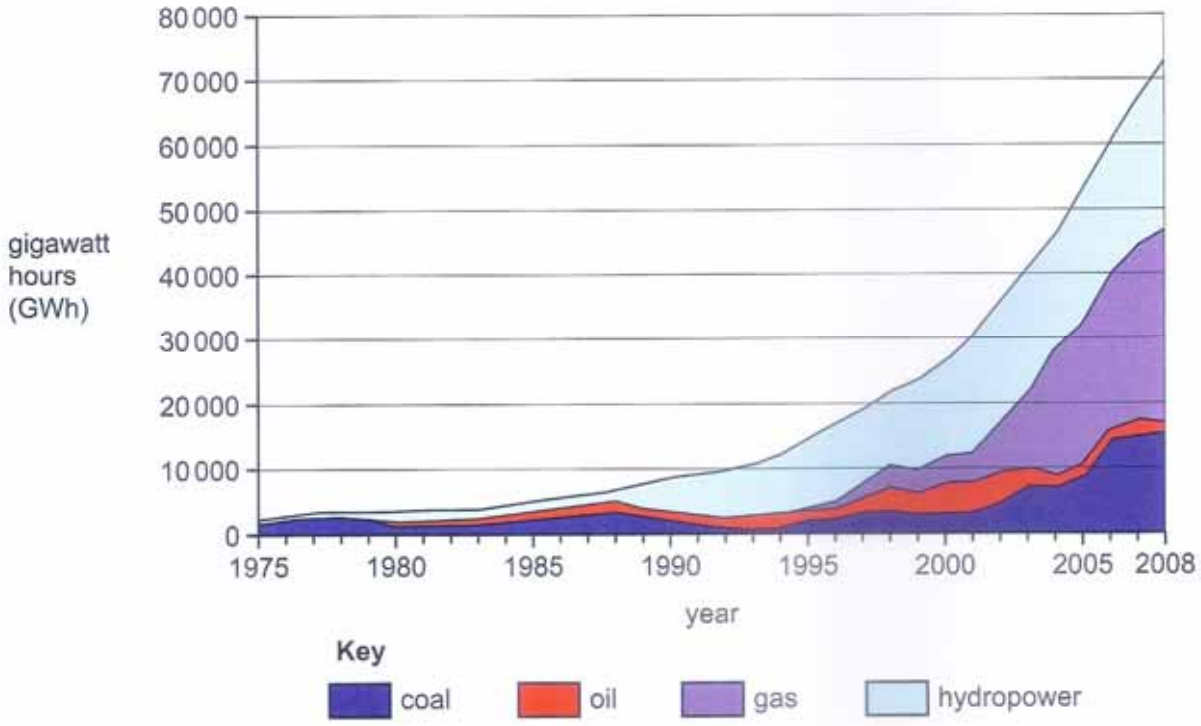
Resource 12 for Question 4

Total primary energy supply in Vietnam, 1975–2008



Resource 13 for Question 4

Electricity generation in Vietnam by fuel type, 1975–2008



Resource 14 for Question 3

Potential for growing Jatropha in Vietnam

One promising source of energy to meet the growing needs of Vietnam is biofuels. Oil from the seeds of the Jatropha plant can be processed to produce biodiesel which is equal in quality to fossil fuel. Jatropha is not considered a threat to food security because it can be grown on steep land which is not used for food production. By 2015, 150 000 tonnes of biodiesel could be produced, rising to over 1 million tonnes by 2020.

region	Jatropha crop potential	
Northern Mountains	Moderate soil fertility Other crops unsuitable	Large-scale Jatropha suitable
Central North	Poor soil fertility No other competing crops	Large-scale Jatropha suitable
Central South	Poor soil fertility No other competing crops	Large-scale Jatropha suitable
Central Highlands	Fertile soils Other crops for food and commodities can grow well	Possible to develop Jatropha on a medium-scale
South East	Fertile soils Other crops for food and commodities can grow well	Some small-scale Jatropha possible



ST ANDREW'S JUNIOR COLLEGE
J2 Prelims
Higher 2

GEOGRAPHY **9751/01**
Paper 1 Structured Essay Questions

11 September 2017

3 hours

Additional Materials: Answer Paper
World outline map

READ THESE INSTRUCTIONS FIRST

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This document consists of **2** printed pages.

[Turn Over]

Section A – Tropical Environments

Answer **one** question from this section.

1 (a) Explain the role of wind action in the formation of arid landscapes. [12]

(b) To what extent does climate determine the rate and type of weathering in the Tropics? [20]

2 (a) With the help of one or more diagrams, explain the various transportation processes that may take place within a river channel. [12]

(b) 'Channel patterns are the results of a river trying to establish equilibrium.' Evaluate the validity of this view. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 (a) Explain the emergence of the New International Division of Labour (NIDL). [12]

(b) To what extent is the state the most influential actor in the development of a country? Support your answer with reference to countries at different levels of development. [20]

4 (a) With the help of examples, explain why the appraisal of resources varies over space and across time. [12]

(b) How far do you agree that the Malthusian perspective on population-resource relationship is no longer applicable today? [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 (a) Explain the role of human activities in contemporary climate change. [12]

(b) Evaluate the extent to which countries at low levels of development are able to respond to the impacts of climate change with success. [20]

6 (a) Explain how the production and management of waste will impact a city's attainment of sustainable urban development. [12]

(b) 'Although there exist strategies to manage non-hazardous solid waste in cities, these strategies bring along other problems.' With reference to high income countries, discuss this statement. [20]

ST ANDREW'S JUNIOR COLLEGE
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GEOGRAPHY **9751/02**
Paper 2 Data Response Questions **13 September 2017**
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3 hours

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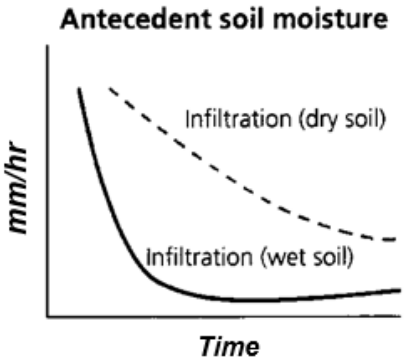
This Insert contains all the Resources referred to in the questions.

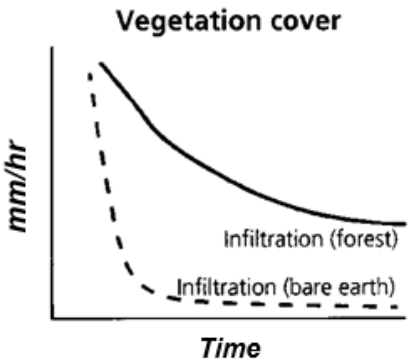
This document consists of **9** printed pages.

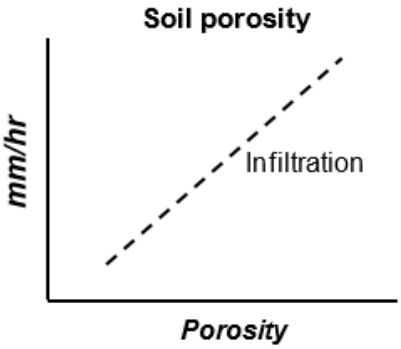
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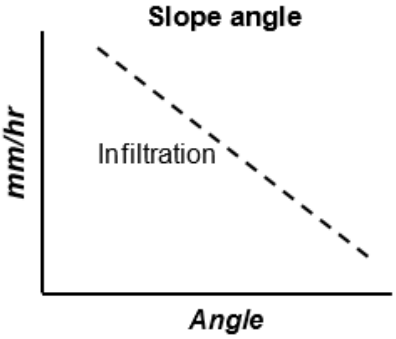
Resource 1 for Question 1

Factors that influence infiltration



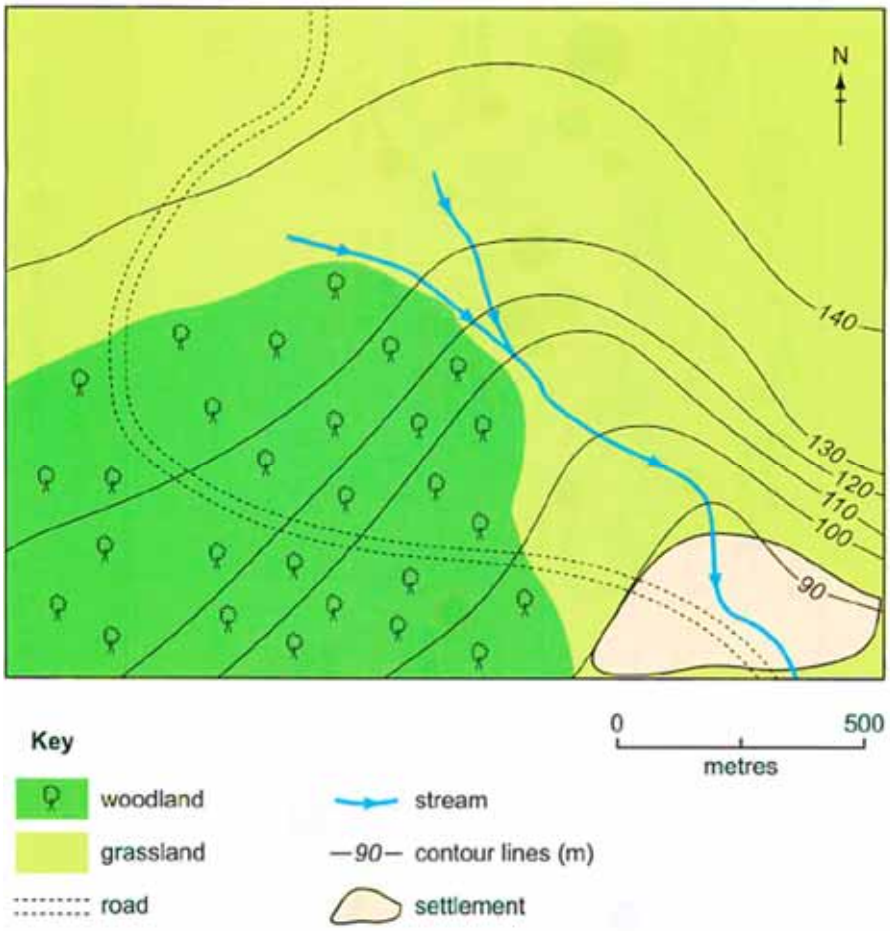






Resource 2 for Question 1

A small drainage basin in the UK



Resource 3 for Question 1

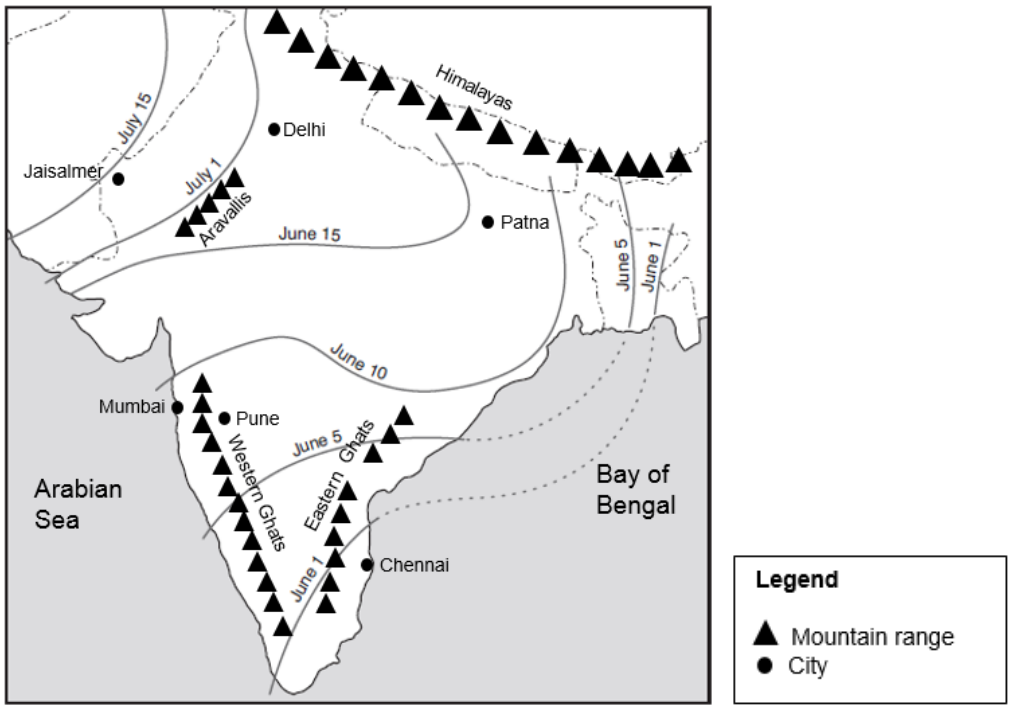
Recording sheet for the measurement of infiltration rates

Description of Selected Site: _____

	Attempt 1	Attempt 2	Attempt 3	
Change in water level observed after ____ min (in mm)				**Average infiltration rate**
Infiltration rate (mm/hr)				

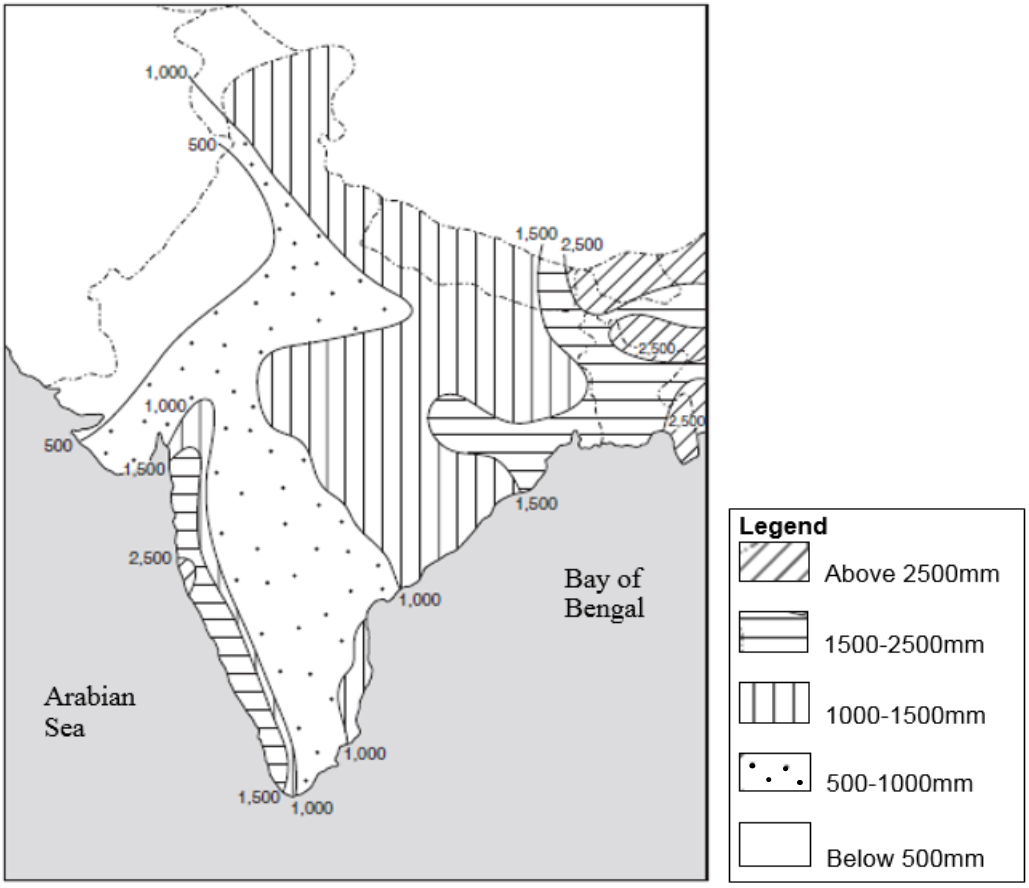
Resource 4 for Question 2

Average dates of onset of the summer monsoon across India and its main mountain ranges



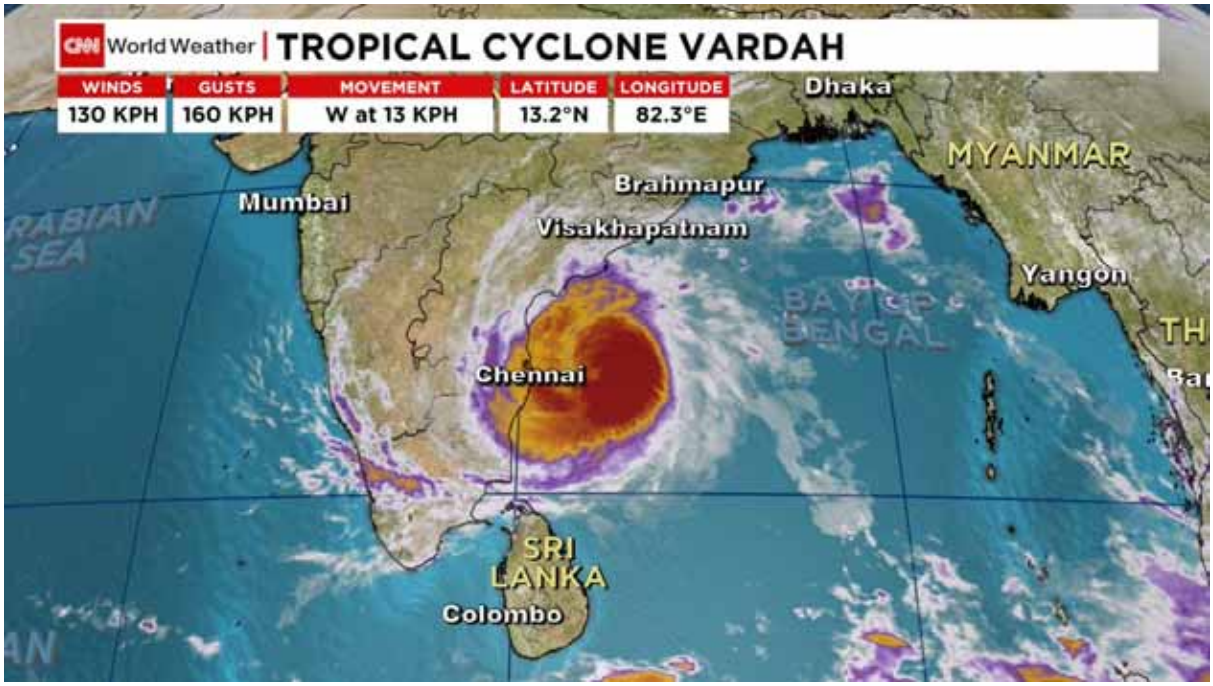
Resource 5 for Question 2

Average annual rainfall in India



Resource 6 for Question 2

Cyclone Vardah as featured in a news coverage, December 2016



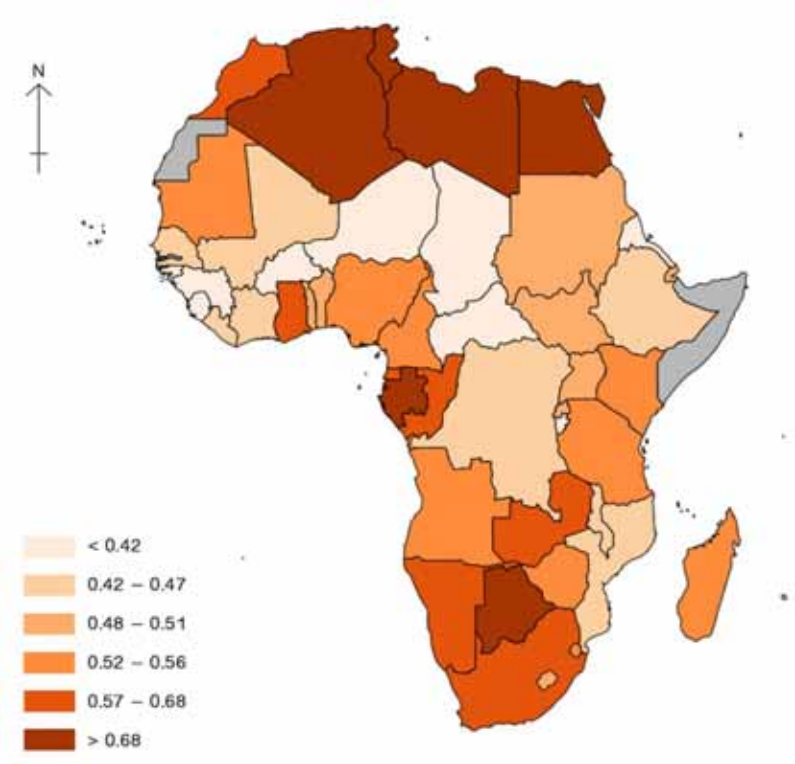
Resource 7 for Question 2

A flooded part of Chennai after Cyclone Vardah



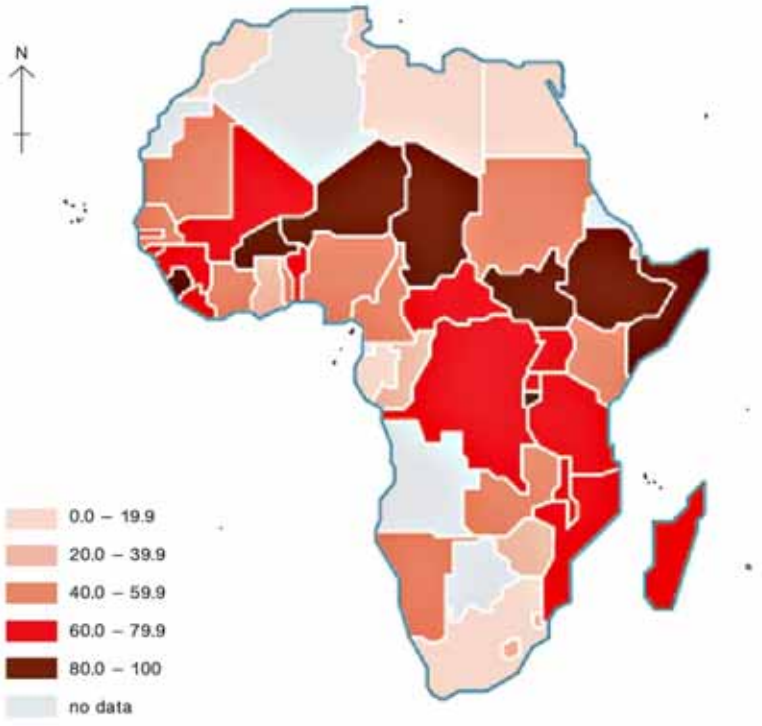
Resource 8 for Question 3

Human Development Index of countries in Africa in 2014



Resource 9 for Question 3

Multidimensional Poverty Index of countries in Africa in 2015



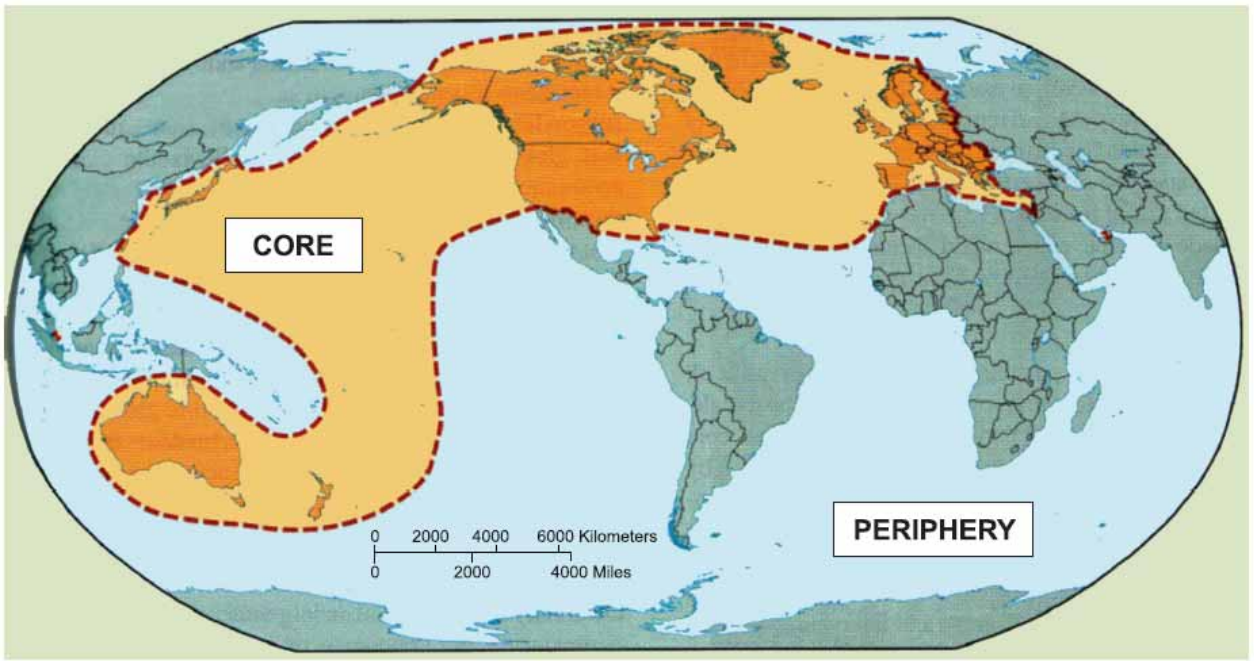
Resource 10 for Question 3

The countries of Africa



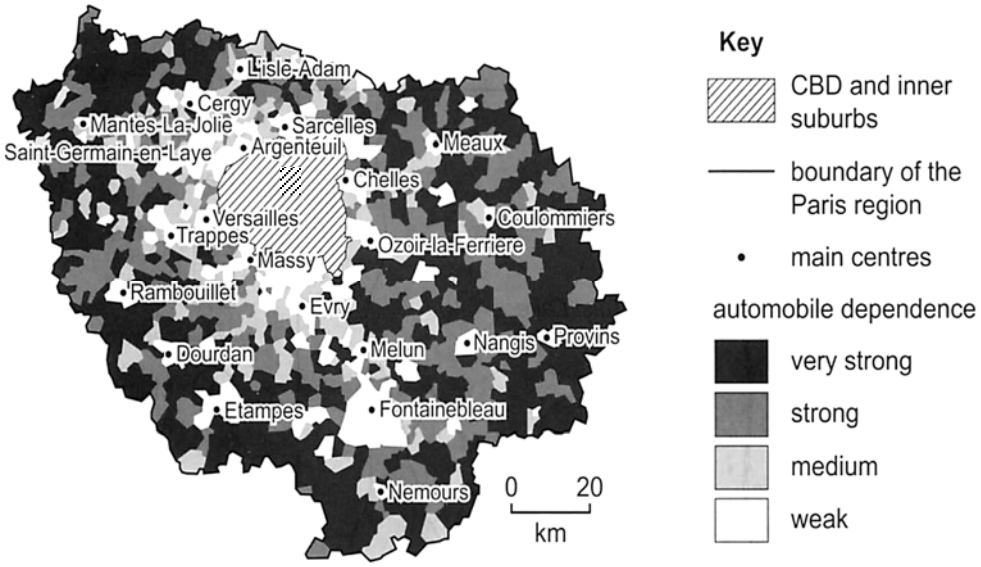
Resource 11 for Question 3

The core-periphery of the global economy



Resource 12 for Question 4

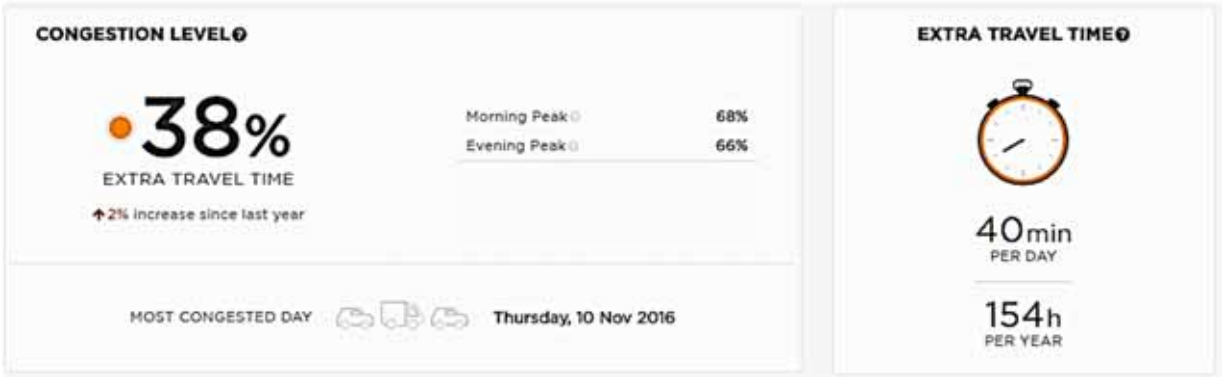
Car dependence* in the Paris region of France, 2001

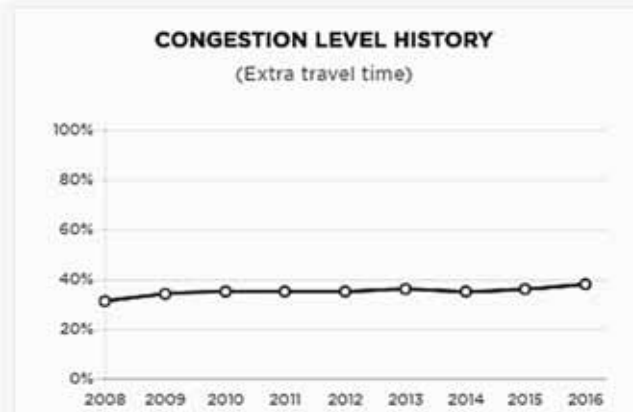


*Car dependence is defined as the need for the use of a car to travel to work, shop and see friends and family.

Resource 13 for Question 4

Statistics related to traffic congestion in Paris**





**Congestion level refers to the increase in overall travel times when compared to an uncongested situation. Morning peak and evening peak refer to the increase in morning and evening peak travel times respectively when compared to an uncongested situation.

Resource 14 for Question 4

A station of *Vélib'*, the public bicycle-sharing scheme in Paris



The *Vélib'* consists of a network of 1,800 stations, which are available 24 hours a day all year round, and located every 300 meters in Paris. Each station consists of a central terminal (at which payment for rental can be made) and bicycle posts for the docking of bicycles. The first 30 minutes of each trip are always free of charge. Subsequently, the first half-hour costs 1€, second half-hour 2€, and 4€ for every half-hour thereafter.

ST ANDREW'S JUNIOR COLLEGE
J2 Prelims
Higher 2

GEOGRAPHY **9751/02**
Paper 2 Data Response Questions **13 September 2017**

3 hours

Additional Materials: Answer Paper
1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use paper clips, highlighters, glue or correction fluid.
Begin each question on a fresh page.

Candidates answer **all** questions.

The insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

This document consists of **4** printed pages and **1** Insert with **9** pages.

[Turn Over]

© SAJC 2017

Section A

Theme 4 – Geographical Investigation

1 Having learnt about how infiltration may be influenced by different factors, a group of 12 students in the UK wanted to test whether their knowledge can be confirmed by actual observations. They selected a small drainage basin near their school for their investigation.

The students had access to a basic topographical map of the drainage basin, and a page from a Geography textbook with graphs depicting the relationships between infiltration and selected factors. They were also given a recording sheet by their teacher for the purpose of recording their measurements. The students were instructed to choose four to six different sites to measure infiltration.

Permission had been sought for the students to visit the drainage basin on one Saturday in June and for 2 hours between 9 a.m. and 11 a.m. during the visit.

After some discussion in the classroom before undertaking the fieldwork, the students decided on the following hypothesis:

Within the drainage basin, infiltration rates are highest in areas with dense vegetation cover.

Resource 1 provides the graphs from the textbook, each showing the relationship between infiltration and one factor. Resource 2 shows the map of the small drainage basin. Resource 3 is the recording sheet they intended to use to help record their measurements at each site.

(a) With reference to Resources 1 and 2, explain why infiltration rates would vary within the drainage basin. [5]

(b) With reference to Resource 2, state **three** reasons why the students' suggested hypothesis is capable of research. [3]

(c) With reference to Resources 2 and 3, write an explanatory account of how the students should decide on the different sites in the drainage basin to measure infiltration rates. [5]

(d) Describe clearly the equipment(s) that will be required, and the steps the students should take, to obtain the infiltration rates required in the recording sheet in Resource 3. [6]

(e) With the help of Resources 1, 2 and 3, explain **two** possible limitations the students might face when trying to obtain accurate measurements of infiltration in the drainage basin, and suggest what could be done to overcome them. [6]

Section B

Theme 1 – Tropical Environments

Rainfall and Flooding in India

2 Resource 4 shows the average dates of onset of the summer monsoon across India and its main mountain ranges. Resource 5 shows the average annual rainfall in India. Resource 6 shows some information on Cyclone Vardah which impacted India in December 2016. Resource 7 is a photograph of flooding in a part of Chennai, a major city in India, after Cyclone Vardah.

(a) With reference to Resource 4, describe the expected progression of the summer monsoon across India. [3]

(b) With reference to Resource 5, describe the spatial variation of rainfall within India. [5]

(c) Using both Resources 4 and 5, explain the spatial variations of rainfall described in **(b)**. [7]

(d) With the help of Resource 6, explain why tropical cyclones, such as Cyclone Vardah, may form and develop off the coast of India. [4]

(e) With the help of Resources 6 and 7, and using your own knowledge, explain whether the flood in Chennai should be fully attributed to Cyclone Vardah. [6]

Theme 2 – Development, Economy and Environment

Development in Africa

3 Resource 8 shows the Human Development Index (HDI) in Africa in 2014. Resource 9 shows the Multidimensional Poverty Index (MPI) in Africa in 2015. Resource 10 names the countries shown. Resource 11 shows the core-periphery of the global economy.

(a) With reference to Resources 8 and 10, describe the distribution of countries with HDI values **lower than 0.51**. [4]

(b) Suggest and explain **two** reasons for the low values of HDI observed in the countries shown in Resource 8. [5]

(c) Briefly explain the meaning of the term *MPI*, and describe the extent to which countries with low HDI values are also those with more of their population in multidimensional poverty. Support your answer using evidence from Resources 8 and 9. [7]

(d) How useful are Resources 8 and 9 in explaining why Africa is part of the 'periphery', as seen in Resource 11? [9]

Theme 3 – Sustainable Development

Traffic Congestion in Paris

4 Resource 12 shows the level of car dependence in the Paris region of France, a developed country in Europe, in 2001. Resource 13 shows some statistics related to traffic congestion in Paris in 2016. Paris was ranked the 7th most congested city in Europe in that same year. Resource 14 shows a station of *Vélib'*, a large-scale public bicycle-sharing scheme in Paris, launched in 2007. Bicycle-sharing schemes are increasingly considered as a viable strategy to reduce car dependence in many cities.

(a) Describe, and suggest reasons for, the pattern of car dependence shown in Resource 12. [6]

(b) With reference to Resources 12 and 13, explain when and why traffic congestion occurs in Paris. [4]

(c) With the help of Resource 13, suggest and explain some possible **social** and **economic** impacts of traffic congestion in Paris. [6]

(d) With the help of Resources 13 and 14, and using your own knowledge, evaluate the extent to which public bicycle-sharing schemes should be relied on as a means to reduce car dependence in a city. [9]

SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2017
Higher 2

GEOGRAPHY 9751/01

Paper 1 Structured Essay Questions

Monday
20 Sept 2017
3 hours

Additional materials: Writing Paper
1 Insert
World outline map

READ THESE INSTRUCTIONS FIRST

Write your name and civics group on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighter, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not superficially requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A - Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the local and global values of the ecosystem services provided by tropical forests. **[12]**

(b) Assess attempts that have been made to conserve the tropical forest environment. **[20]**

2 **(a)** Explain the factors affecting the rate of karstification in the tropics. **[12]**

(b) "Surface processes are more significant than sub-surface processes in the development of tropical karst landscapes." To what extent do you agree with the statement? **[20]**

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** With reference to a specific country you have studied, explain where and why service activities tend to be located in clusters. **[12]**

(b) To what extent does the increase in personal income explain the growth of the service industry? **[20]**

4 **(a)** Explain the environmental impact of **one** mining region you have studied. **[12]**

(b) "Nations with outsized natural resource endowments are more likely to falter than succeed compared to resource-poor ones." To what extent is this statement valid? **[20]**

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain how urban liveability in residential neighbourhoods can be measured. **[12]**

(b) With reference to **one** social group you have studied, assess the success of strategies to produce a more inclusive city. **[20]**

6 **(a)** Explain the effects of fossil fuel use on the global carbon cycle. **[12]**

(b) To what extent are the constraints to renewable energy development more likely to be physical rather than economic or social? **[20]**

End of Paper

SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2017
Higher 2

GEOGRAPHY **9751/02**

Paper 2 Data Response Questions

INSERT

Wednesday
13 Sept 2017
3 hours

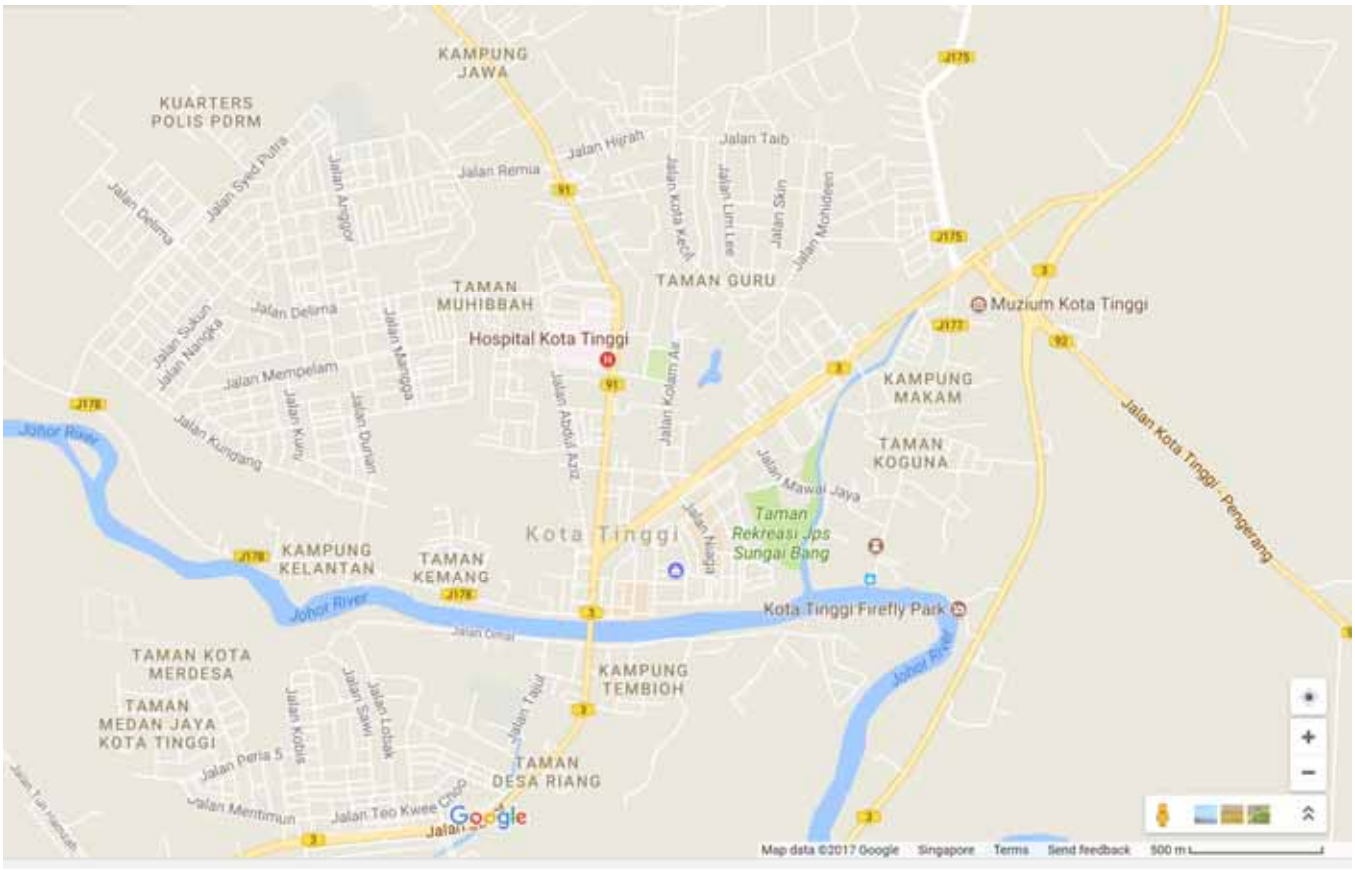
READ THESE INSTRUCTIONS FIRST

This insert contains all the Resources referred to in the questions.

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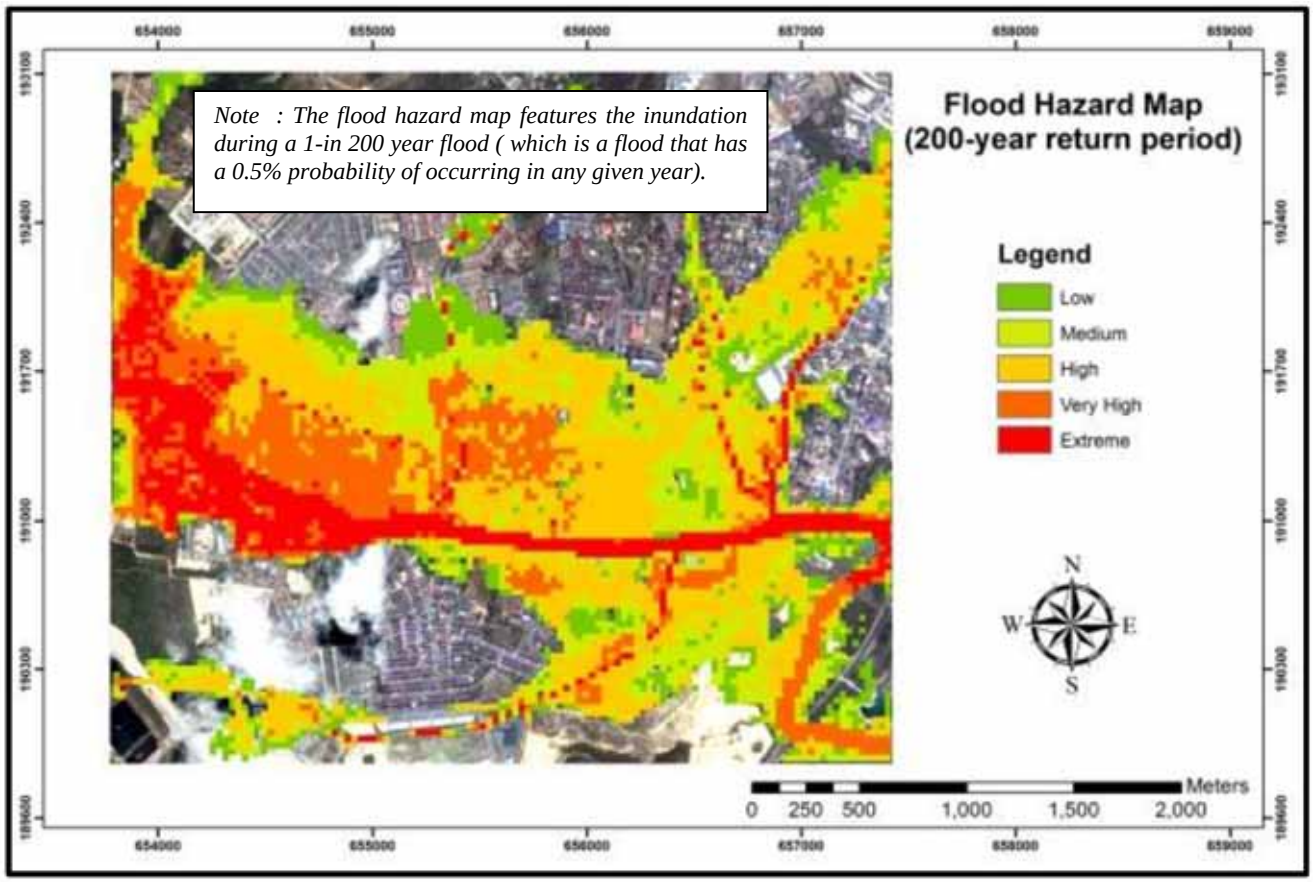
Resource 1 for Question 1

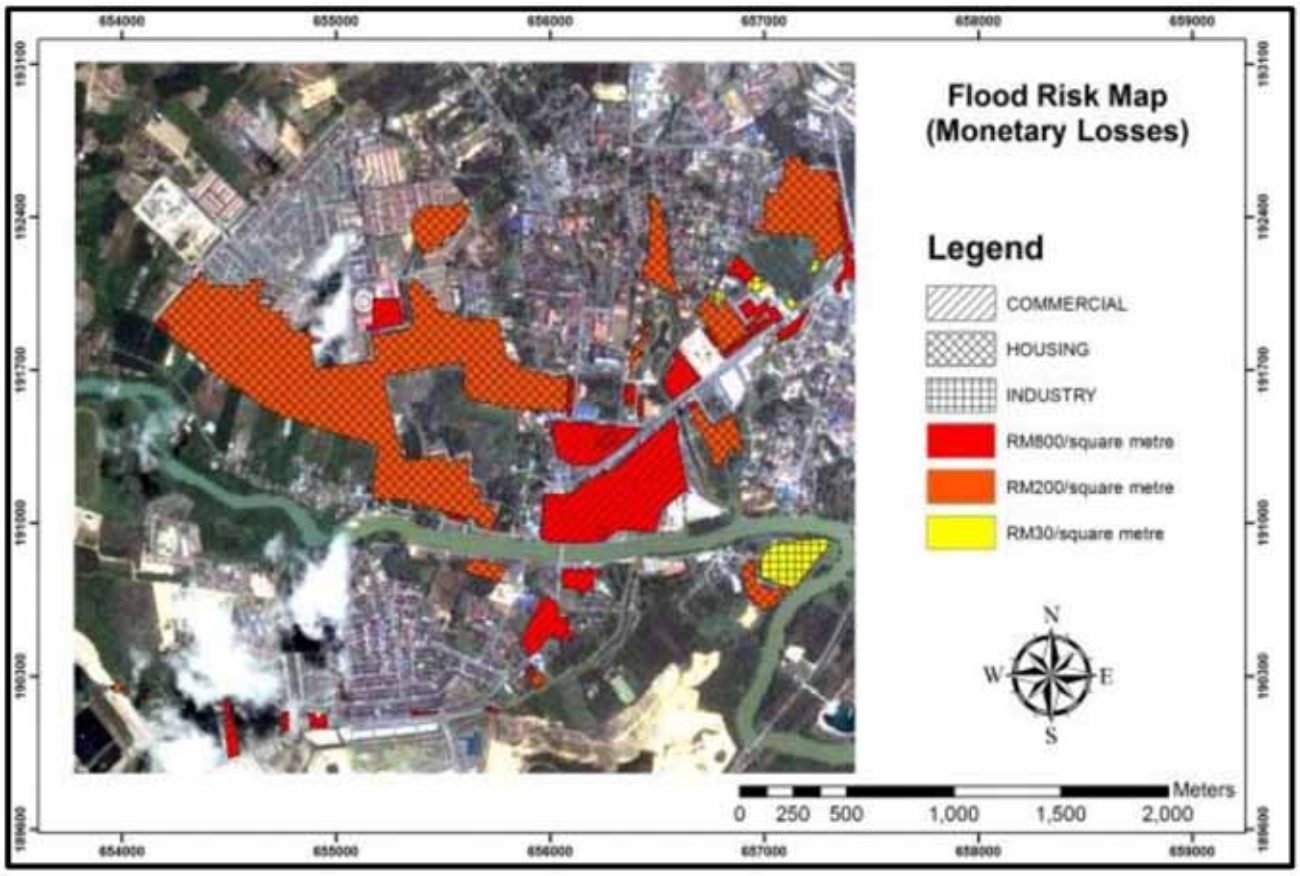
Map of Kota Tinggi (Malaysia)



Resource 2 for Question 1

Flood Hazard map and Flood risk map of Kota Tinggi (Malaysia)





Resource 3 for Question 1

Sample of the Questionnaire survey

Introduction : I am doing a geography project on flood perception risk. This survey is likely to take 15 mins.

1) Age : _____

2) Gender : _____

3) Living situation :
   - Couple family with children
   - Couple family without children
   - One parent family
   - Other family
   - Alone
   - Other (specify)

4) Employment status : _____

5) Household gross income : _____

6) Highest educational qualifications : _____

7) How long have you stayed in this house ? _____

8) When was the last time the house you lived in was flooded ? _____

9) When do you think your house is likely to be affected by a flood ?
   - Within the next year
   - Within the next 5 years
   - Within the next 20 years
   - In over 50 years
   - Never

10) How concerned are you about floods? _____

_____

11) What has you or your family done to prepare for a flood emergency ?

_____

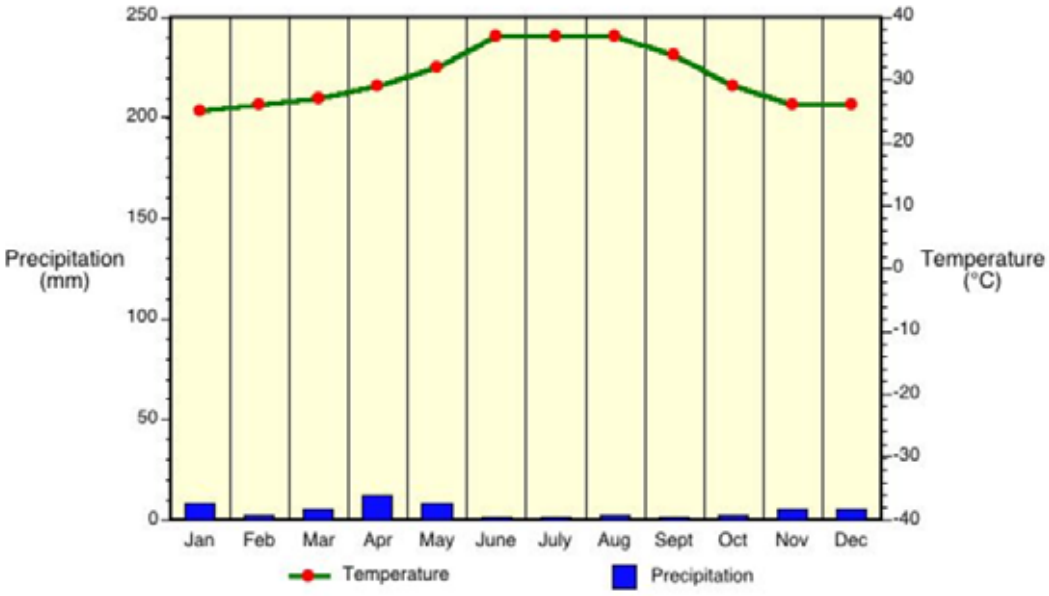
12) Do you believe it is necessary to make preparations for flooding because of the high flood risk in the region ?

_____

13) Are you insured against floods? Yes/No

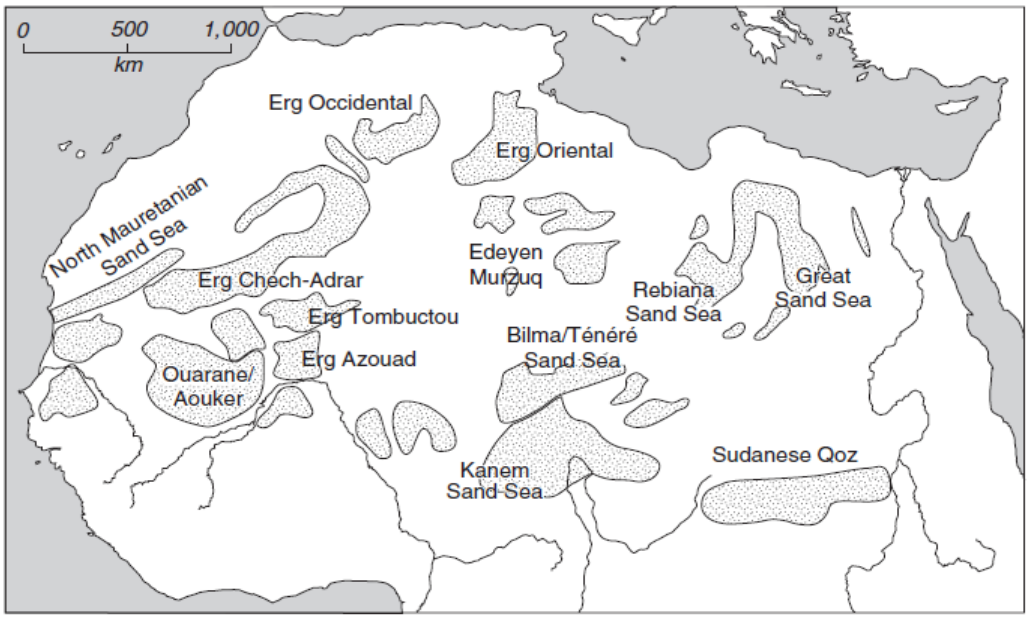
Resource 4 for Question 2

Mean monthly temperature and precipitation values for Berbera, Somalia (Latitude 10.5° N)



Resource 5 for Question 2

The main sand seas/ergs of the Sahara and Sahel today



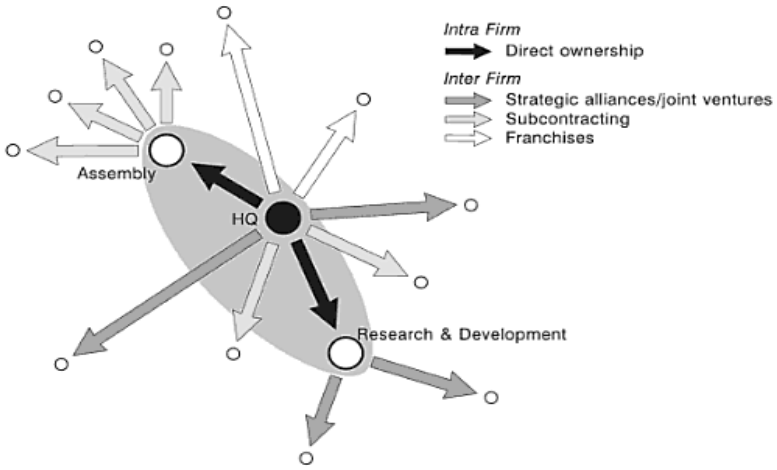
Resource 6 for Question 2

A desert landform in the Sahara



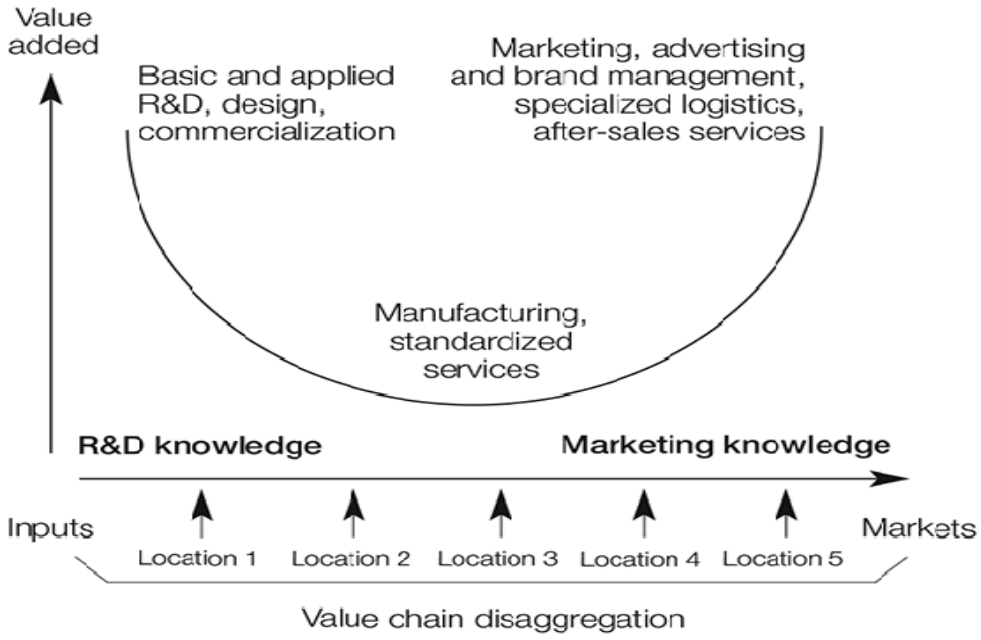
Resource 7 for Question 3

Intra-firm and inter-firm networks of a TNC (transnational corporation)



Resource 8 for Question 3

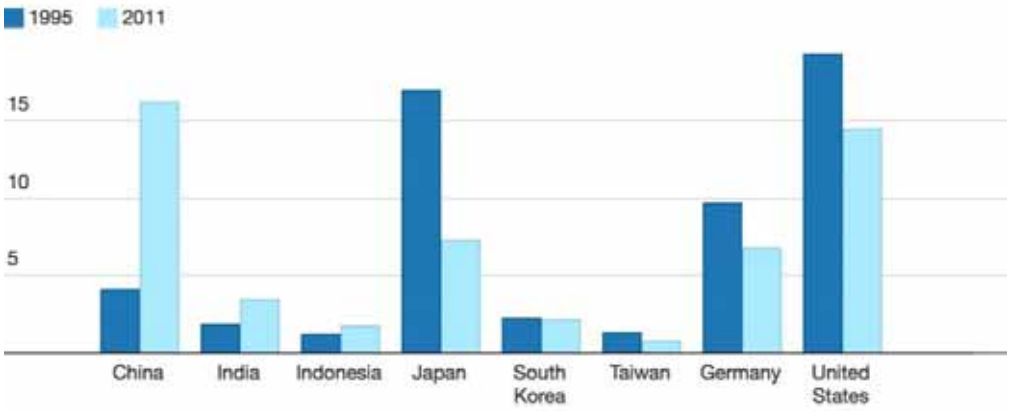
Spatial distribution of the global value chain



Source: Mudambi (2008).

Resource 9 for Question 3

Share of manufacturing value chain income (%) of developed countries and Asian Newly Industrialised Economies between 1995 and 2011



Source: Global Value Chain and the Competitiveness of Asian Countries, Kiyota Kozo et al

Resource 10 for Question 4

Protesters gather outside Wal-Mart's offices in Gurgaon, India



Resource 11 for Question 4

Location of the Makoko Slum, Lagos (Nigeria)



Resource 12 for Question 4

Photographs of Makoko Slum, Lagos (Nigeria)





Resource 13 for Question 4

Public Health status in Makoko Slum

Comparing the maternal mortality rate*

Makoko	Lagos national figure
1050 deaths per 100,000 live births	545 deaths per 100,000 live births

*Note : Maternal mortality rate (MMR) is the annual number of female deaths per 100,000 live births from any cause related to or aggravated by pregnancy or its management

Place of delivery for expectant mothers in Makoko

Place of delivery	Makoko (n = 1602)
At home	7.8%
Private health facility	57.1%
Government facility	4.1%
Neighbourhood facility	4.7%
Faith based facility	0.7%
MSF health facility	8.9%
Others	0.8%
Not indicated	23.7%
Total deliveries in health facilities	70.7%

Source : Anastasi E, Ekanem E, Hill O, Adebayo Oluwakemi A, Abayomi O, Bernasconi A (2017) Unmasking inequalities: Sub-national maternal and child mortality data from two urban slums in Lagos, Nigeria tells the story. PLoS ONE 12(5): e0177190.

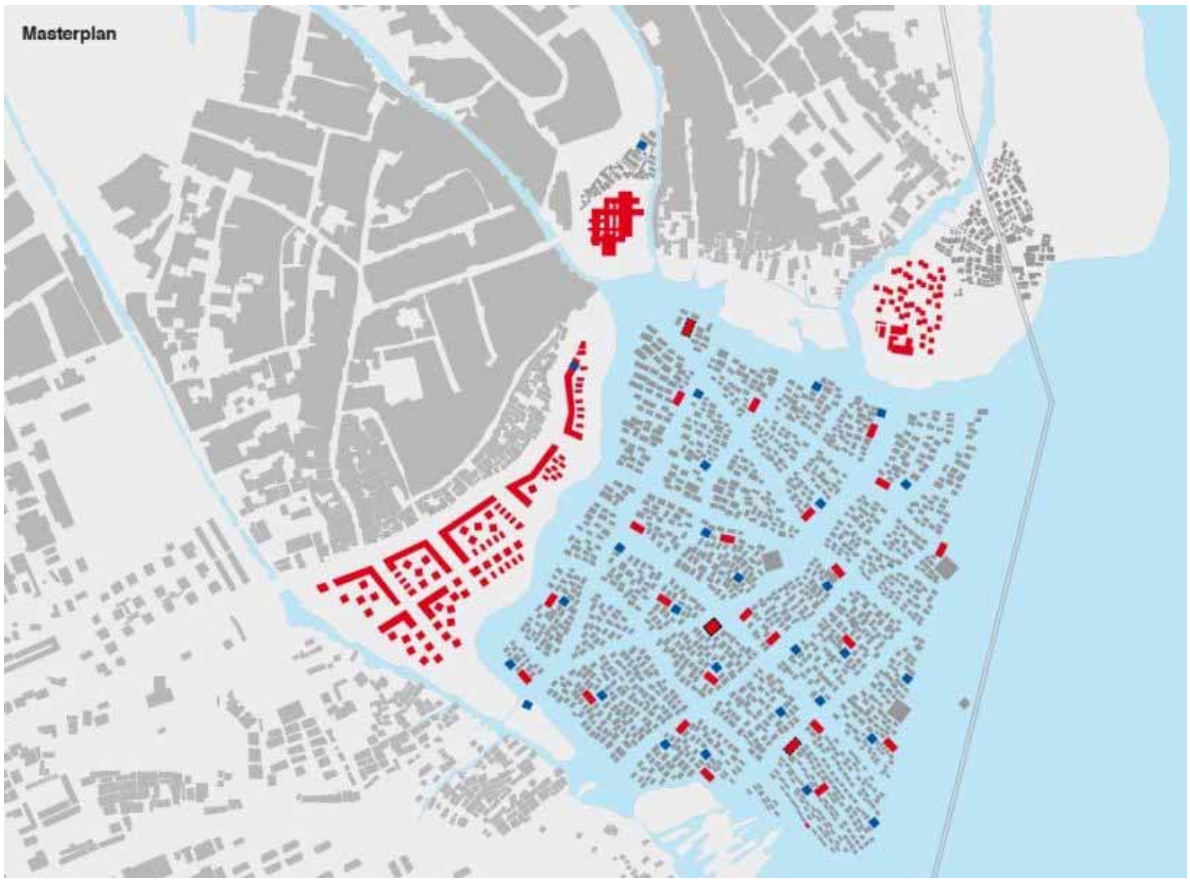
Common diseases in Makoko

Diseases	Makoko
Malaria	93%
Diarrhoea	59%
Cough	45%

Source : Living Conditions and public health statues in three urban slums of Lagos, Nigeria/ South East Asia Journal of Public Health 2013;3(1):36-41

Resource 14 for Question 4

Makoko Waterfront Regeneration project



On land : Redevelopment approach

New interventions :

Hospital and research center for water related diseases
Eco-hotel
Beach houses

schools

On water : Redevelopment approach

New interventions :

Neighbourhood hotspots with renewable energy production

Recycling stations

Walk-in clinic (casualty or emergency clinic)

schools

SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2017
Higher 2

GEOGRAPHY **9751/02**

Paper 2 Data Response Questions

Wednesday
13 Sept 2017
3 hours

Additional materials: Answer Paper
1 Insert
World Outline Map

READ THESE INSTRUCTIONS FIRST

Write your name and civics group on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighter, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the question paper.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not superficially requested by the question.
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The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.

Section A

Theme 4 : Geographical Investigation

1 A group of students were tasked to undertake a fieldwork exercise along the Johor River in Kota Tinggi (Malaysia) to ascertain the perception of flood risk and preparedness in selected residential areas.

In preparation for the fieldwork investigation, the students accessed flood hazard maps and flood risk maps prepared by the Institute of Geospatial Science and Technology (Universiti Teknologi Malaysia).

The students decided to do a questionnaire survey, administered via face-to-face interviews. The questionnaire included questions on: awareness, risk perception, previous exposure to flooding and the extent to which people engaged or plan to engage in preparedness activities. They were given two days in June 2017 at each site to complete their surveys.

Resource 1 shows a map of Kota Tinggi (Malaysia). Resource 2 shows the flood hazard map and flood risk map of Kota Tinggi. Resource 3 is a sample of the questionnaire survey prepared by the students.

(a) Using Resources 1 and 2, establish **three** criteria for selecting sites for fieldwork investigation. [4]

(b) During the pilot test for the questionnaire survey, the group of students concluded that they needed to improve their survey questions. Suggest how the survey questions in Resource 3 can be further improved. [6]

(c) Outline **two** potential hazards during the fieldwork activities and provide ways to mitigate these hazards. [5]

(d) Suggest how the results from the flood risk perception survey can aid urban planning in Kota Tinggi. [3]

(e) Explain the strength(s) and limitation(s) of using a flood risk perception survey to ascertain flood risk. [7]

Section B

Theme 1 : Tropical Environments

Arid Environments in the African continent

2 Deserts are regions characterised by unique atmospheric and geomorphological processes.

Resource 4 shows the mean monthly temperature and precipitation values for Berbera, Somalia. Resource 5 illustrates the main sand seas/ergs of the Sahara and Sahel today. Resource 6 shows a type of desert landform found in the Sahara.

(a) With reference to Resource 4, describe the climatic characteristics of a desert. [4]

(b) Using information from Resource 4, outline the factors promoting the transport of sediment by wind in deserts. [4]

(c) Explain why the distribution and extent of sand seas/ergs, as shown in Resource 5, was likely to be different during the early Holocene. [5]

(d) Using diagrams, explain how the desert landform reflected in Resource 6 may have formed. [5]

(e) Examine the extent to which desert landforms, such as those shown in Resource 6, are due to the processes of wind action only. [7]

‘

Theme 2 : Development, Economy and Environment

Spatial organisation of Transnational Corporations

3 Resource 7 shows the intra-firm and inter-firm networks of a TNC (transnational corporation). Resource 8 illustrates the spatial distribution of the global value chain. Value chain refers to the entire sequence of productive or value-added activities from the conception of a product to its manufacturing and commercialisation. Resource 9 reflects the share of manufacturing value chain income of developed countries and Asian Newly Industrialised Economies between 1995 and 2011. Resource 10 is a photograph of protesters gathered outside Wal-Mart's offices in Gurgaon, India. They are demanding that Wal-Mart build its stores far from markets where they work.

(a) With reference to Resource 7, describe the roles of HQ (headquarters) in a TNC (transnational corporation). [3]

(b) International sub-contracting is one of the inter-firm networks established by a TNC. Outline **two** advantages and **two** disadvantages for TNCs engaging in international subcontracting. [4]

(c) Using Resource 8 and your own knowledge, suggest **three** locational requirements for R&D (research and development) activities. [3]

(d) Citing information from Resource 8, suggest reasons for the trends observed in Resource 9. [7]

(e) Use Resource 10 and your own knowledge to support the view that the global reach of TNCs is **not** limitless. [8]

Theme 3 : Sustainable Development

Slums in Makoko, Lagos (Nigeria)

4 Lagos, Nigeria is the largest city in Africa, with an estimated 11.2 million people in 2011 (United Nations). The city has been dubbed the “mega-city of slums”, with 66% of the population residing in slums.

Makoko is one of the slums in Nigeria. A third of the community is built on stilts along the Lagos lagoon and the rest is on land.

Resource 11 shows the location of Makoko Slum, Lagos (Nigeria). Resource 12 features photographs of Makoko Slum. Resource 13 outlines selected figures from surveys conducted in Makoko Slum, highlighting public health status in Makoko. Resource 14 is the proposed masterplan of the Makoko Waterfront Regeneration project. The Makoko Waterfront Regeneration project is a slum upgrading project initiated by the local community, in collaboration with the Social and Economic Rights Action Center (SERAC) and Urban Spaces Innovation (USI). The project was intended to be an alternative to widespread eviction. Professionals from diverse background in land, housing, environment, urban development, social and economic empowerment and development finance, worked closely with different sections of the Makoko community to come up with this master plan.

(a) Using Resources 11 and 12, suggest reasons for the location of the Makoko Slum in Lagos, Nigeria. [5]

(b) Account for Makoko’s maternal mortality rate as reflected in Resource 13. Use information from any of the Resources and your own knowledge to support your answer. [6]

(c) Citing from Resources 12 and 13, suggest how climate change is likely to affect the lives of urban dwellers in Makoto Slum. [5]

(d) “Slum upgrading is a more humane and long-term housing solution for slum dwellers.” Using information from Resource 14 and your own knowledge, assess the validity of the statement. [9]

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TEMASEK JUNIOR COLLEGE
PRELIMINARY EXAMINATION 2017

GEOGRAPHY **9751/01**
Higher 2

Paper 1 **3 HOURS**

Additional Materials: **World Outline Map**

READ THESE INSTRUCTIONS FIRST

Write your name and CG on all the work you hand in.
Begin the answer to each question on a fresh sheet of paper.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use highlighters, glue or correction fluid.

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

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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.
You should spend time according to marks allocated to questions.

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TEMASEK JUNIOR COLLEGE

SECTION A – Tropical Environments

Answer **one** question from this section.

All questions carry 32 marks.

1 (a) Explain the ways in which rainfall can be generated in tropical areas. [12]

1 (b) To what extent are tropical climates distinctive? [20]

2 (a) Explain how wind and water operate to remove weathered material in tropical environments. [12]

2 (b) 'Landforms in the humid tropics are primarily the result of weathering and erosion whereas those in the arid tropics are usually the outcome of deposition.'

Assess the validity of this claim based on the landforms that you have studied. [20]

SECTION B – Development, Economy and Environment

Answer **one** question from this section.

All questions carry 32 marks.

3 (a) With reference to transnational corporations that you have studied, explain how intra-firm and inter-firm networks influence production circuits. [12]

3 (b) 'The rise of global production networks has created more winners than losers.'

How far do you agree with this claim? [20]

4 (a) Explain the main causes of water scarcity in countries with low levels of development. [12]

4 (b) A World Bank spokesperson predicted in 1999 that:

'While many of the wars of the 20th century were about oil, wars of the 21st century will be over water...'

With reference to examples, discuss the extent to which conflicts over transboundary water supplies inevitably lead to wars. [20]

SECTION C – Sustainable Development

Answer **one** question from this section.

All questions carry 32 marks.

5 (a) Explain the variations in energy mix and energy consumption patterns across countries at different levels of economic development. [12]

5 (b) To what extent is hydropower a more sustainable form of alternative energy source compared to **either** nuclear energy **or** biofuels? [20]

6 (a) Explain the concept of 'sustainable development' and its relevance to developing countries. Support your answer with examples. [12]

6 (b) 'The issues surrounding sustainable urban development can never be resolved.'

Discuss. [20]

END OF PAPER

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TEMASEK JUNIOR COLLEGE
PRELIMINARY EXAMINATION 2017

GEOGRAPHY **9751/02**
Higher 2

Paper 2 **3 HOURS**

Additional Materials: **Resource Booklet**
World Outline Map

READ THESE INSTRUCTIONS FIRST

Write your name and CG on all the work you hand in.
Begin the answer to each question on a fresh sheet of paper.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use highlighters, glue or correction fluid.

Answer **all** questions.

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The world outline map may be annotated and handed in with relevant answers.
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You should spend time according to marks allocated to questions.
All resources referred to in the question paper are in the Resource Booklet.

This document consists of 6 printed pages

TEMASEK
JUNIOR COLLEGE

SECTION A

Answer the question below.

The question carries 25 marks.

Theme 4: Geographical Investigation

1 You and your classmates comprising 40 students in total were tasked to carry out a geography fieldwork exercise to investigate the impact of land use on infiltration rates in a local area.

Your group of four members were given one morning to collect infiltration data in the area shown in Resource 1.

The equipment provided included:

- 1 infiltration ring (improvised from a plastic drain pipe)
- 1 metre ruler
- 1 stop watch
- Water bottles
- Recording sheet

Your group placed the infiltration ring on the ground and poured water into the infiltration ring as shown in Resource 2. Using a metre ruler, you measured the time it took for the water level to drop every 1cm and recorded down the readings. You carried out the measurement for 30 minutes at each sampling point without topping up the water in the infiltration ring. A group member noticed the ground area immediately adjacent to the infiltration ring getting wet soon after the experiment started.

The same data collection method was repeated at all the sample sites.

Resource 1 shows a map of the fieldwork site. Resource 2 shows the setup of the equipment and data collection process.

(a) Explain how you would determine the location of your sample sites in Resource 1 to collect infiltration data for your investigation. [5]

(b) Your group concluded that some of the infiltration data collected may not be accurate.

Highlight **two** possible problems with the data collection method shown and suggest ways to overcome them. [4]

(c) With reference to Resources 1 and 2, suggest measures you and your group would take to minimize the potential risks and impacts of the investigation. [5]

(d) With the aid of a diagram, show how the data collected from your investigation can be best represented. [2]

(e) Evaluate the usefulness of the data collected from your investigation in ascertaining the flood risk of the stream shown in Resource 1. [9]

SECTION B

Answer the question below.

The question carries 25 marks.

Theme 1: Tropical Environments

Channel Patterns in Tropical Environments

2 Resource 3 shows the changes in channel variables and the drainage network of a river basin in the tropics. Most of the catchment has moderately steep slopes and is covered with a thick mantle of clay. Around half the catchment is arable land.
Resource 4 shows two river channels, Y and Z, which are referred to in Resource 5.
Resource 5 shows the relationship between river bed material and river channel pattern.

(a) With reference to Resource 3, explain the changes in channel morphology between stations A and B. [6]

(b) Describe how you would determine the drainage density of the drainage basin shown in Resource 3. [3]

(c) Compare the features of river channels **Y** and **Z** as shown in Resource 4. [4]

(d) Using Resource 5, state the percentage composition of the various river bed material for river channel **X.** [3]

(e) With reference to Resources 4, 5 and your own knowledge, assess the role of river bed material in influencing the formation of channel pattern **Y**. [9]

SECTION C

Answer the question below.

The question carries 25 marks.

Theme 2: Development, Economy and Environment

Resource extraction in India

3 Resource 6 is a map of India that shows the distribution of selected resources.
Resource 7 shows areas affected by political violence in India.
Resource 8 shows excerpts of news articles regarding the impacts of resource extraction in India.
Resource 9 shows the relationship between average economic growth rate and mineral and fuel exports as a percentage of total exports for selected countries from 1970 to 2008.

(a) With reference to Resource 6, describe the distribution of resources in India. [5]

(b) Compare the pattern of distribution of selected resources and areas affected by political violence in India as seen in Resources 6 and 7. [3]

(c) With reference to Resources 7, 8 and your own knowledge, examine the negative impacts of mining in countries at low levels of development like India. [8]

(d) Describe the overall relationship between average economic growth rate and mineral and fuel exports as a percentage of total exports for selected countries between 1970 and 2008, supporting your response with information from Resource 9. [4]

(e) Using information from Resource 9 and your own knowledge, suggest why India may not be suffering from the 'resource curse'. [5]

SECTION D

Answer the question below.

The question carries 25 marks.

Theme 3: Sustainable Development

Liveability of Melbourne, Australia

4 Resource 10 is a table showing the top five cities as ranked by three measures of urban liveability, namely the 2015 Economist Intelligence Unit Liveability Index, 2016 Mercer Quality of Living Ranking and the 2016 Monocle Quality of Life Survey.
Resource 11 is a map showing pricing and affordability of housing in Melbourne, Australia.
Resource 12 show photographs of Melbourne's docklands before and after urban change began in the area in 1997.

(a) Compare the ranking of the top five cities across the three measures of urban liveability in Resource 10. [4]

(b) With reference to Resource 10 and your own knowledge, highlight some of the difficulties in measuring urban liveability. [5]

(c) Describe the pattern of housing prices in Melbourne as seen in Resource 11. [4]

(d) Using Resource 12, show how urban change has taken place in Melbourne's docklands. [5]

(e) Using the resources provided, explain why not all residents in Melbourne enjoy a high quality of urban living. [7]

END OF PAPER

TEMASEK JUNIOR COLLEGE
PRELIMINARY EXAMINATION 2017

GEOGRAPHY **9751/02**
Higher 2

Paper 2 **3 hours**

RESOURCE BOOKLET

READ THESE INSTRUCTIONS FIRST

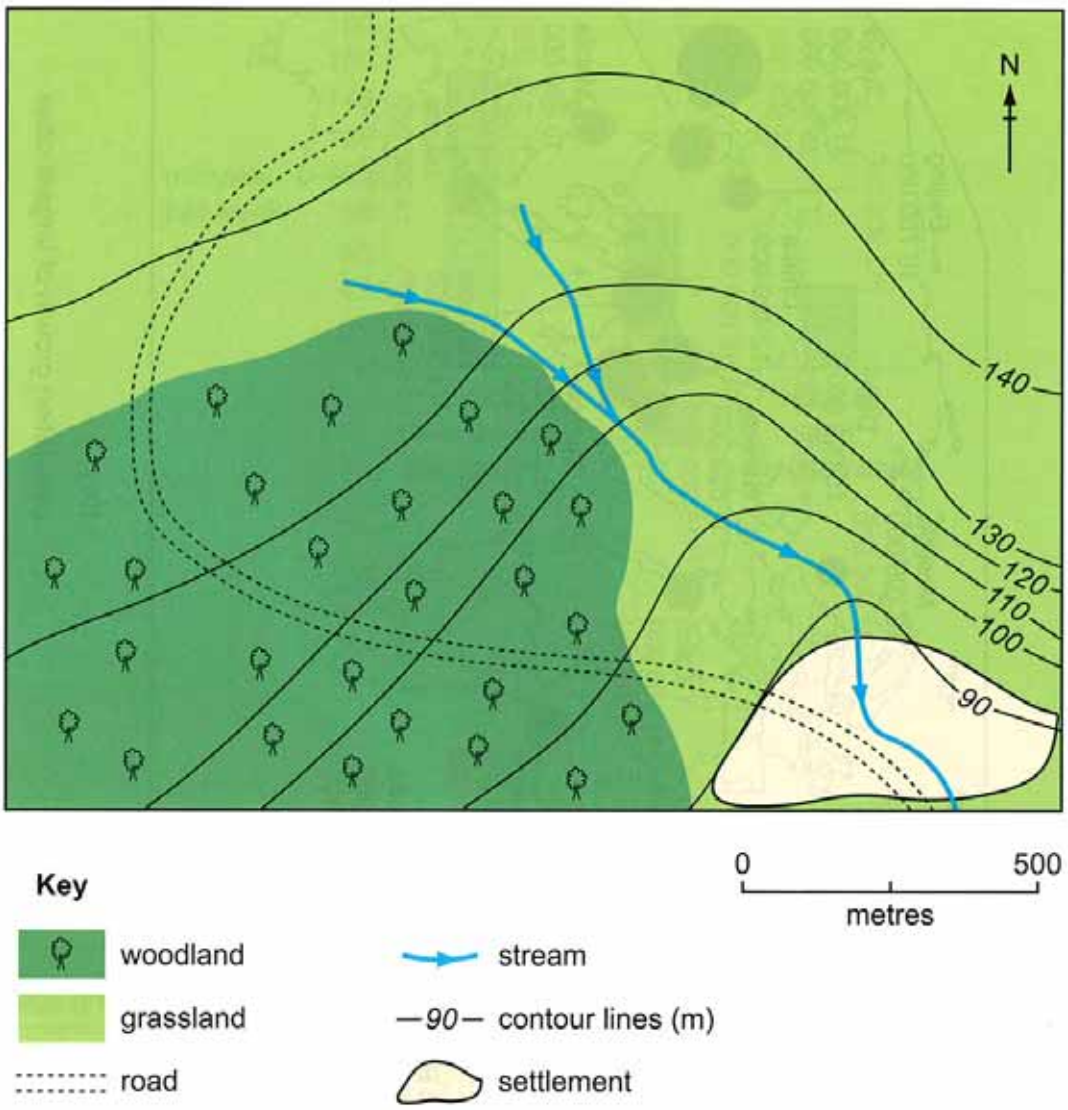
This resource booklet contains the resources referred to in the questions as well as the World Outline Maps

This document consists of 11 printed pages

TEMASEK
JUNIOR COLLEGE

Resource 1 for Question 1

Map of fieldwork site



Resource 2 for Question 1

Collection of infiltration data

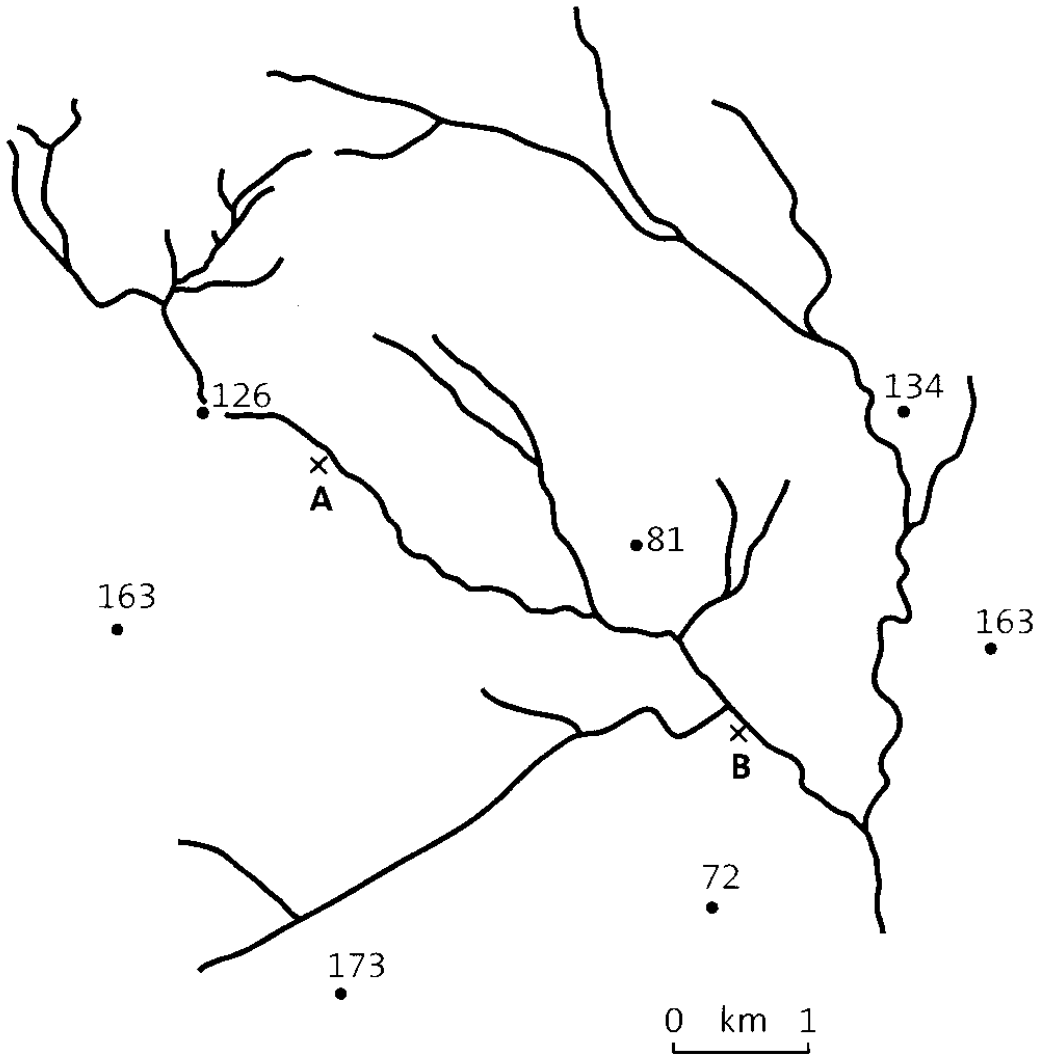


Resource 3 for Question 2

Changes in channel variables

Variable	Upstream Mean (Station A)	Downstream Mean (Station B)
Bankfull Discharge (cumecs)	10.77	30.63
Hydraulic Radius	0.53	0.73
Channel depth (m)	0.64	0.83
Channel width (m)	5.70	9.13
Bankfull velocity (ms^{-1})	2.68	3.60

Drainage network of a river basin



● (spot height in metres)

Resource 4 for Question 2

River channel Y

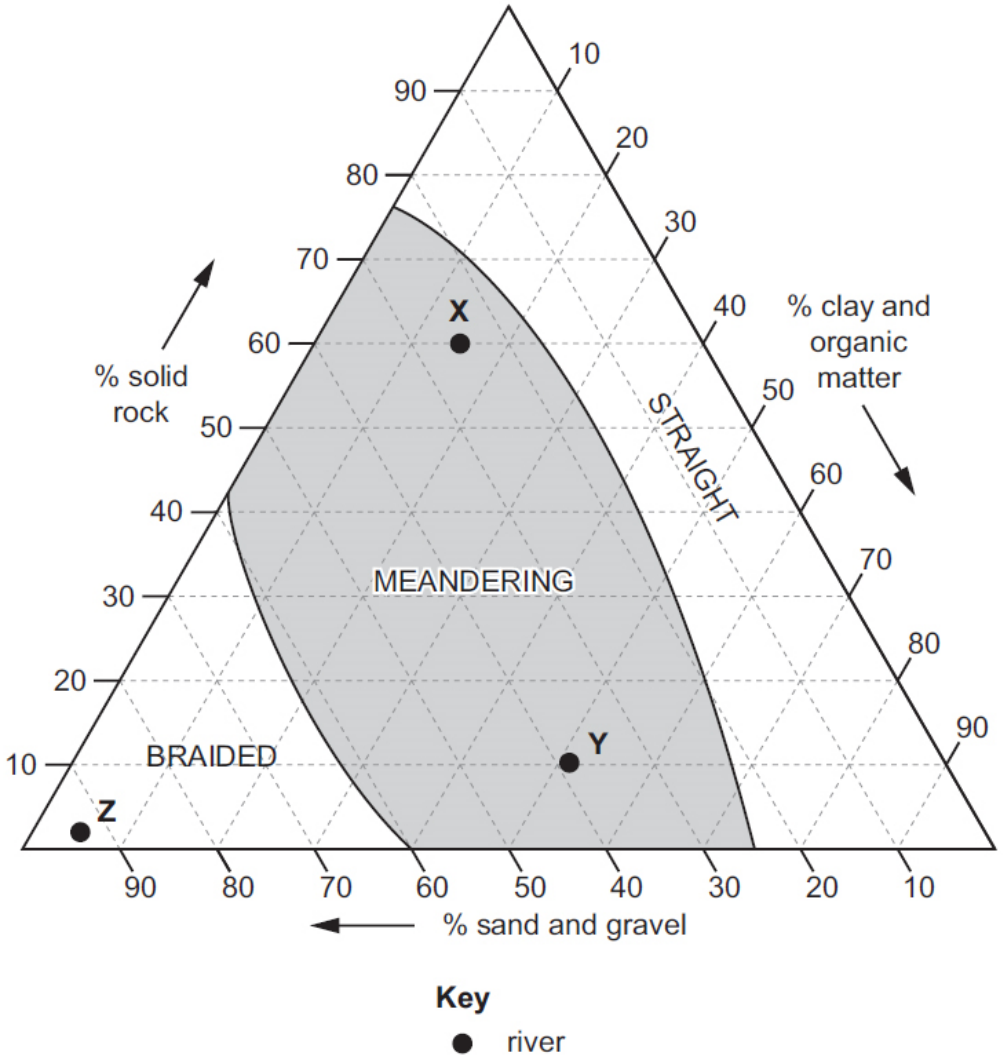


River channel Z



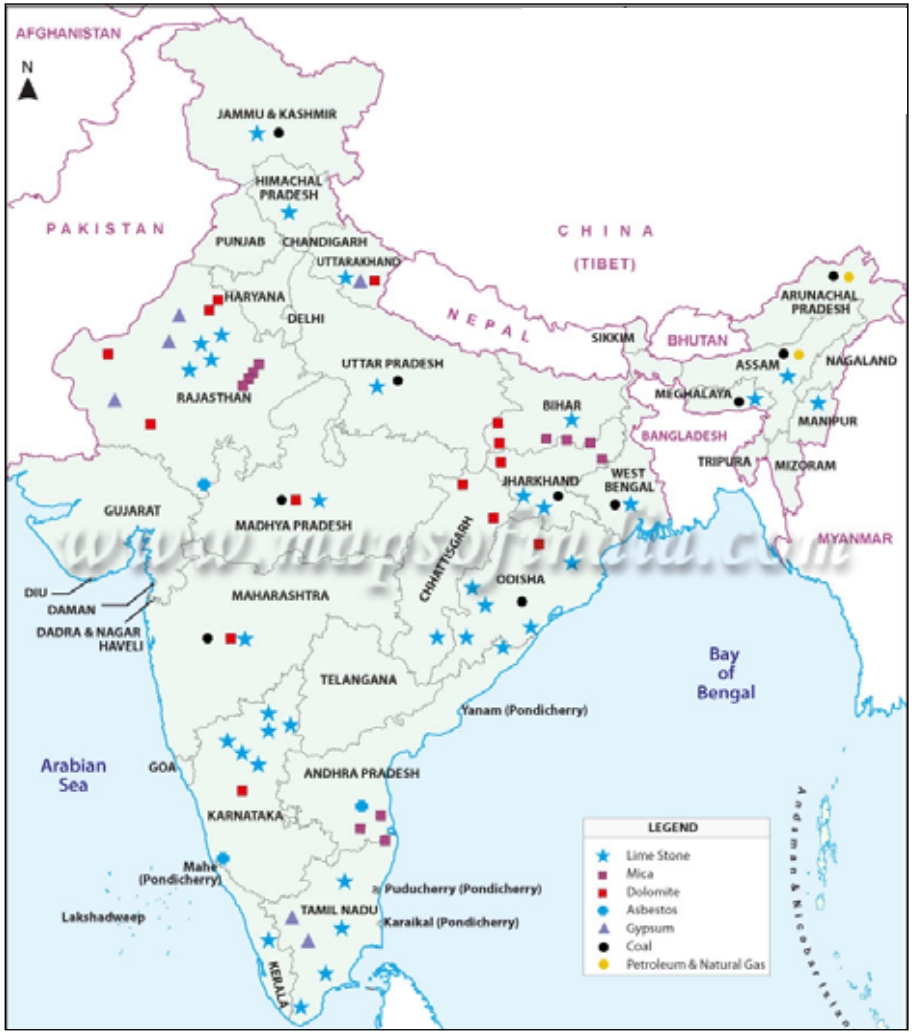
Resource 5 for Question 2

The relationship between river bed material and river channel pattern



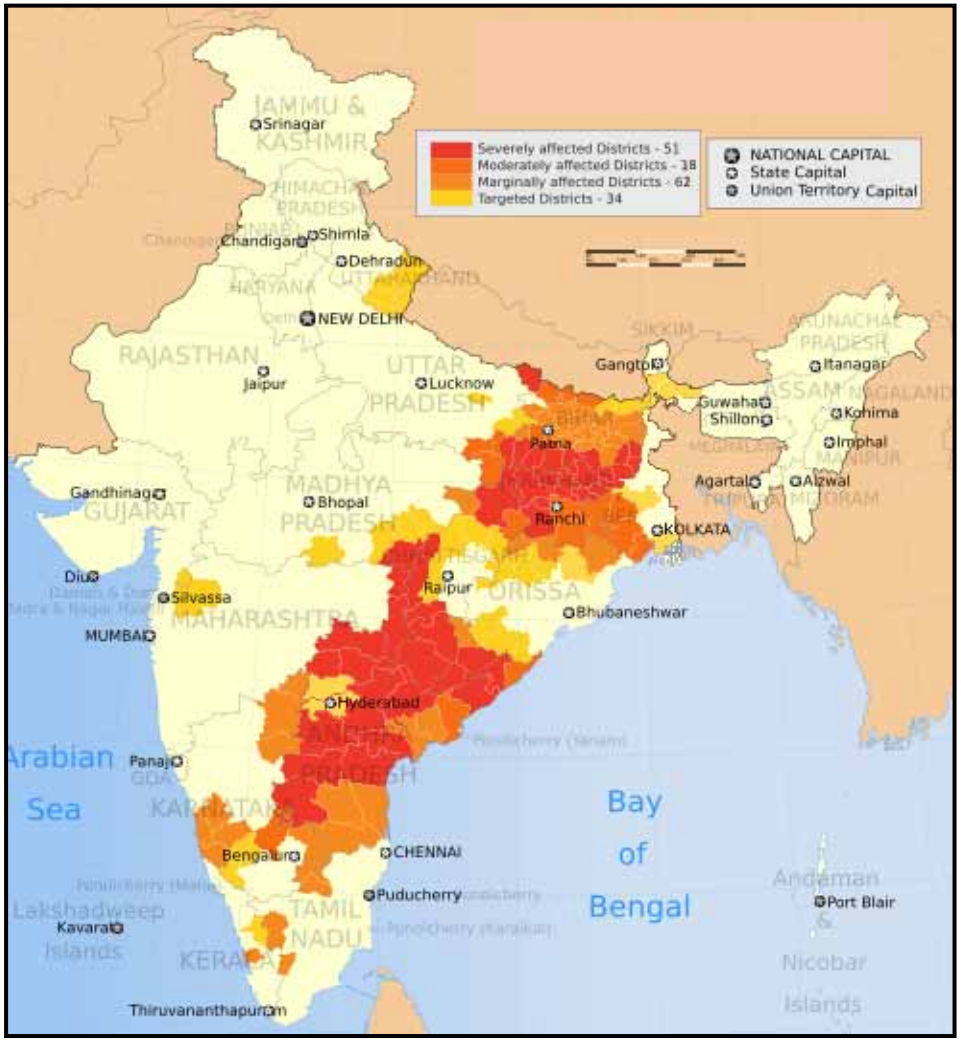
Resource 6 for Question 3

Distribution of selected resources in India



Resource 7 for Question 3

Areas affected by political violence in India



Resource 8 for Question 3

Excerpts of news articles regarding the impacts of resource extraction in India

ALJAZEERA

Ugly truth behind global beauty industry

Top cosmetic brands rely on Indian children working in illegal mines to extract mica, key ingredient in makeup products.



At least 5,000 children may be involved in mining mica - used to add glitter to cosmetics

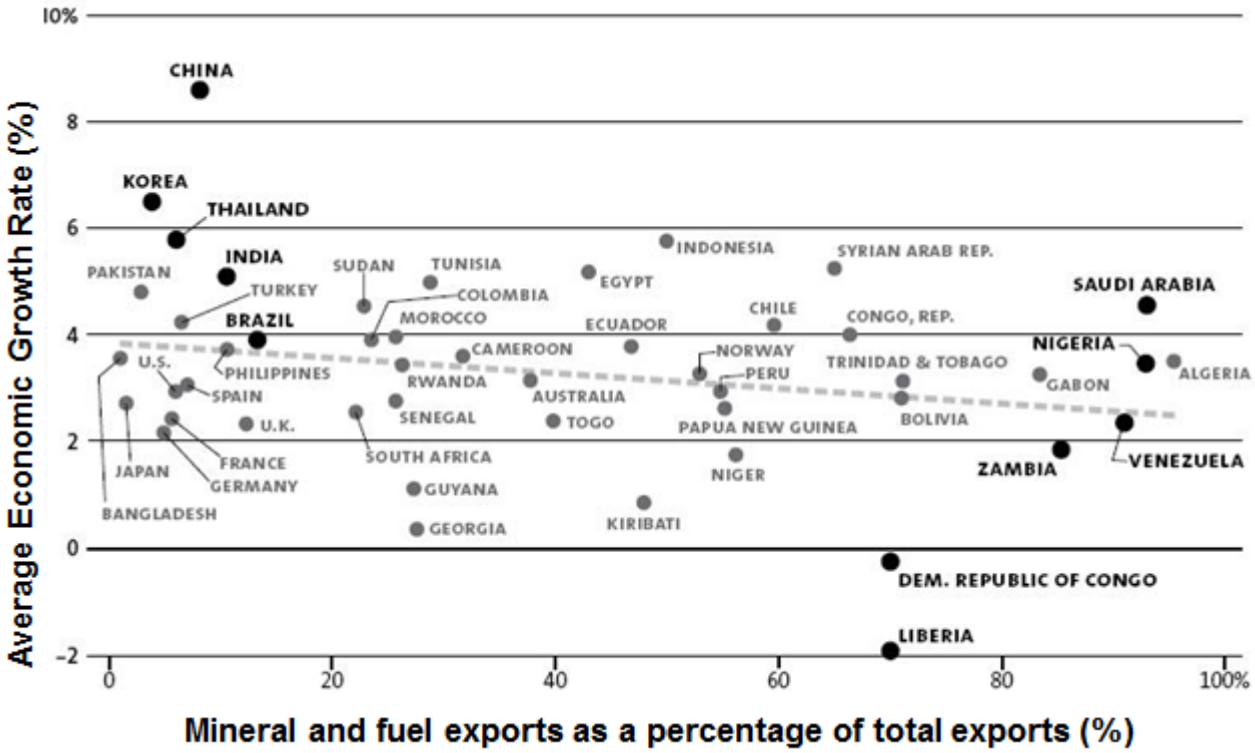
The mine that displaced India's indigenous people

About 400 Adivasi families once lived near the Chaal coal mine but were forced out by blasting and water contamination.



Resource 9 for Question 3

Average economic growth rate and mineral and fuel exports as a percentage of total exports for selected countries, 1970 - 2008



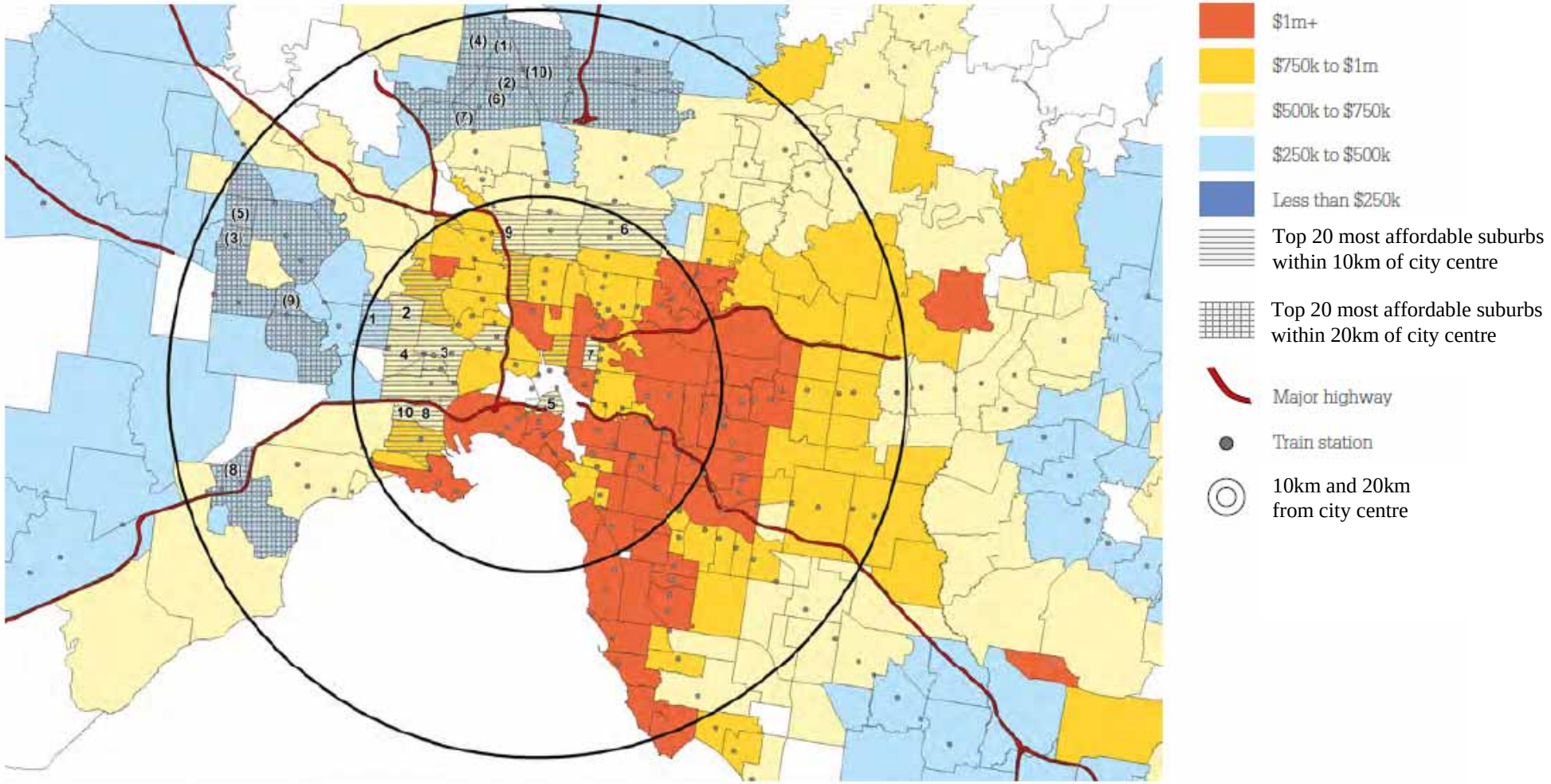
Resource 10 for Question 4

Ranking of top five cities by different measures of liveability

Rank	**Economist Intelligence Unit Liveability Index (2015)**	**Mercer Quality of Living Ranking (2016)**	**Monocle Quality of Life Survey (2016)**
	Number of cities surveyed: 140	*Number of cities surveyed: 230*	*Number of cities surveyed: 25*
1	Melbourne, Australia	Vienna, Austria	Tokyo, Japan
2	Vienna, Austria	Zurich, Switzerland	Berlin, Germany
3	Vancouver, Canada	Auckland, New Zealand	Vienna, Austria
4	Toronto, Canada	Munich, Germany	Copenhagen, Denmark
5	Adelaide, Australia	Vancouver, Canada	Munich, Germany

Resource 11 for Question 4

Housing prices and affordability in Melbourne, Australia



Resource 12 for Question 4

Before and after urban change in Melbourne's docklands





VICTORIA JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H2 GEOGRAPHY **9751/01**

Paper 1 **3 hours**

READ THESE INSTRUCTIONS FIRST

Write your name and index number on the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question. Diagrams and sketch map should be drawn whenever they serve to illustrate and answer.
You are reminded of the need for good English and clear presentation of your answers.

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.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain how El Niño may have varying impacts on precipitation in different parts of the tropics.

[12]

(b) Discuss the extent to which precipitation vary between the different climate zones in the humid tropics.

[20]

2 **(a)** Explain how channel patterns may vary in the tropics.

[12]

(b) To what extent are hard engineering strategies more effective than soft engineering strategies in managing floods?

[20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain the usefulness of the Human Development Index (HDI) and the Multidimensional Poverty Index (MPI) in measuring development at various scales.

[12]

(b) Discuss how non-firm actors can help to facilitate economic development.

[20]

4 **(a)** Explain how the economic structure of countries at higher levels of development might change.

[12]

(b) To what extent is it possible to narrow the development gap?

[20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain how the impacts of climate change may challenge efforts to achieve sustainable development in countries at low levels of development.

[12]

(b) To what extent can alternative energy sources replace fossil fuels?

[20]

6 **(a)** Explain how the concepts of *ecological footprint* and *urban metabolism* are important in the understanding of sustainable urban development in cities with high resource use.

[12]

(b) Discuss the effectiveness of strategies to manage non-hazardous solid waste in urban areas.

[20]

VICTORIA JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H2 GEOGRAPHY **9751/02**

Paper 2 INSERT **3 hours**

READ THESE INSTRUCTIONS FIRST.

The Insert contains all the Resources referred to in the questions.

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Resource 1 for Question 1

A photo of a street in Chinatown, Singapore taken by the students



Resource 2 for Question 1

Map of Chinatown provided by the Singapore Tourism Board



Resource 3 for Question 1

Questionnaire used by students for their investigation

1. Do you live and/or work in the Chinatown district?
   - ☐ Yes (Please specify how long you have lived/worked here: _____)
   - ☐ No

2. What are the 3 aspects you like most about the Chinatown district? (Rank your choices)

__ Architecture	__ Public transport
__ Shopping	__ Cleanliness
__ Places of interest	__ Street decoration
__ Food	__ Others (Please specify: _____)

3. What are the 3 aspects you dislike most about the Chinatown district? (Rank your choices)

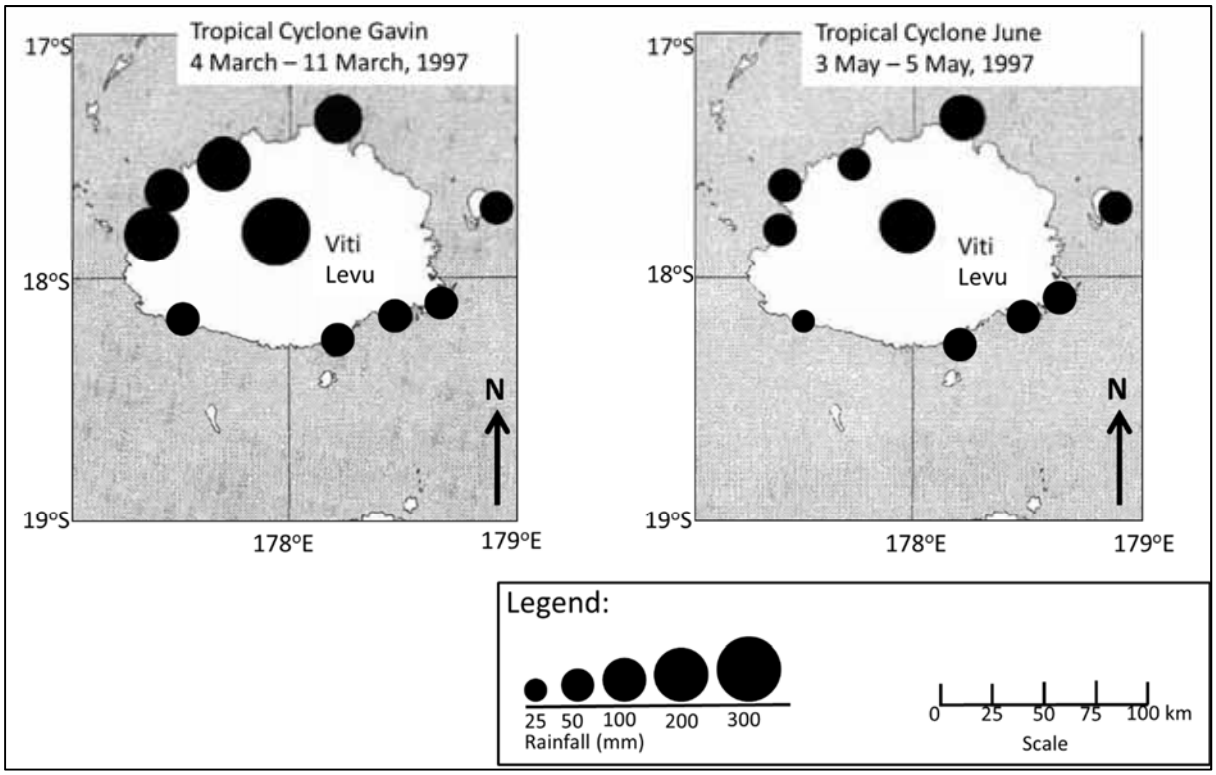
__ Architecture	__ Public transport
__ Shopping	__ Cleanliness
__ Places of interest	__ Street decoration
__ Food	__ Others (Please specify: _____)

4. Do you agree with the following statements?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a) Chinatown caters well to different groups of people.					
b) Chinatown has a good mix of businesses.					
c) Chinatown is more suited for tourists than for locals.					

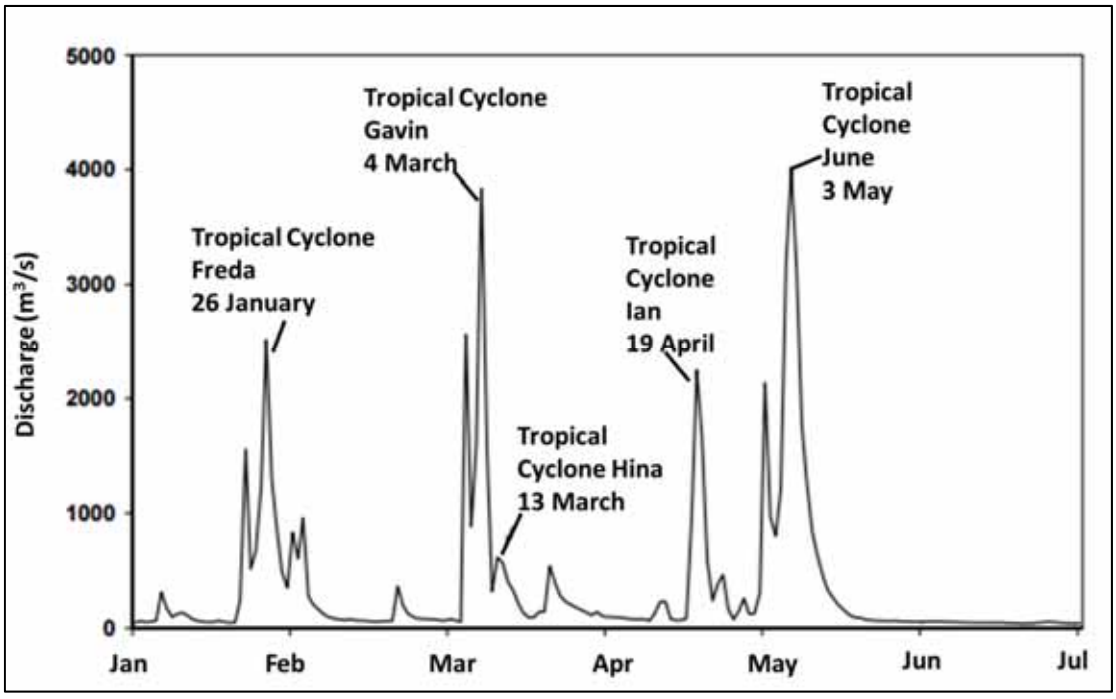
Resource 4 for Question 2

Distribution of maximum rainfall recorded in one day during Tropical Cyclone Gavin and Tropical Cyclone June in Viti Levu



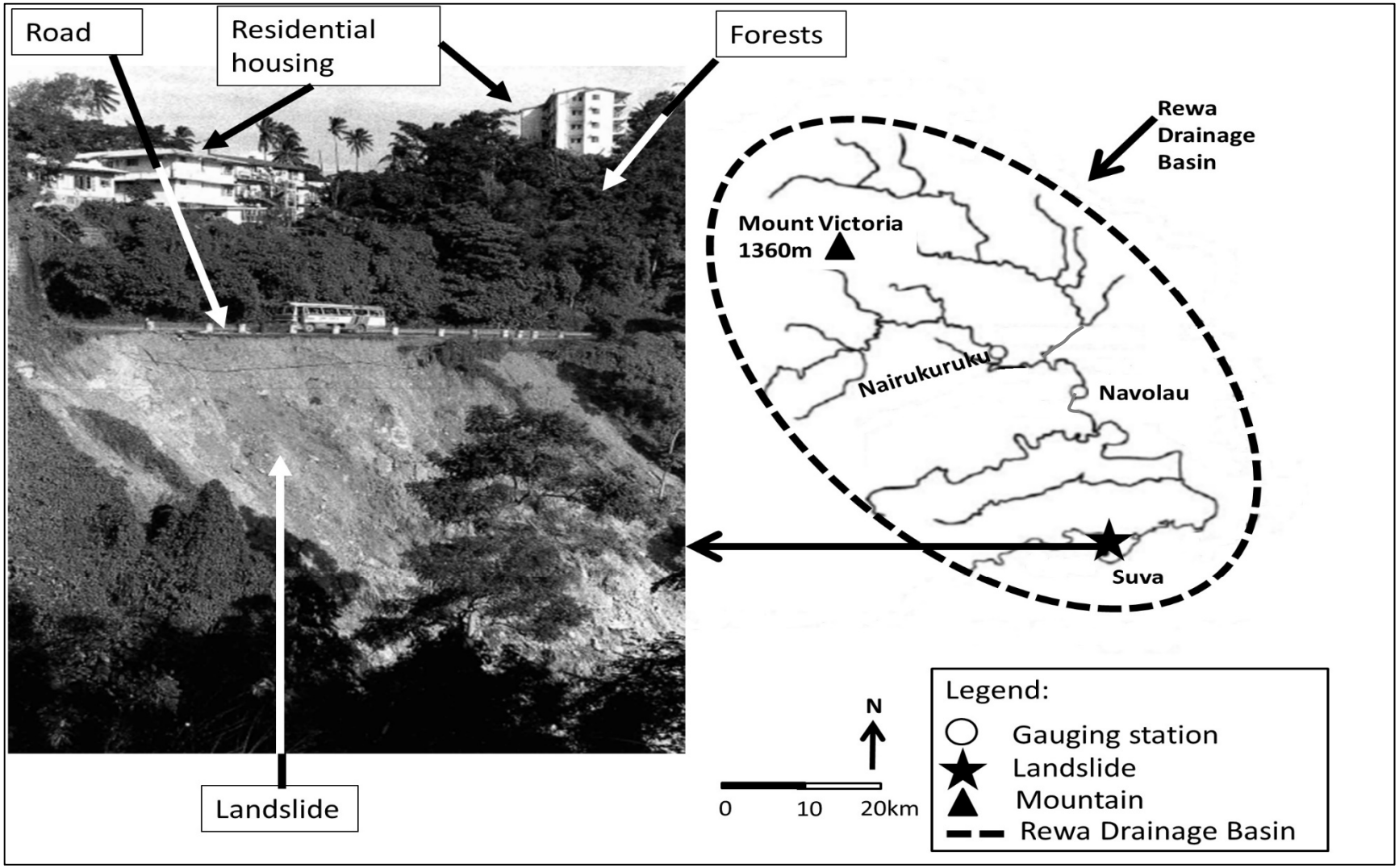
Resource 5 for Question 2

Changes in discharge in Rewa River in Viti Levu which was affected by tropical cyclones in 1997



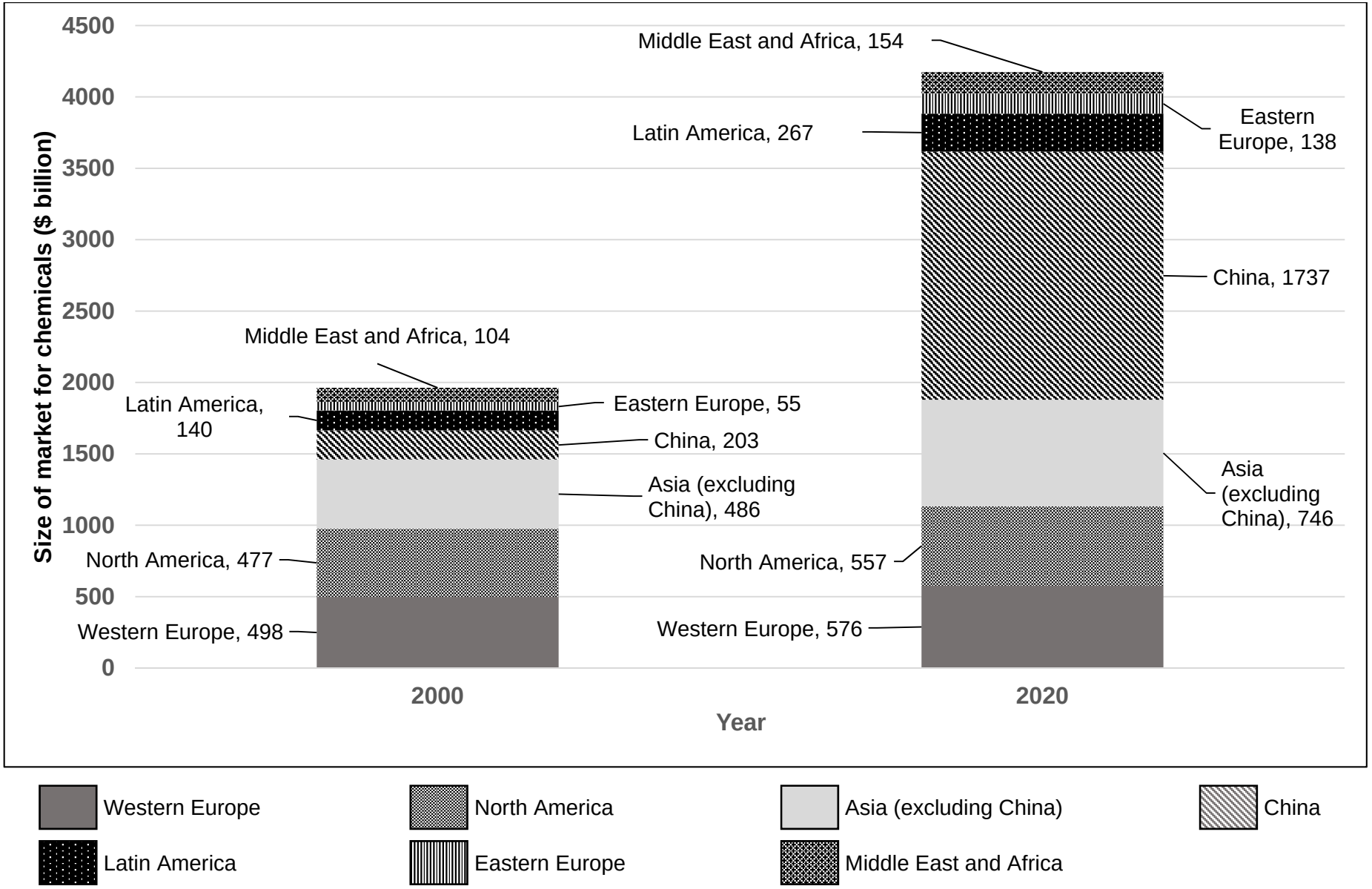
Resource 6 for Question 2

Map of Rewa Drainage Basin and a photo of a landslide near Suva, the capital of the Republic of Fiji in 1997



Resource 7 for Question 3

Size of market for chemicals in 2000 and 2020



Resource 8 for Question 3

Production sites of Wacker, a German chemical company

Region	Location	Year established	Size (m^2)	Employees
Europe	Burghausen, Germany	1914	2,000,000	10,000
	Stetten, Germany	1924	120,000	70
	Cologne, Germany	1960	256,000	70
	Nuenchritz, Germany	1998	1,300,000	1,500
	Jena, Germany	2005	NA	NA
	Halle, Germany	2007	NA	NA
	Pilsen, Czech Republic	2007	NA	45
	Holla, Norway	2010	240,000	180
	Leon, Spain	2016	NA	NA
Americas	Adrian, USA	1969	970,000	540
	Calvert City, USA	1998	60,000	110
	Chino, USA	1999	10,000	40
	Eddyville, USA	1999	145,000	20
	North Canton, USA	2002	3,000	30
	Charleston, USA	2011	NA	650
	Jandira, Brazil	1977	22,000	100
Asia	Zhangjiagang, China	2005	300,000	NA
	Shunde, China	2008	10,000	50
	Nanjing, China	2009	130,000	NA
	Ulsan, South Korea	2008	NA	NA
	Jincheon, South Korea	2010	10,000	40
	Kolkata, India	1999	61,000	160
	Tsukuba, Japan	1999	30,000	NA

Note:

NA – Data unavailable

Resource 9 for Question 3

Article on pollution by the chemical industry in China

In China, there have been protests against chemical factories that are blamed for carcinogens that enter water supplies and the food chain.

While the government insists it is cleaning up pollution far faster than other nations at a similar dirty stage of development, many toxic industries have simply been relocated to impoverished, poorly regulated rural areas.

Chinese farmers are almost four times more likely to die of liver cancer and twice more likely to die of stomach cancer than the global average, according to study commissioned by the World Bank. The domestic media is increasingly filled with reports of "cancer villages" - clusters of the disease near dirty factories.

The vast majority are on the wealthy eastern coast, the first area in China to accept "outsourced" dirty industries from overseas. But as these regions have moved up the value chain and tightened regulations, there are signs that the pollution and cancer belt may be moving inland to areas that are either less aware of the dangers or too poor to turn away business.

Deep in the scorched dry countryside of northeast Yunnan, the residents of Xinglong fear they may soon join the list of sick villages. An acrid stench assails the senses near the Luliang City Industrial Park, the thicket of polluting factories that locals blame for an outbreak of deadly tumours.

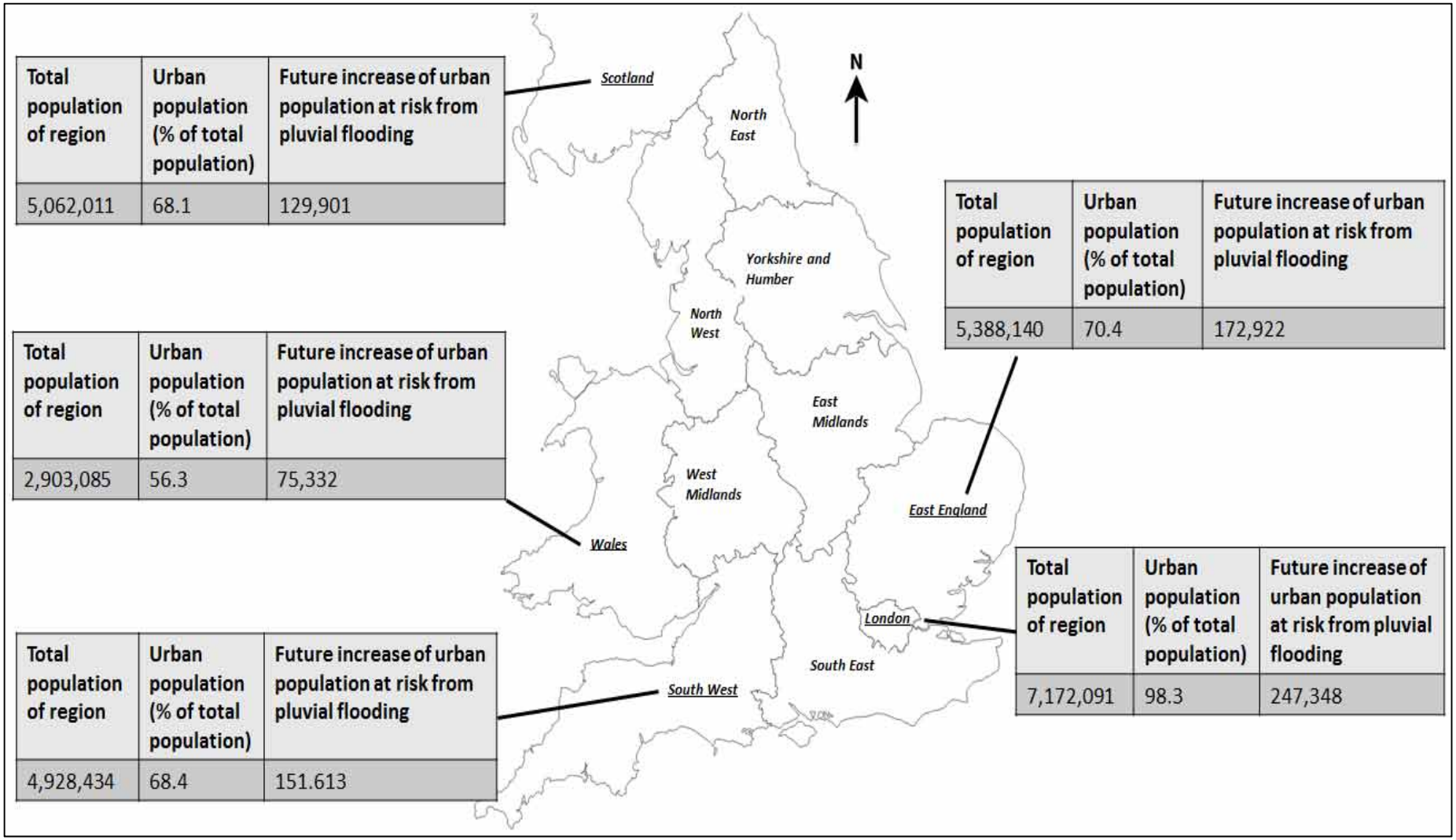
When locals tried to protest, they said they were blocked by the authorities because the chemical factories contribute to the local economy.

Most locals blamed the toxins that flowed from the chemical factories into the nearby Nanpan River and ground water supply.

Source: The Guardian (2010), China's 'cancer villages' reveal dark side of economic boom

Resource 10 for Question 4

Population characteristics of selected regions in the United Kingdom (UK)



Total population of region	Urban population (% of total population)	Future increase of urban population at risk from pluvial flooding
5,062,011	68.1	129,901

Total population of region	Urban population (% of total population)	Future increase of urban population at risk from pluvial flooding
5,388,140	70.4	172,922

Total population of region	Urban population (% of total population)	Future increase of urban population at risk from pluvial flooding
2,903,085	56.3	75,332

Total population of region	Urban population (% of total population)	Future increase of urban population at risk from pluvial flooding
7,172,091	98.3	247,348

Total population of region	Urban population (% of total population)	Future increase of urban population at risk from pluvial flooding
4,928,434	68.4	151.613

Resource 11 for Question 4

Social-demographic characteristics of residents living in flood-risk and non-flood risk areas in the city of Belfast, North Ireland

Social – Demographic Characteristics	% of the population living in flood risk areas	% of the population living in non-flood risk areas
Older people (75+)	7.4	6.8
Poor Health	13.3	12.2
Unemployed	4.8	4.3
Households with no car	37.6	33.4
Houses at/below street level	90.8	92.6

VICTORIA JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H2 GEOGRAPHY **9751/02**

Paper 2 **3 hours**

READ THESE INSTRUCTIONS FIRST

Write your name and index number on the work you hand in.
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Section A

Theme 4: Geographical Investigation

1 A group of five foreign students on a university student exchange programme are investigating the impacts of reimaging efforts in Chinatown.

Reimaging efforts by the Singapore Tourism Board (STB) have focused on making Chinatown "a place where visitors are immersed in Singapore's heritage while being presented with a mix of traditional and contemporary offerings" (STB, 2016).

The students will collect primary data by taking photographs and conducting questionnaire surveys over the course of two weeks.

Resource 1 shows a photo of a street in Chinatown, Singapore taken by the students. Resource 2 shows a map of Chinatown provided by the Singapore Tourism Board (STB). Resource 3 shows the questionnaire used by the students for their investigation.

(a) With reference to Resource 1, explain one ethical issue that may arise during the students' investigation.

[3]

(b) With reference to Resources 2 and 3, explain how the students can increase the accuracy of their data.

[4]

(c) Explain how the students can present the data they have collected from the questionnaire survey shown in Resource 3.

[5]

(d) Explain how taking photographs and conducting questionnaire surveys are suitable data collection methods for the investigation.

[6]

(e) Explain how the students can use secondary data for their investigation.

[7]

Section B

Theme 1: Tropical Environments

Tropical Cyclones in Viti Levu, Fiji

2 Resource 4 shows the distribution of maximum rainfall recorded in one day during Tropical Cyclone Gavin and Tropical Cyclone June in Viti Levu, the largest island in the Republic of Fiji in 1997.

Resource 5 shows the changes in discharge in Rewa River in Viti Levu which was affected by tropical cyclones in 1997.

Resource 6 shows the map of Rewa Drainage Basin and a photo of a landslide near Suva, the capital of the Republic of Fiji in 1997.

(a) With reference to Resource 4, compare the distribution of maximum rainfall recorded in one day during Tropical Cyclone Gavin and Tropical Cyclone June in Viti Levu in 1997.

[4]

(b) With reference to Resource 5, describe how the discharge in Rewa River was affected by tropical cyclones in 1997.

[3]

(c) Using Resources 4 and 6, account for the characteristics of the hydrograph during Tropical Cyclone Gavin and Tropical Cyclone June as shown in Resource 5.

[5]

(d) Using Resources 4 and 6, explain the factors which may have caused the landslide near Suva in 1997.

[6]

(e) Using Resource 6, explain how the effects of landslides can impact the physical and human environment.

[7]

Theme 2: Development, Economy and Environment

Chemical Industry

3 Resource 7 shows the size of market for chemicals in 2000 and 2020. Resource 8 shows the production sites of Wacker, a German chemical company. Resource 9 shows an article on pollution by the chemical industry in China.

(a) With reference to Resource 7, describe the projected changes in the size of the market for chemicals from 2000 to 2020.

[4]

(b) With reference to Resource 8, describe the characteristics of Wacker production sites.

[4]

(c) With reference to Resource 7, account for the characteristics of Wacker production sites as shown in Resource 8.

[5]

(d) With reference to Resources 8 and 9, explain the possible impacts of transnational corporations on host economies.

[6]

(e) Explain how Resources 8 and 9 may illustrate Harvey's arguments on population-resource relationships.

[6]

Theme 3: Sustainable Development

Pluvial Floods in the United Kingdom

4 Resource 10 shows the population characteristics of selected regions in the United Kingdom (UK). Resource 11 shows the social-demographic characteristics of residents living in flood-risk and non-flood risk areas in the city of Belfast, North Ireland.

(a) With reference to Resource 10, compare the urban population size and the level of urbanisation for the different regions of the UK.

[4]

(b) Suggest reasons for the level of urbanisation in the UK.

[4]

(c) With reference to Resource 10, describe the pattern of future increases of urban population at risk from pluvial flooding in the UK.

[3]

(d) Suggest reasons for the pattern(s) described in (c).

[5]

(e) With reference to Resource 11 and your own knowledge, discuss how vulnerability to pluvial flooding may vary **within** a city.

[9]

YISHUN JUNIOR COLLEGE
JC 2 Preliminary Examinations 2017

Geography 9751/01

Paper 1 Structured Essay Questions

25 AUGUST 2017
3 hours

QUESTION PAPER

Additional materials:
Answer Paper
World outline map

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READ THESE INSTRUCTIONS FIRST

Start each question on a fresh piece of paper.
Write your name and CTG on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a pencil for any diagrams or graphs.
Do not use staples, paperclips, highlighters, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain the various erosion processes occurring in the tropics. [12]

(b) Assess the role of erosion processes affecting tropical landscapes. [20]

2 **(a)** Explain the causes of tropical deforestation in countries at lower levels of economic development. [12]

(b) Assess the effectiveness of strategies used to manage tropical deforestation. [20]

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain how the structure of the economy varies across countries at varying levels of economic development. [12]

(b) Do you agree that transnational corporations bring more harm than good to the economies they operate in? Explain your answer. [20]

4 **(a)** Explain the sources of water pollution in countries at varying levels of economic development. [12]

(b) Assess the effectiveness of strategies to manage water scarcity. [20]

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain why the use of **either** nuclear energy **or** biofuels is debatable in countries of varying levels of economic development. [12]

(b) Evaluate the effectiveness of responses used to mitigate and adapt to climate change. [20]

6 **(a)** Explain how urbanisation trends may vary across urban areas at different levels of economic development. [12]

(b) To what extent have the strategies in managing non-hazardous solid waste in cities been effective? [20]

YISHUN JUNIOR COLLEGE
JC 2 Preliminary Examination 2017

H2 GEOGRAPHY 9751/02

Paper 2 Data Response Questions

12 September 2017
3 Hours

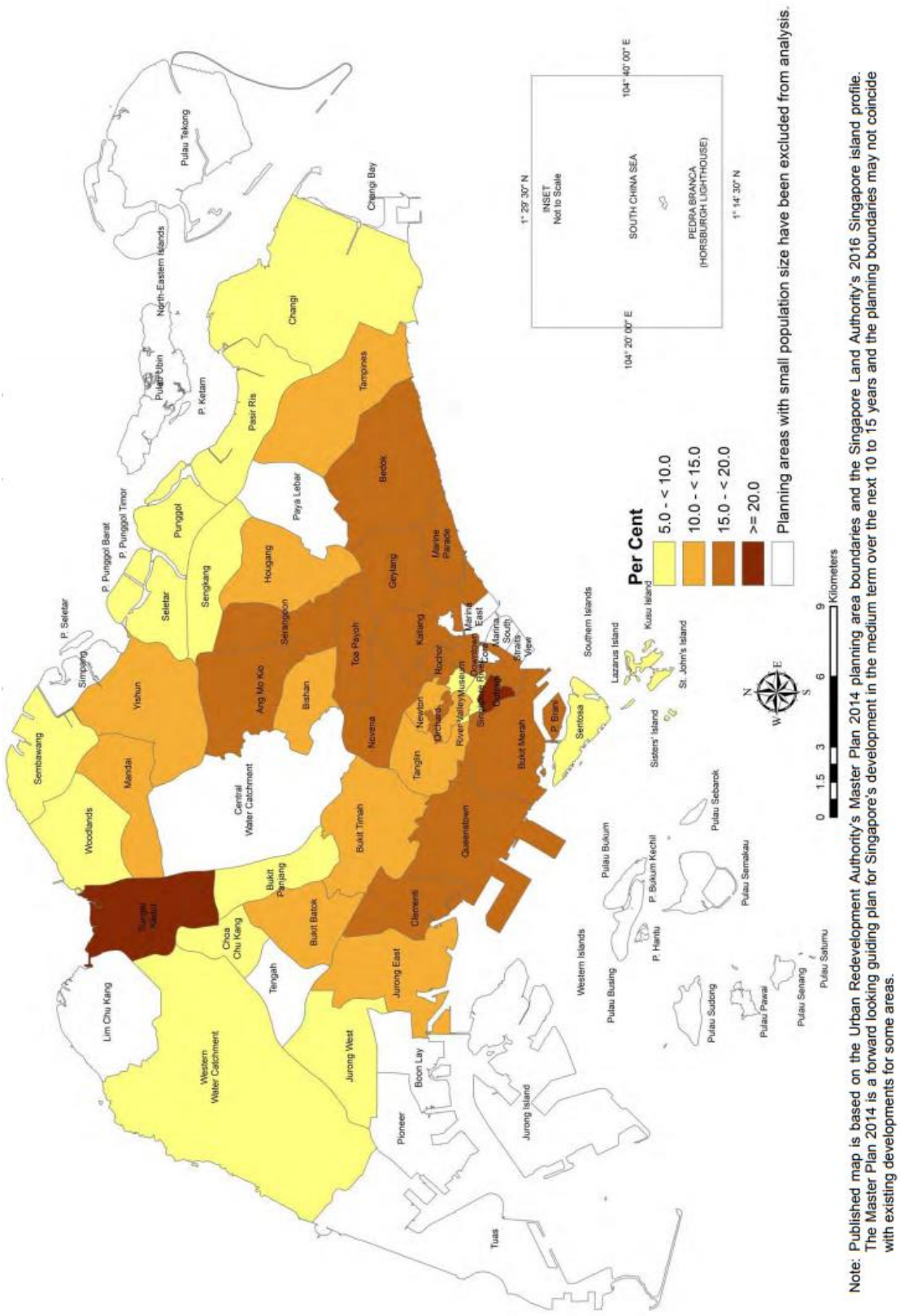
INSERT

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

Resource 1A for Question 1

Proportion of resident population aged 65 and over by planning area, June 2016



Note: Published map is based on the Urban Redevelopment Authority's Master Plan 2014 planning area boundaries and the Singapore Land Authority's 2016 Singapore island profile. The Master Plan 2014 is a forward looking guiding plan for Singapore's development in the medium term over the next 10 to 15 years and the planning boundaries may not coincide with existing developments for some areas.

Resource 1B for Question 1

Elderly resident population in Bukit Merah and Punggol, June 2016

Planning Area/Subzone	Total				
	65 - 69	70 - 74	75 - 79	80 - 84	85 & Over
Bukit Merah- Total	10,030	6,480	5,590	3,540	3,010
Punggol- Total	3,020	1,560	1,040	660	510

Note: Planning areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2014.

Resource 2A for Question 1

Road safety features in Bukit Merah

Feature

Silver Zone Gateway

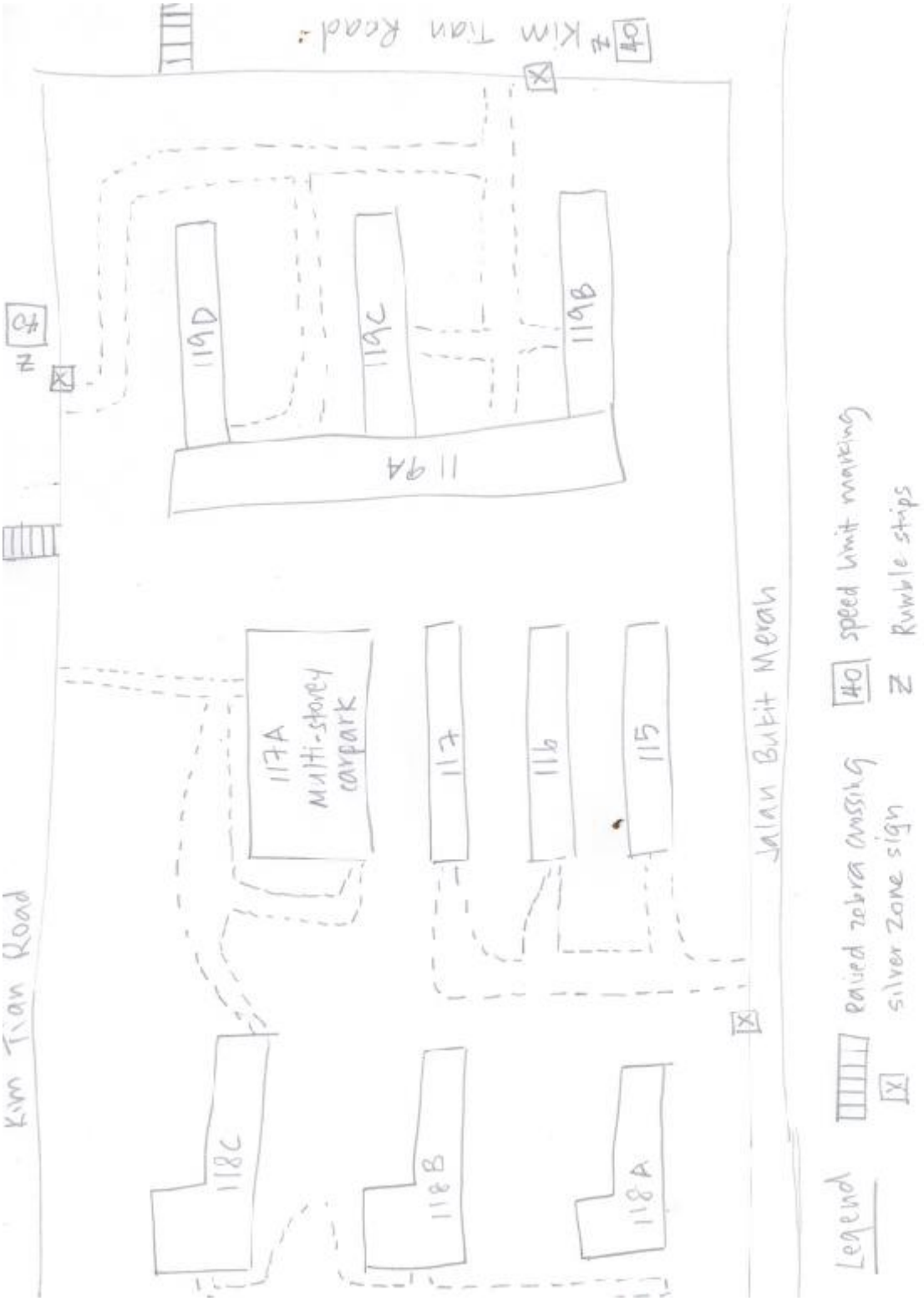


Raised Zebra Crossing



Resource 2B for Question 1

Landuse map of an estate in Bukit Merah



Resource 3 for Question 2

The occurrence of natural hazards in Myanmar 2008-2012

Myanmar is ranked as the country in Asia 'most at risk' from natural hazards in Asia, according to the UN Risk Model.

May 2008 (Cyclone Nargis): Cyclone Nargis left some 140 000 people dead and missing in the Ayeyarwady region. An estimated 2.4 million people lost their homes and livelihoods.

June 2010 (floods in northern Rakhine State): The floods killed 68 people and affected 29 000 families.

October 2010 (Cyclone Giri): At least 45 people were killed, 100 000 people became homeless and some 260 000 people were affected.

March 2011 (earthquake of magnitude 6.8 on the Richter scale in Shan State): Over 18 000 people were affected. At least 74 people were killed and 125 injured. Over 3000 people became homeless.

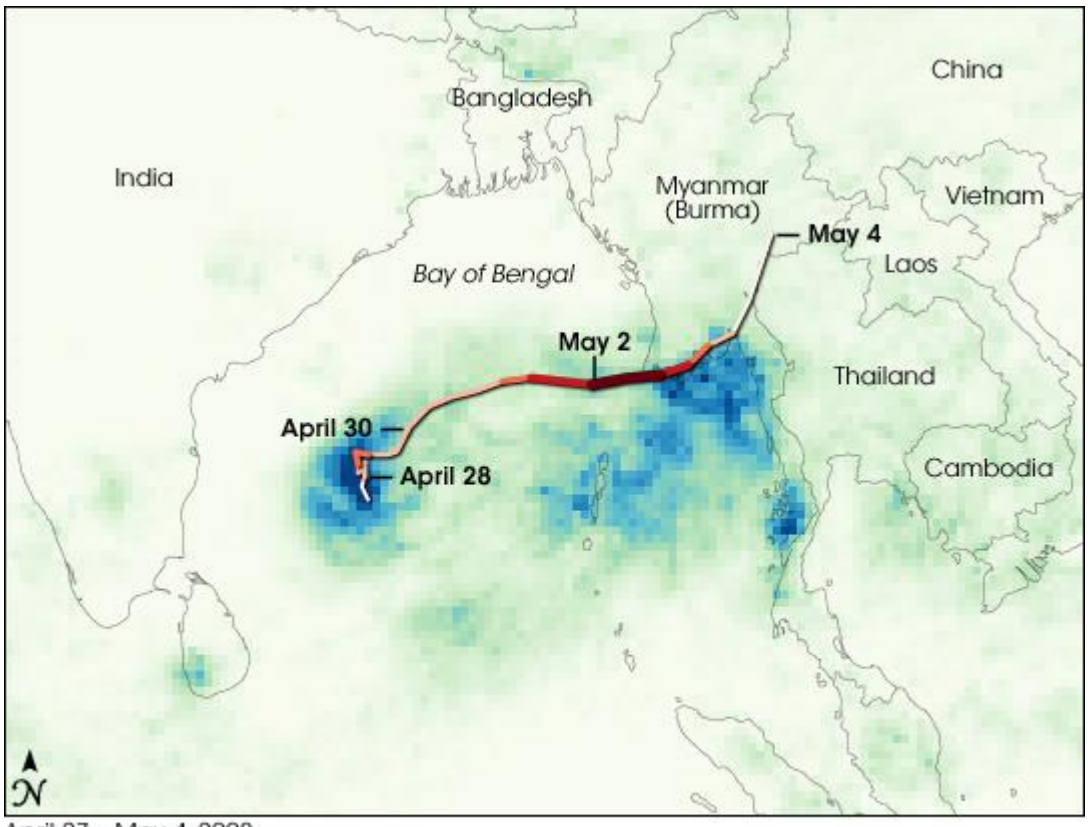
October 2011 (floods in Magway Region): Nearly 30 000 people were affected. Over 3500 houses were destroyed.

August 2012 (floods across Myanmar): The floods in different states and regions displaced some 86 000 people and affected over 287 000 people.

November 2012 (6.8 magnitude earthquake in northern Myanmar): At least 16 people were killed and 52 injured.

Resource 4 for Question 2

Storm track of Cyclone Nargis



April 27 – May 4, 2008

Total Rainfall (mm)

0 300 600

Storm Intensity (Category)

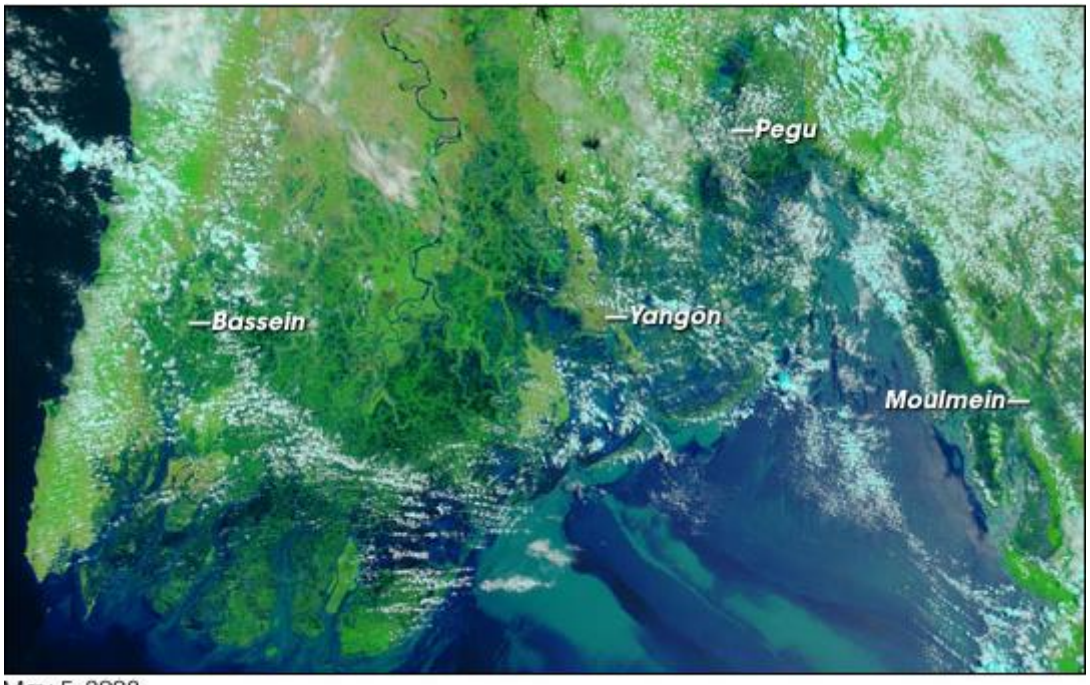
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Resource 5 for Question 2

Before and After Cyclone Nargis



April 15, 2008



May 5, 2008

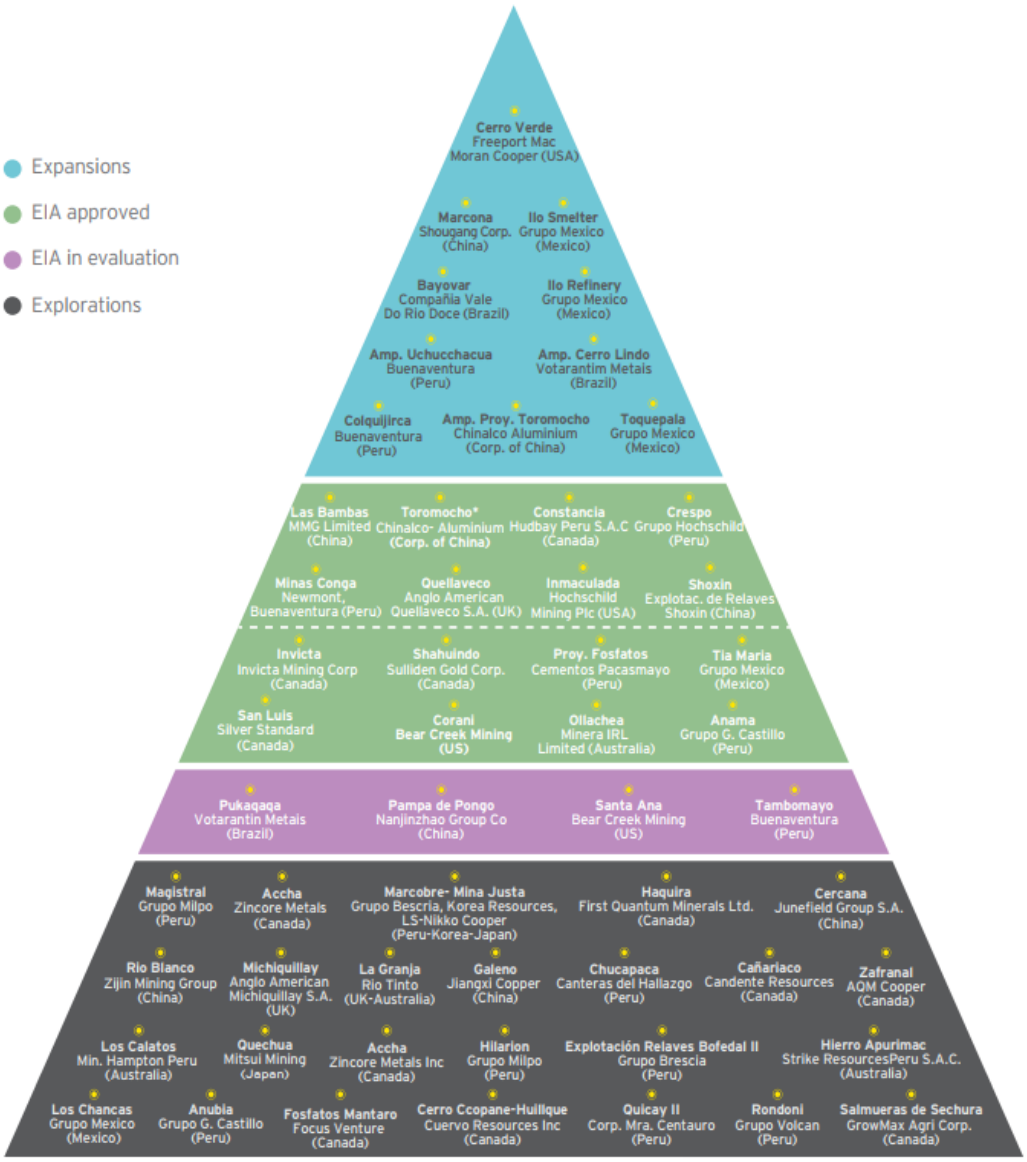
Resource 6 for Question 3

Aerial view of changes within Tambopata National Reserve's buffer zone



Resource 7 for Question 3

Peru's mining industry



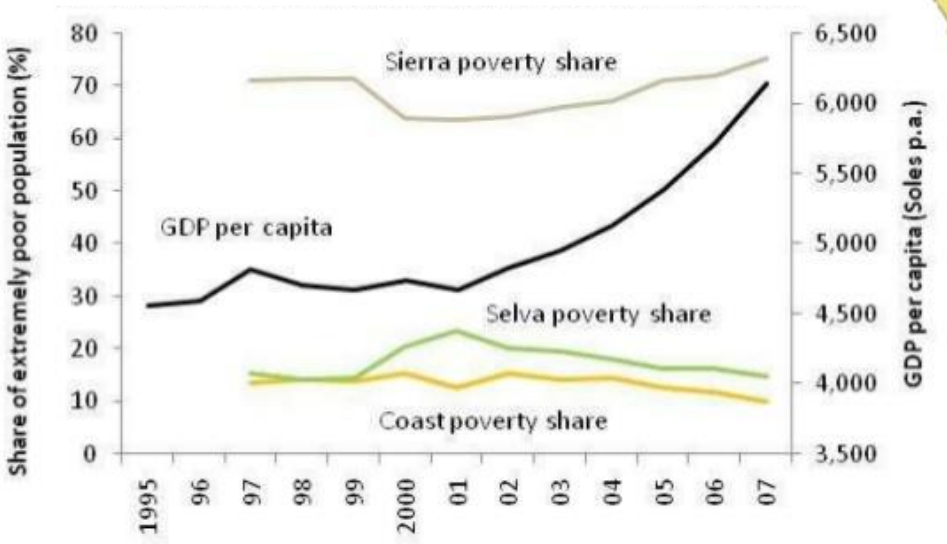
*In commissioning mining phase / Projects have been sorted randomly / Ministry of Energy and Mines
EIA: Environmental Impact Assessment

Total mining investments in Peru (US$) | EY Peru

	2009	2010	2011	2012	2013
Preparation	196,060,821	510,276,007	788,223,911	638,481,068	351,088,998
Equipment	319,821,374	416,011,993	1,124,690,644	1,134,581,918	1,404,301,909
Mining equipment	499,659,327	518,078,947	776,128,476	600,815,520	778,849,649
Exploration	393,534,656	615,691,874	865,382,518	894,895,449	774,008,005
Exploitation	531,388,349	737,890,193	869,691,352	1,003,105,455	1,071,915,417
Infrastructure	376,380,329	827,591,969	1,406,853,179	1,796,866,935	1,709,625,770
Others	504,747,514	443,653,301	1,411,620,831	2,499,509,914	3,629,234,450
Total	2,821,596,371	4,069,194,284	7,242,590,929	8,568,256,259	9,719,024,198

Resource 8 for Question 3

Recent growth and poverty in Peru, 1995 to 2007

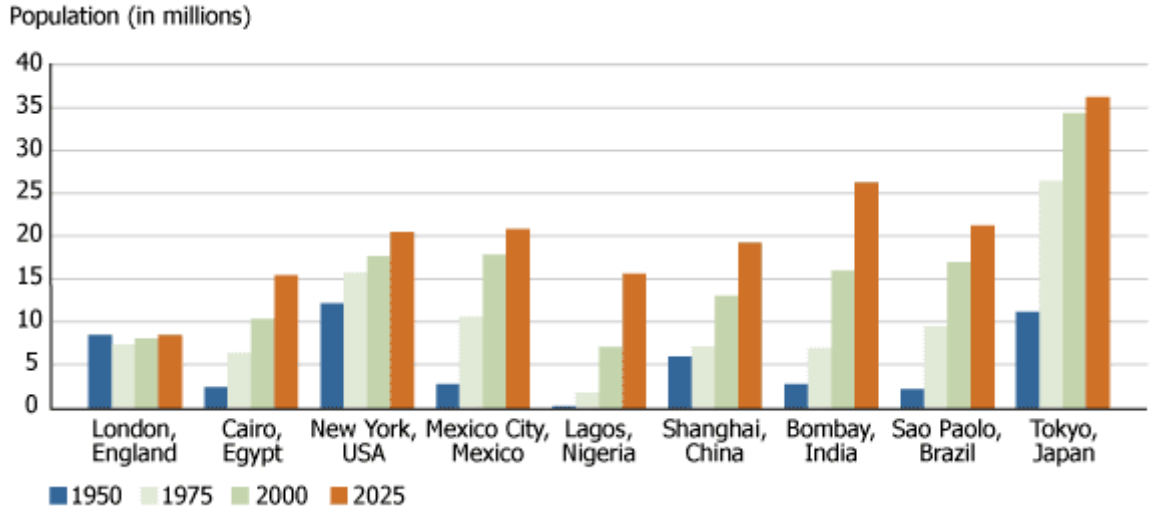




Currency exchange: US$1 = 3.24 Peruvian soles

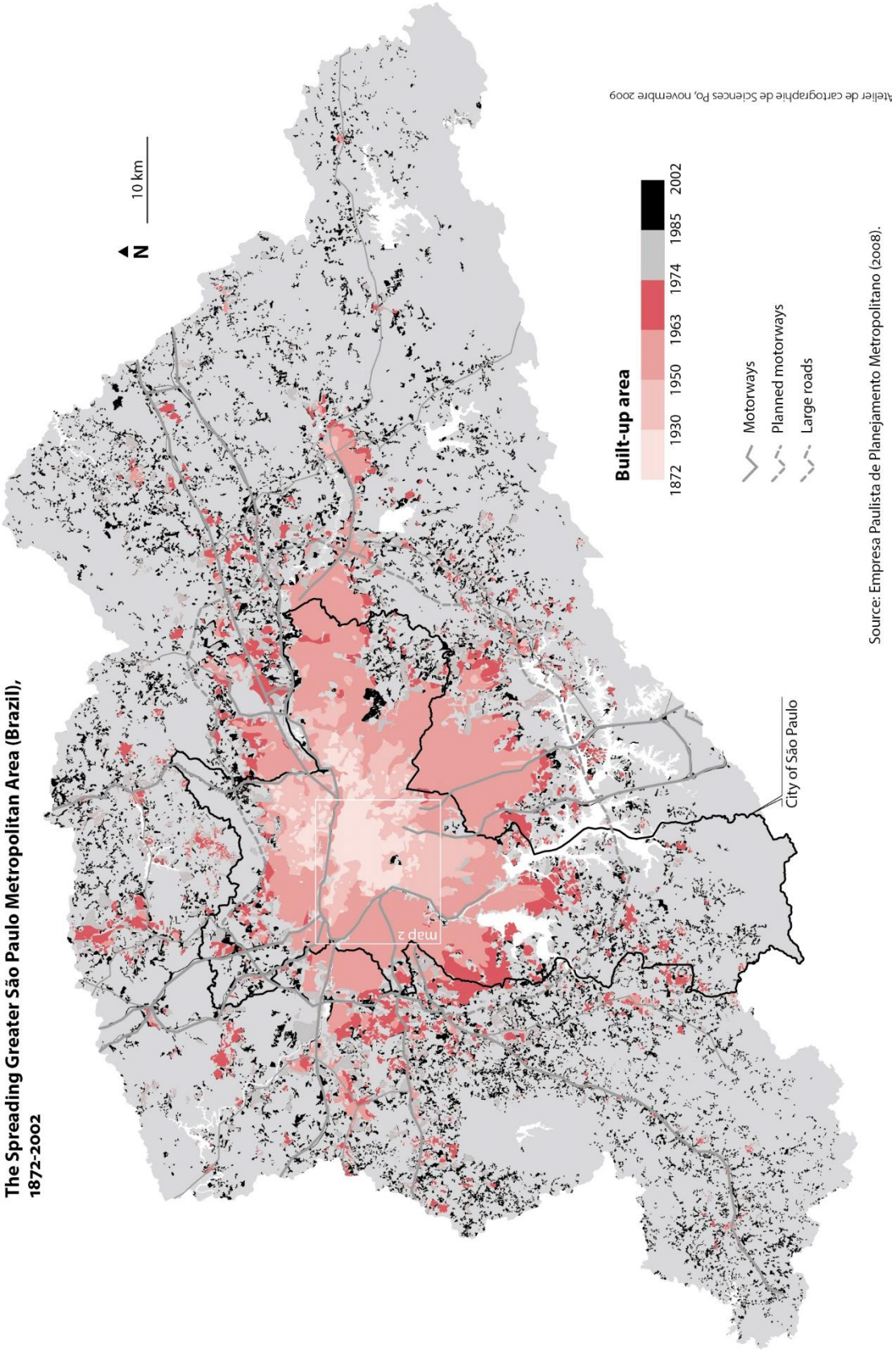
Resource 9 for Question 4

Urbanisation trends for selected cities from 1950 to 2025



Resource 10 for Question 4

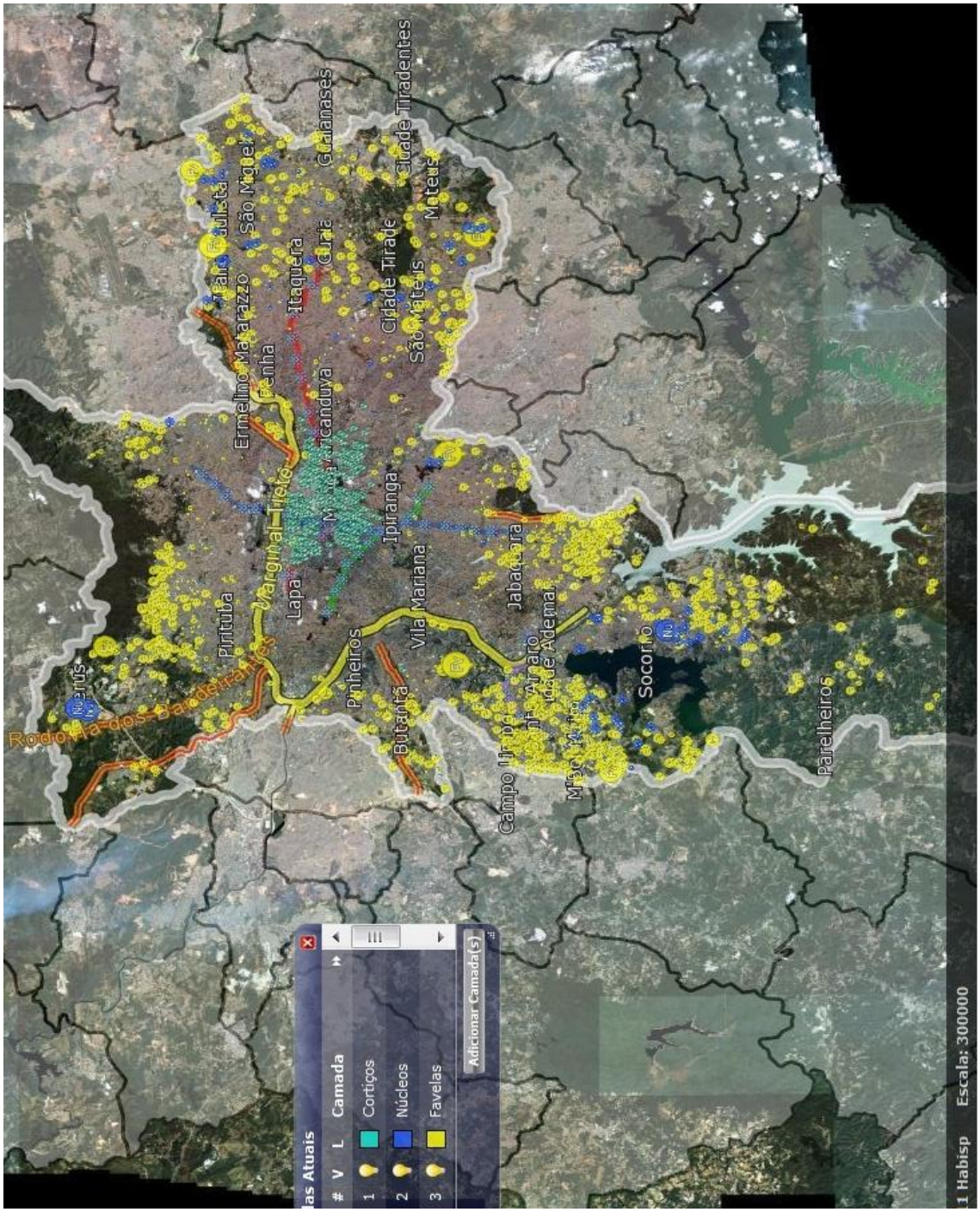
The spreading Greater Sao Paulo Metropolitan Area in Brazil, 1872 to 2002



Resource 11 for Question 4

Distribution of slums in Greater Sao Paulo Metropolitan Area

Slums in Brazil consist of both cortiços and favelas. A favela (Portugese for slum) is a low-income informal urban area in Brazil. Cortiço is a common Portugese term used in Brazil for an area of concentrated, high density urban housing where people live with poor sanitation and hygiene conditions. Cortiço houses are typically divided into small rooms that are rented. Most of these cortiços are old buildings in the central, older parts of the city. Cortiços are not the same as favelas, which are entire communities of housing that are typically built independently and occupied by their owners.



Resource 12 for Question 4

Cingapura housing project in Sao Paulo

The Cingapura housing project is a low-cost public housing initiative in Sao Paulo, Brazil. It was designed to try to move the poor population from slums into more permanent structures. Much of the work was done by slum residents themselves. The existing slums were to be cleared and free building materials were provided. Most of the apartments are 42 square metres with two bedrooms, a sitting room, a kitchen and a laundry room. Householders had to pay an initial US$60 and then US$26 monthly. These new apartments were built on the large slopes which the slums used to occupy. Only a tenth of the proposed apartments were built.







Copyright Acknowledgements:

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Resource 1B © http://www.singstat.gov.sg/docs/default-source/default-document-library/publications/publications_and_papers/population_and_population_structure/population2016.pdf
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YISHUN JUNIOR COLLEGE
JC 2 Preliminary Examination 2017

H2 GEOGRAPHY 9751/02

Paper 2 Data Response Questions

12 September 2017
3 Hours

QUESTION PAPER

Additional materials:
Answer Paper
1 Insert
World outline map

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READ THESE INSTRUCTIONS FIRST

Start each question on a fresh piece of paper.
Write your name and CTG on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a pencil for any diagrams or graphs.
Do not use staples, paperclips, highlighters, glue or correction fluid.

Candidates answer **all** questions.

The Insert contains all the Resources referred to in the questions.
You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.

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

This question paper consists of **5** printed pages and **1** blank page.

Section A

Theme 4: Geographical Investigation

1 A group of 5 18 year-old students wanted to examine the needs of elderly living in urban neighbourhoods. They selected the neighbourhoods of Bukit Merah and Punggol in Singapore for their investigation. They had access to census information about the percentage of elderly living in these areas.

The students wanted to gain further information to gain a fuller picture of the needs of the elderly in Bukit Merah and Punggol. They were allocated three days for field investigation at the beginning, in the middle and at the end of August.

Resource 1A shows the proportion of resident population aged 65 and over by planning area in June 2016. Resource 1B shows the elderly resident population in Bukit Merah and Punggol in June 2016. Resource 2A shows road safety features in Bukit Merah. Resource 2B shows the data collected by students on these road safety features in Bukit Merah.

(a) With reference to Resources 1A and 1B, suggest why the students might have selected these two neighbourhoods for their study. [1]

(b) With reference to Resources 1B, 2A and 2B, suggest a possible hypothesis for the students' investigation and state **three** reasons why the hypothesis is at a suitable scale. [4]

(c) Sketch a line graph to represent the total number of elderly in Bukit Merah and Punggol in Resource 1B. [4]

(d) Explain how the students might minimise the risks and impact of their investigation. [6]

(e) Evaluate the usefulness of all the Resources in helping to assess the needs of elderly living in Bukit Merah and Punggol neighbourhoods. [9]

Section B

Theme 1: Tropical Environments

Cyclone Nargis in Myanmar

2 Myanmar has many different climates, but is dominated by Aw. Resource 3 shows the occurrence of natural hazards in Myanmar between 2008 and 2012. Resource 4 shows the storm track of Cyclone Nargis. Resource 5 shows the satellite images of the area before and after Cyclone Nargis made landfall on 2 May 2008.

(a) Describe the distribution of the atmospheric and hydrological hazards in Myanmar as shown in Resource 3. [4]

(b) Using Resource 4, explain how Cyclone Nargis could have developed over time and space. [6]

(c) Describe the changes before and after Cyclone Nargis as shown in Resource 5. [3]

(d) With reference to Resources 3 and 5, explain three possible effects of Cyclone Nargis. [6]

(e) With reference to Resources 3 and 5 and your own knowledge, explain how floods in Myanmar could possibly be managed. [6]

Theme 2: Development, Economy and Environment

Mining in Peru

3 Resource 6 shows the aerial view of changes with Tambopata National Reserve's buffer zone. Resource 7 shows the mining companies in Peru. Resource 8 shows the recent growth and poverty trends in Peru from 1995 to 2007.

(a) Describe the changes shown in Resource 6. [4]

(b) With reference to Resource 7 and your own knowledge, explain the characteristics of an extractive industry. [5]

(c) With reference to Resources 6, 7 and your own knowledge, explain the possible impacts of extractive industries on the environment. [6]

(d) Describe the trends shown in Resource 8. [4]

(e) With reference to all the Resources and your own knowledge, explain how the resource-curse thesis could be applied to Peru. [6]

Theme 3: Sustainable Development

Urbanisation in Sao Paulo, Brazil

4 Resource 9 shows the urbanisation trends for selected cities from 1950 to 2025. Resource 10 shows the spreading Greater Sao Paulo Metropolitan Area in Brazil from 1972 to 2002. Resource 11 shows the distribution of slum housing in the Greater Sao Paulo Metropolitan Area. Resource 12 shows the Cingapura housing project in Sao Paulo.

(a) Describe the urbanisation trends shown in Resource 9. [4]

(b) With reference to Resource 10, describe how the Greater Sao Paulo Metropolitan Area has changed from 1872 to 2002. [3]

(c) With reference to Resources 9 and 10, suggest reasons for the changes in the Greater Sao Paulo Metropolitan Area from 1950 onwards. [3]

(d) With reference to Resources 9, 10 and 11 and your own knowledge, explain the possible reasons for the development of slum housing in the Greater Sao Paulo Metropolitan Area as shown in Resource 11. [6]

(e) With reference to all the Resources and your own knowledge, evaluate the effectiveness of strategies used to improve the lives of slum dwellers. [9]

ANGLO-CHINESE JUNIOR COLLEGE
JC 2 Preliminary Examinations 2017

GEOGRAPHY 9751/01
Higher 2

Paper 1 Structured Essay Questions

Time: 3 hours **15 August 2017 (Tuesday)**

READ THESE INSTRUCTIONS FIRST
Write your Centre number, index number and name on all the work you hand in.
Start every question on a fresh piece of writing paper
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **three** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.
The number of the marks is given in brackets [ ] at the end of each question or part question.

On the **cover sheet** provided, include:
- Your name and index no.
- The question numbers of the question you have attempted in the boxes provided, and place the cover sheet as the top page over your answers to Section A.

Start each question on a fresh piece of paper. At the end of the examination, ***fasten your answers to each question separately***; with the cover page fastened as the top page for Section A. Submit your answers to each section separately; with three bundles submitted.

This Question Paper consists of 3 printed pages, including this cover page.

Department of Geography
Anglo-Chinese Junior College
25 Dover Close East Singapore 139745

[Turn Over

© ACJC.

Section A – Tropical Environments

Answer **one** question from this section.

1 **(a)** Explain how and why weathering processes in the humid tropics differ from those in the arid tropics. **[12]**

(b) Assess the role of weathering, wind and water action in the formation of karst and arid landforms in the tropics. **[20]**

2 **(a)** Explain the drivers of deforestation in countries at low levels of development in the tropics. **[12]**

(b) 'Mitigation of the problem of deforestation is best addressed at the local scale.' Discuss. **[20]**

Section B – Development, Economy and Environment

Answer **one** question from this section.

3 **(a)** Explain why the global production networks (GPN) of transnational corporations (TNCs) can differ. **[12]**

(b) To what extent do activities of TNCs explain the under-performance of their host countries at low level of development? **[20]**

4 **(a)** Explain the differences between the Human Development Index (HDI) and the Multidimensional Poverty Index (MPI). **[12]**

(b) Assess the role of regional and international organisations in enabling development. **[20]**

[Turn Over

Section C – Sustainable Development

Answer **one** question from this section.

5 **(a)** Explain how re-imaging the city can affect the liveability of different social groups in cities at high levels of development. **[12]**

(b) Assess the effectiveness of strategies to mitigate pluvial floods in cities. **[20]**

6 **(a)** Compare how cities at low levels of development attempt to alleviate slum conditions. **[12]**

(b) 'The presence of urban slums is primarily due to migration.' Discuss. **[20]**

[End

ANGLO-CHINESE JUNIOR COLLEGE
JC 2 Preliminary Examinations 2017

GEOGRAPHY **9751/02**
Higher 2

INSERT

Time: 3 hours **22 August 2017 (Tuesday)**

READ THESE INSTRUCTIONS FIRST

This Insert contains all the Resources referred to in the questions.

This Insert consists of 13 printed pages.

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[Turn Over

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Resource 1 for Question 1

Map of East Coast Park



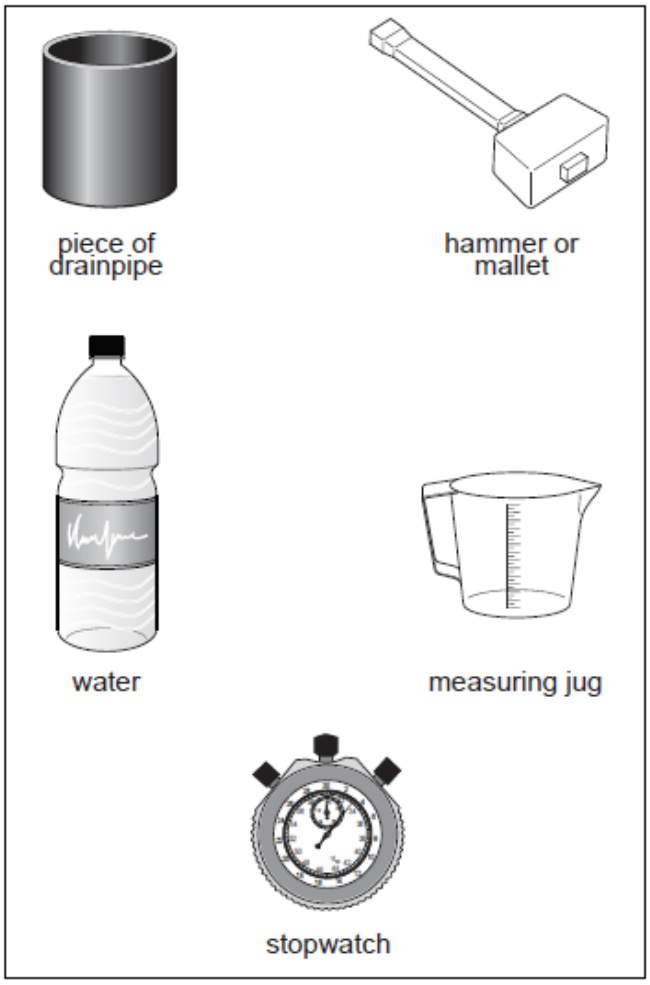
Legend:

- vegetated area
- sandy beach
- sea
- investigation site
- cycling track (green) walking track (brown)
- road
- building
- camping tent
- canal
- car park

[Turn Over

Resource 2 for Question 1

Equipment used to measure infiltration



Resource 3 for Question 1

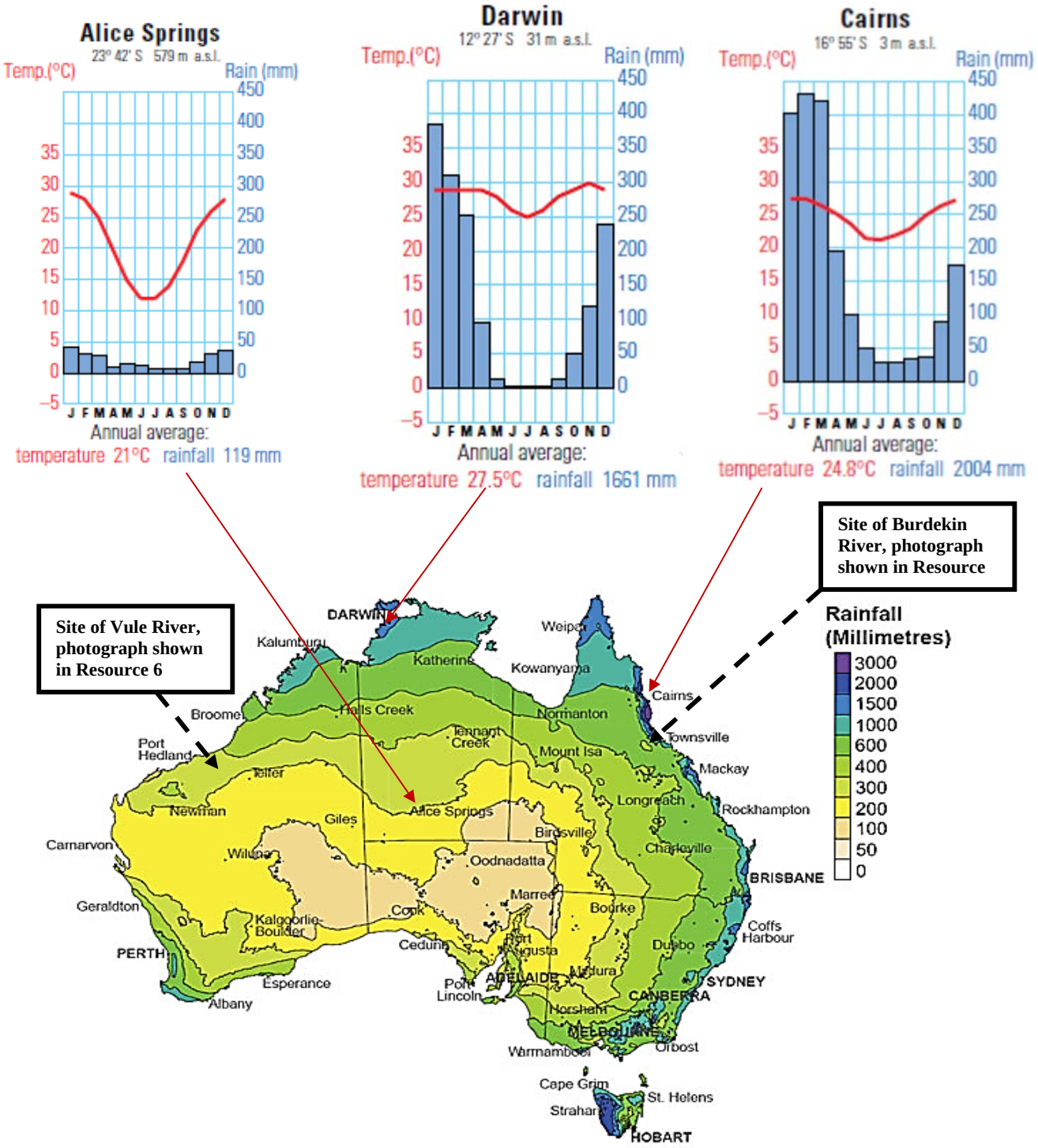
Data collected at Sites X and Y

Site X	
Time (min)	*Rate (mm/min)*
20	20
40	10
60	7
80	5
100	5
120	5

Site Y	
Time (min)	*Rate (mm/min)*
20	28
40	22
60	15
80	12
100	10
120	10

Resource 4 for Question 2

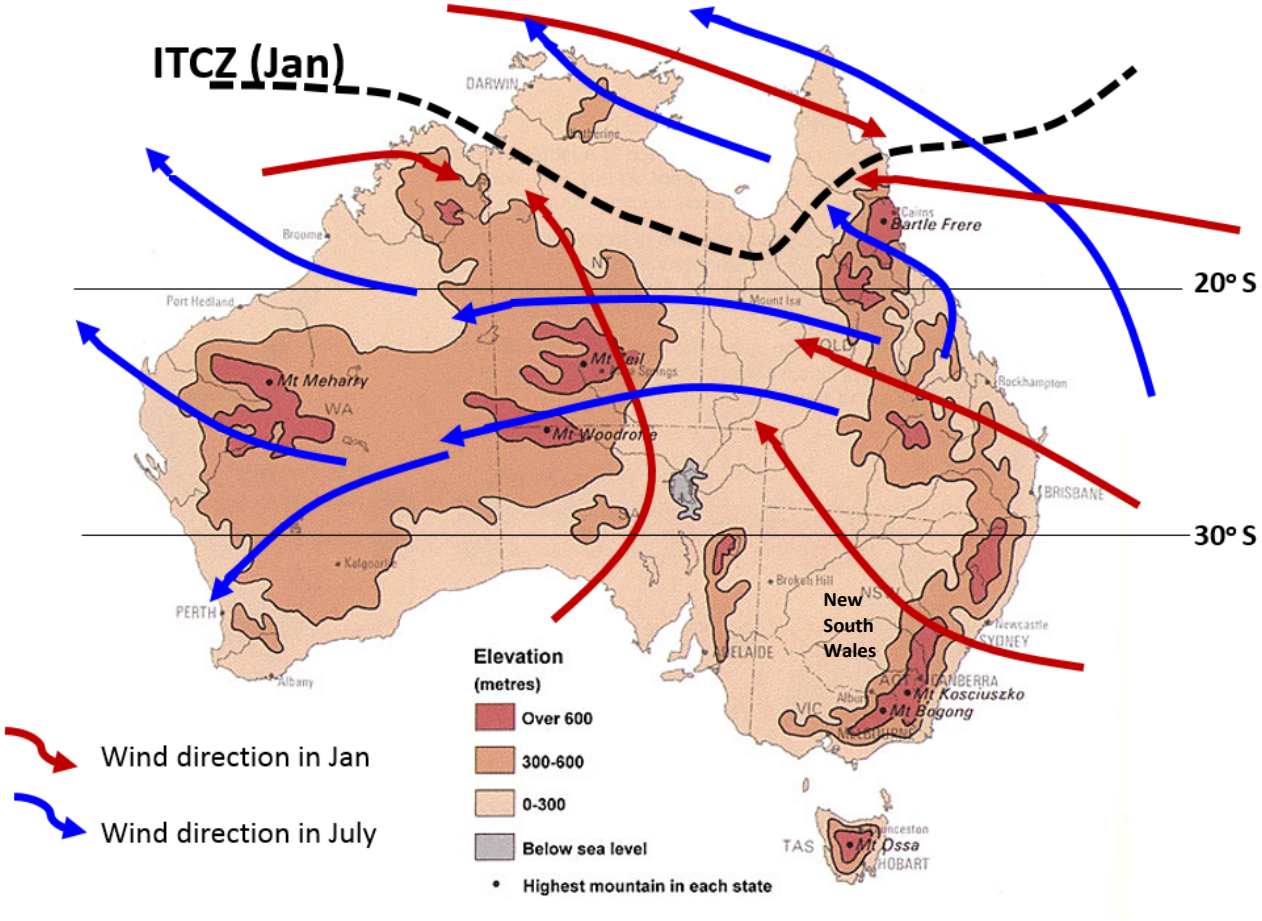
Rainfall distribution of Australia, and climographs of three cities in tropical Australia



[Turn Over

Resource 5 for Question 2

Relief of Australia and wind directions



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Resource 6 for Question 2

Erosion in New South Wales, Australia



[Turn over

Resource 7 for Question 2
Sections of two rivers in Australia

Vule River, Western Australia
Refer to map in Resource 4 for location of Vule River



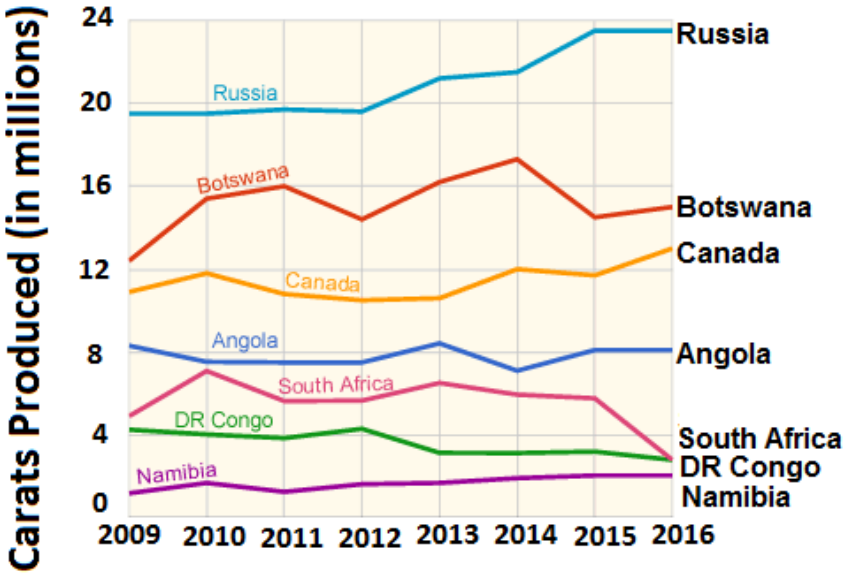
Burdekin River, Queensland
Refer to map in Resource 4 for location of Burdekin River



[Turn over

Resource 8 for Question 3

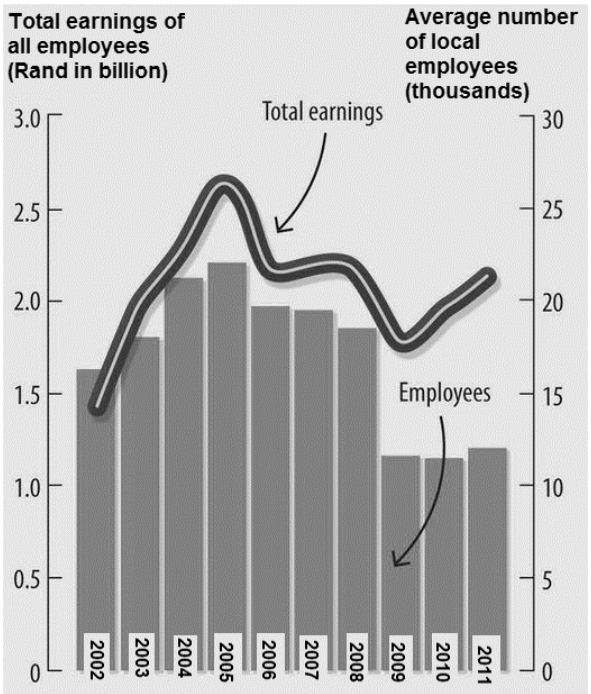
Top diamond producing countries from 2009 – 2016



Source: http://geology.com/articles/gem-diamond-map/diamond-production-graph.gif

Resource 9 for Question 3

Employment and earnings of employees from South Africa's diamond mines

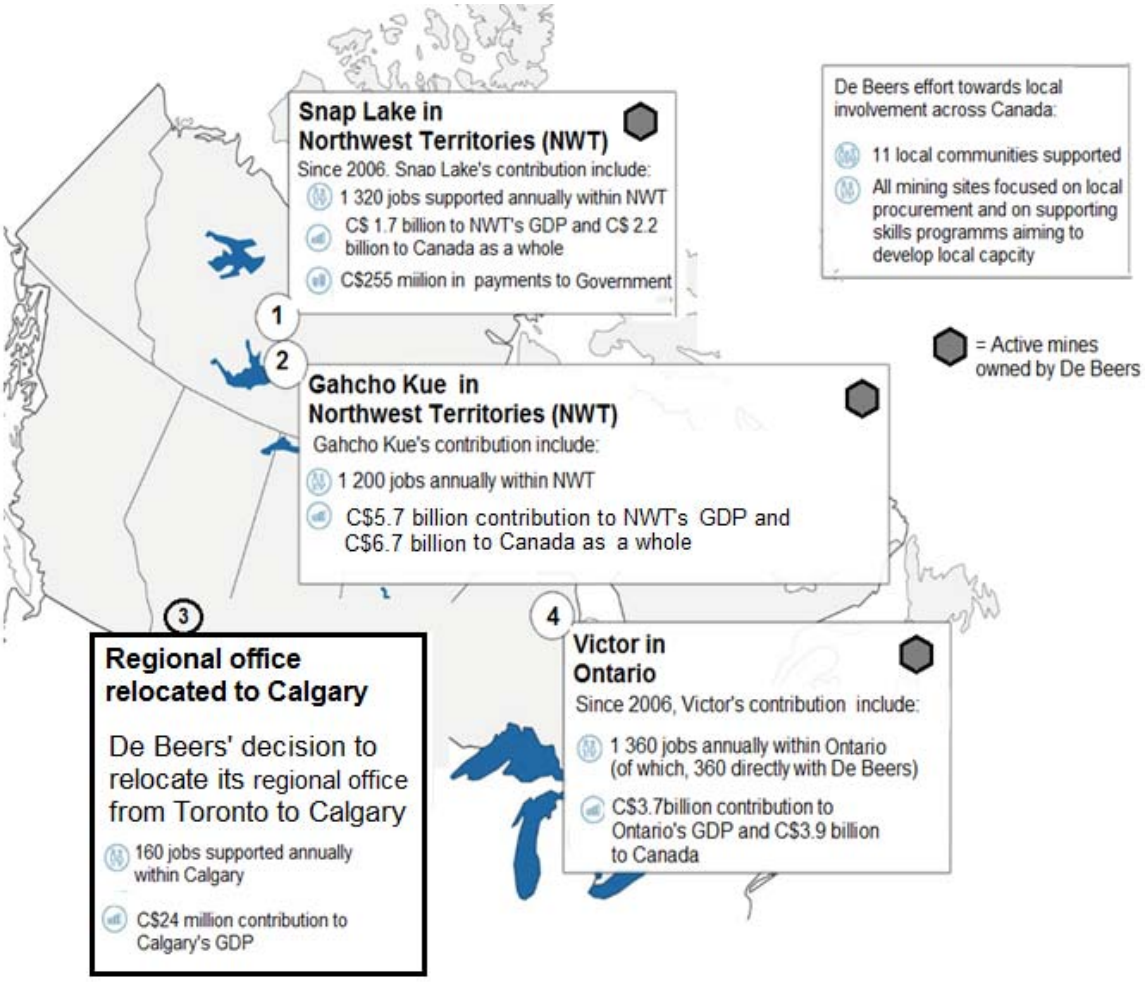


Source: https://cdn.mg.co.za/crop/content/images/2013/06/13/Graphic-Diamonds.jpg/1280x720/

[Turn over

Resource 10 for Question 3

De Beers' impact on Canada



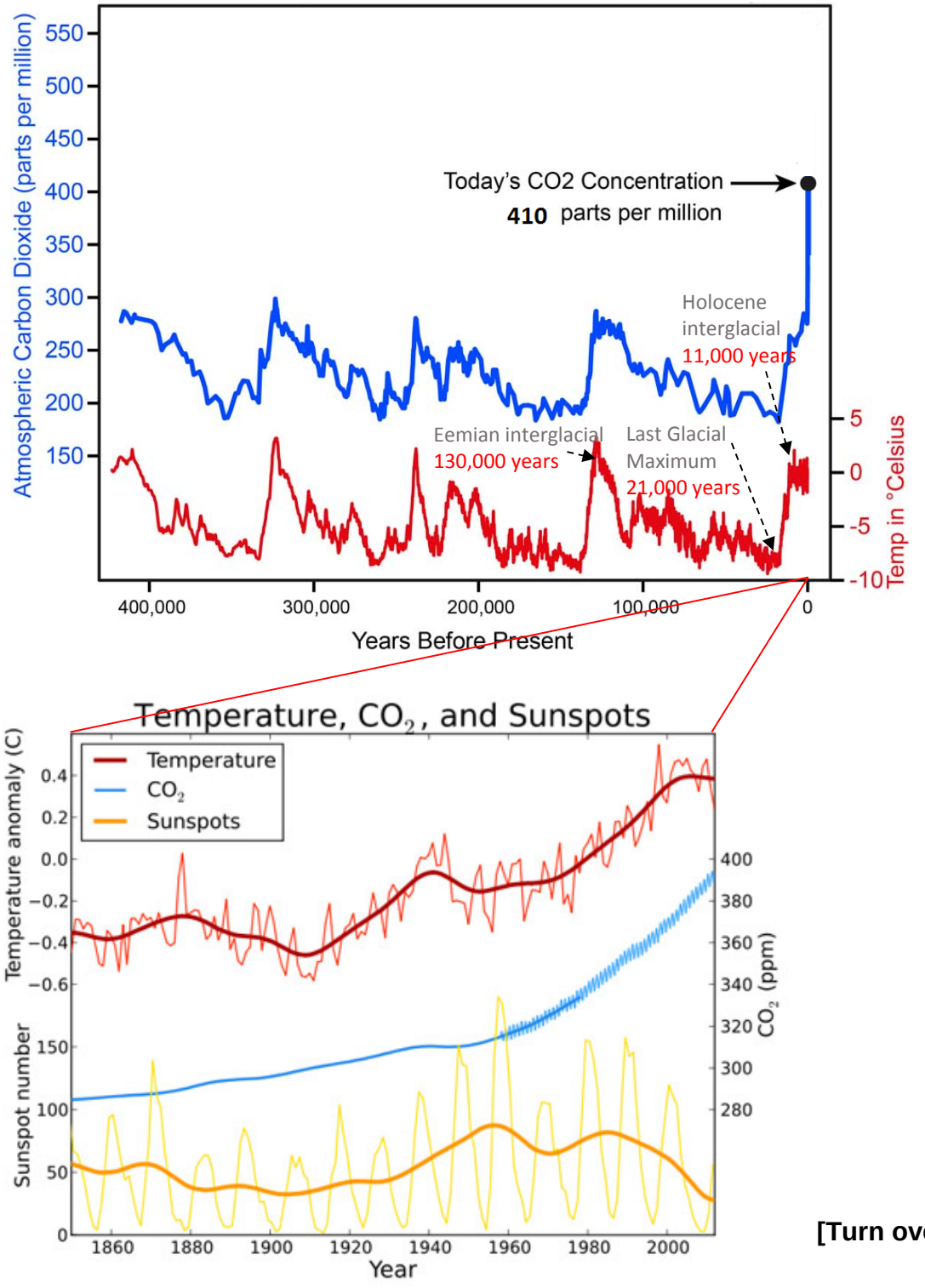
Note: De Beers is a transnational corporation that specializes in diamond exploration, diamond mining, diamond retail, diamond trading and industrial diamond manufacturing sectors. Its main corporate headquarters in London, UK.

Source: http://www.mining.com/worlds-largest-newest-diamond-mine-to-inject-5-2bn-into-canadas-economy/

[Turn over

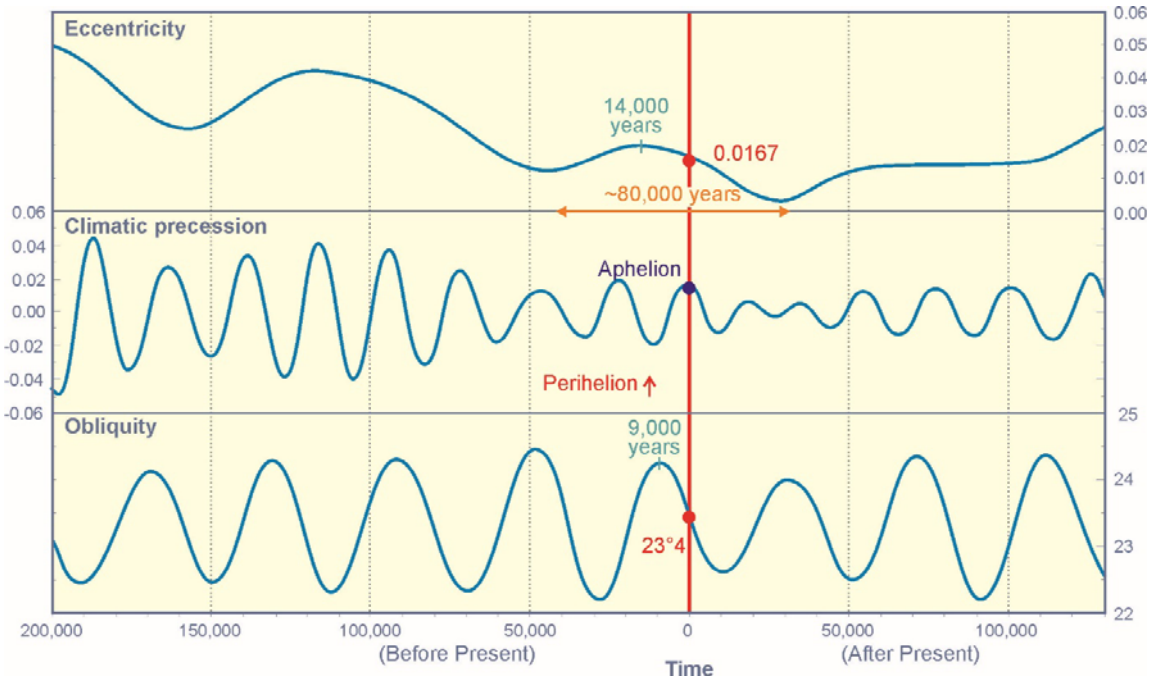
Resource 11 for Question 4

CO_2 concentration and temperature anomaly from Antarctic Ice cores over the past 400,000 years

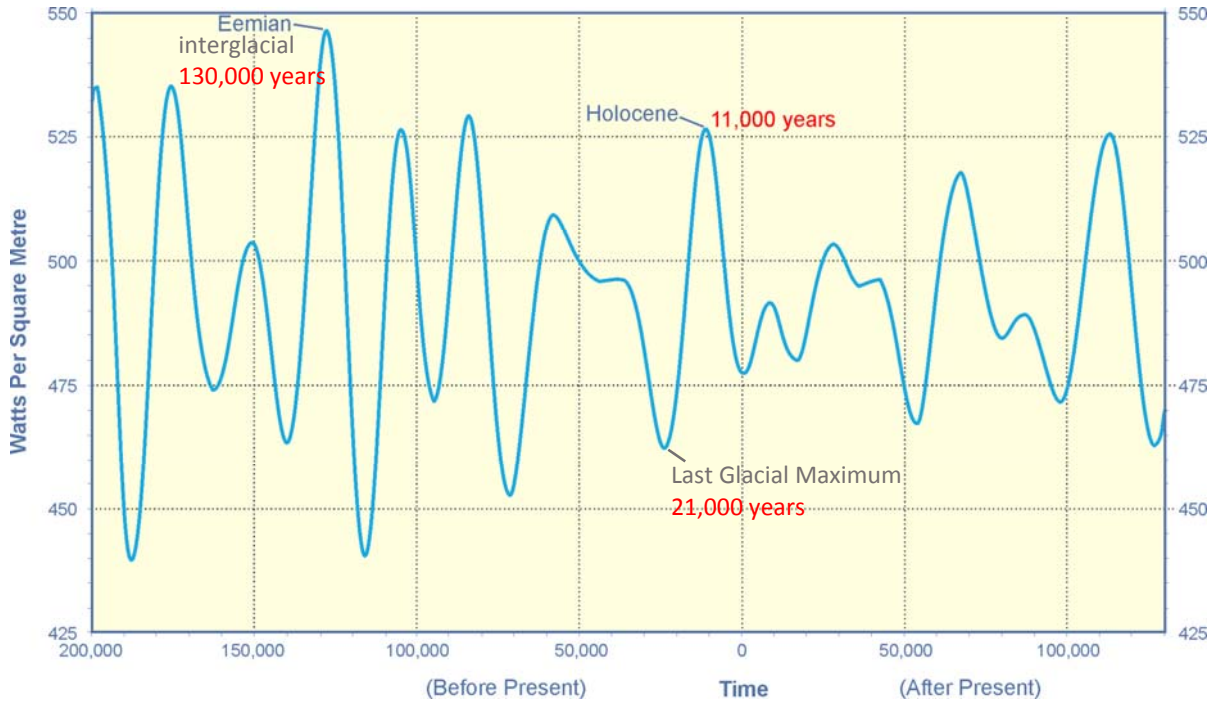


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Resource 12 for Question 4
Earth orbital variations over time



Northern summer insolation (watts per square metre)

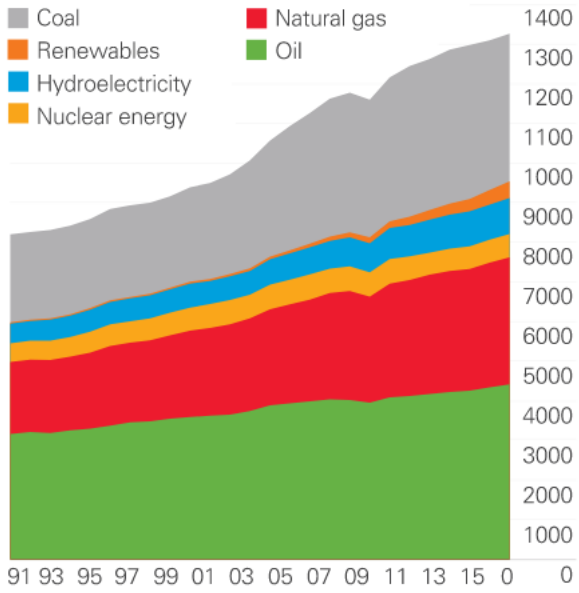


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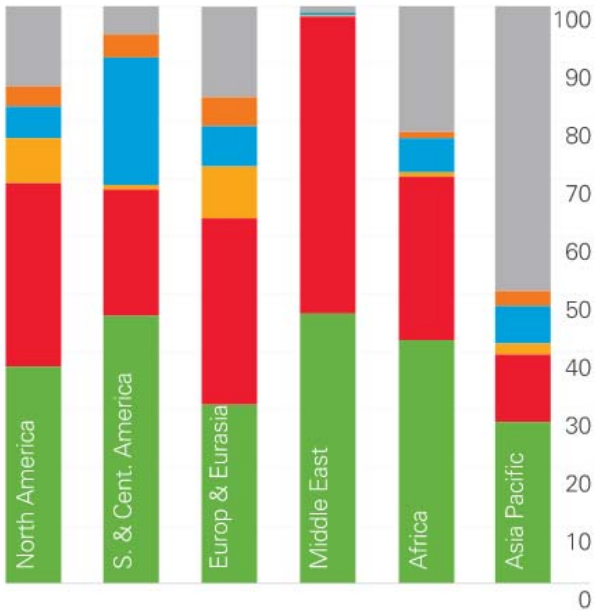
Resource 13 for Question 4

Primary energy world consumption

(million tonnes oil equivalent)



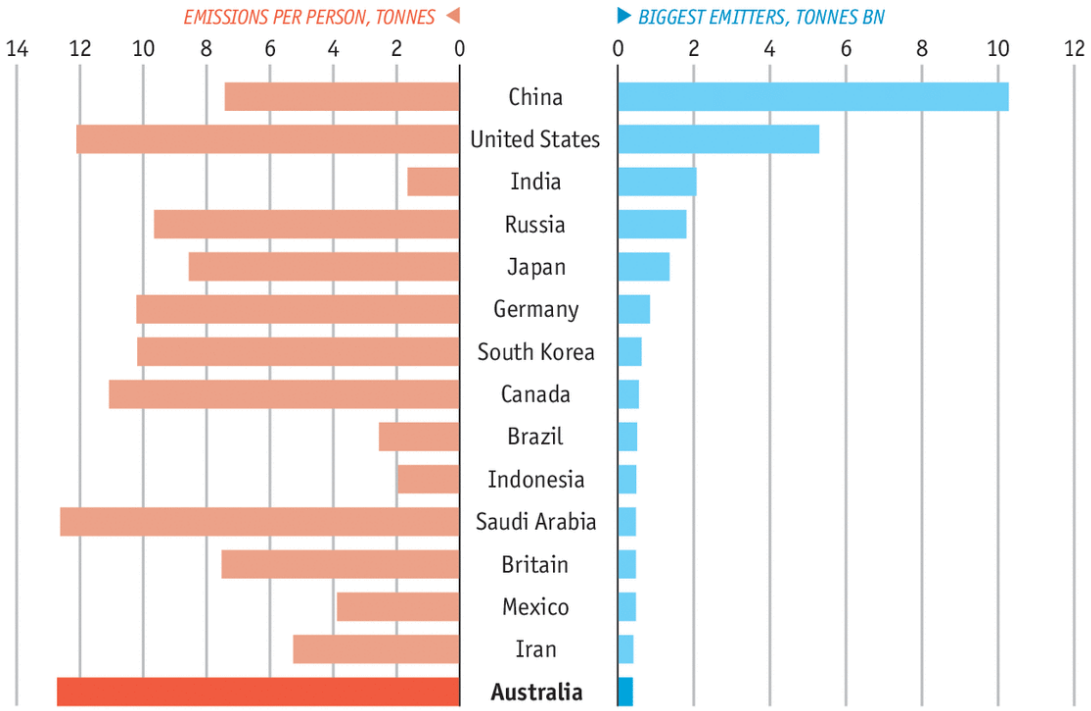
Primary energy regional consumption by fuel 2016 (percentage)



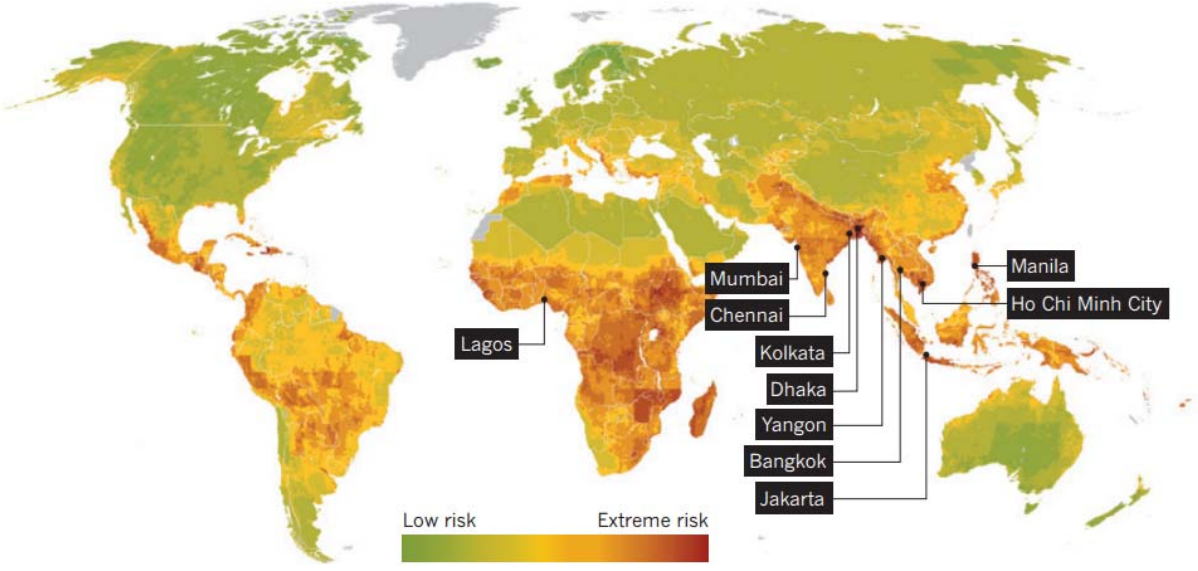
[Turn over

Resource 14 for Question 4

Top CO_2 emitters and their per capita emission (2013)



Climate Change Vulnerability Index 2013, and cities most at risk from rising sea levels



End]

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Paper 2 Data Response Questions

Time: 3 hours **22 August 2017 (Tuesday)**

READ THESE INSTRUCTIONS FIRST
Write your Centre number, index number and name on all the work you hand in.
Start every question on a fresh piece of writing paper
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **four** questions. **One** from each section.

You should make reference to appropriate examples studied in the field or the classroom, even where such examples are not specifically requested by the question.
Diagrams and sketch maps should be drawn whenever they serve to illustrate an answer.
The world outline map may be annotated and handed in with relevant answers.
You are reminded of the need for good English and clear presentation in your answers.
The number of the marks is given in brackets [ ] at the end of each question or part question.

On the **cover sheet** provided, include:
- Your name and index no.
- The question numbers of the question you have attempted in the boxes provided, and place the cover sheet as the top page over your answers to Section A.

Start each question on a fresh piece of paper. At the end of the examination, ***fasten your answers to each question separately***; with the cover page fastened as the top page for Question 1. Submit your answers to each section separately; with **four** bundles submitted.

This Question Paper consists of 5 printed pages, including this cover page.
The Insert consists of 13 printed pages.

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Section A – Geographical Investigation

1 A group of 25 students from Serenity Junior College in the eastern part of Singapore were tasked to undertake a primary fieldwork on investigating infiltration on different landuse. The team selected a study area in East Coast Park. The students were deciding on possible areas of investigation and after some discussion, the following hypothesis was selected for investigation.

Hypothesis: Infiltration rates are higher on sandy beaches compared to that of the vegetated areas.

They carried out the primary investigation at Sites X and Y in the study area in Resource 1 on 14 August 2016.

Resource 2 shows the equipment used by the students to measure infiltration. Resource 3 shows the consolidated data collected by the team.

(a) With reference to Resource 1, evaluate the suitability of the given hypothesis. **[4]**

(b) Explain how this team can minimise the risks in carrying out their primary investigation at Sites X and Y as shown in Resource 1. **[4]**

(c) With reference to Resources 1 and 2, explain how the students might have carried out their primary fieldwork on investigating infiltration on different landuse. **[8]**

(d) Sketch the consolidated results in Resource 3 using a suitable method of data representation. **[3]**

(e) Suggest reasons for the variations shown in Resource 3. **[6]**

[Turn Over

Section B

Theme 1: Tropical Environments

Climate and Geomorphic Processes in Tropical Australia

2 Resource 4 shows the distribution of average annual rainfall in Australia, three climographs of selected cities of Australia, and the location of two rivers, the Vule River and the Burdekin River. Resource 5 shows the generalised relief map of Australia, the location of the intertropical convergence zone in January, and the wind directions for January and July. Resource 6 shows a slope in New South Wales, Australia. Resource 7 shows a section of the Vule River in the state of Western Australia, and a section of the Burdekin River in the state of Queensland, Australia

(a) With reference to Resource 4, describe the pattern of average annual rainfall of Australia, and the pattern of rainfall in the three selected cities. **[4]**

(b) With reference to Resources 4 and 5, and your own knowledge, account for the pattern of rainfall in the tropical parts of Australia shown in Resource 4. **[7]**

(c) Using evidence from Resource 6, outline **two** erosional processes and explain how they may have produced the features shown. **[6]**

(d) With the aid of Resource 4 and your own knowledge, account for the differences in fluvial features of Vule River and Burdekin River shown in Resource 7. **[8]**

[Turn Over

Theme 2: Development, Economy and Environment

Diamonds in Africa and the Rest of the World

3 Resource 8 highlights the volume of diamonds produced by the top producer countries in the world from 2009 to 2016. Resources 9 and 10 show some of the consequences of producing diamonds on two of these countries; South Africa and Canada respectively. Resource 9 looks at impact on employment in South Africa. Resource 10 shows locations of the various diamond mines within Canada and the impacts for these locations and for Canada as a whole.

(a) Using evidence from Resource 8, compare the diamond production between countries at high and low levels of development. **[4]**

(b) Suggest reasons for the trends in diamond production for Russia and Botswana shown in Resource 8. **[4]**

(c) Describe the trends in employment from South Africa's diamond mines with reference to Resource 9. **[4]**

(d) Suggest **two** reasons why De Beers retains its regional office within Canada as shown in Resource 10. **[4]**

(e) With reference to Resource 10, discuss the view that impacts of diamond extraction by transnational corporations are identical across all host economies. **[9]**

[Turn Over

Theme 3: Sustainable Development

Causes and Impacts of Climate Change

4 Resource 11 shows Earth's carbon dioxide (CO_2) concentration and temperature anomaly over the past 400,000 years, and sunspot numbers over the last 165 years. Resource 12 shows variations in the Earth's orbit over 200,000 according to Milankovitch and its resultant impact on northern hemisphere summer insolation. Resource 13 shows primary energy world consumption between 1990 and 2015, and 2016 primary energy regional consumption by fuel type. Resource 14 shows the top CO_2 emitters and their per capita emissions in 2013, and the 2013 global map of vulnerability to impacts of climate change.

(a) Explain how anthropogenic addition of CO_2 into the atmosphere may have been responsible for the temperature anomalies of the past 165 years shown in Resource 11. **[4]**

(b) Using evidence from Resource 12, show how a natural driver of radiative forcing can explain climate changes between 11,000 and 130,000 years ago shown in Resource 11. **[5]**

(c) With reference to Resource 13, and your own knowledge, account for the pattern of primary energy consumption of fossil fuel versus alternative energy. **[7]**

(d) Using evidence from Resource 14, and your own knowledge, suggest why there is little environmental justice. **[9]**

End]