

2017

JC2 H1 Geography

1.	Anglo Chinese Junior College	
2.	Catholic Junior College	
3.	Dunman High School	
4.	Hwa Chong Institution	
5.	Innova Junior College	
6.	Jurong Junior College	
7.	Meridian Junior College	
8.	Millennia Institute	
9.	Nanyang Junior College	
10.	Pioneer Junior College	
11.	Serangoon Junior College	
12.	St. Andrew's Junior College	
13.	Victoria Junior College	
14.	Yishun Innova Junior College	



ANGLO-CHINESE JUNIOR COLLEGE

JC 2 Preliminary Examinations 2017

GEOGRAPHY

Higher 1

8813/01
Paper 1

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.

The Insert contains all Resources referred to in the questions.

Answer **four** questions.

Section A – Answer Question 1.

Section B – Answer Question 2.

Section C – Answer **two** questions, each from a different theme.

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.

**This Question Paper consists of 4 printed pages, including this cover page.
The Insert consists of 6 printed pages.**



Department of Geography
Anglo-Chinese Junior College
25 Dover Close East Singapore 139745

[Turn Over

Section A

Theme 3: Geographical Investigation

- 1** A group of 20 18 year-old students from Anglo-Chinese Junior College were tasked to undertake a primary fieldwork on investigating infiltration on different landuse. The team selected a study area at the edge of the Bukit Timah Nature Reserve. The students were deciding on possible areas of investigation and hypothesis for the investigation.

They carried out the primary investigation at Sites A, B and C along the transect in the selected study area in Resource 1 on 14 July 2016.

Resource 2 shows the equipment used by the students to measure infiltration. Resource 3 shows the data representation of the primary investigation done by the team.

- (a)** With reference to Resource 1, craft a research hypothesis and evaluate the suitability of the chosen hypothesis. **[6]**
- (b)** Explain how this team would minimise the impacts of their primary investigation at Sites A, B and C 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)** Using evidence from Resources 1 and 3, and your own knowledge, account for the variations in infiltration rates at Sites A, B and C. **[7]**

Section B

Theme 2: Urban Change

Urban Forms of Cities

- 2** Resource 4 shows the relationship between city density and Greenhouse Gas (GHG) Emissions in various metropolitan areas.

Resource 5 shows an advertisement found along the railway in a city of New Zealand during the 1930s. The advertisement encouraged commuters to live in the suburbs.

Resource 6 contains the urban layout of Metropolitan Buffalo, USA for the year 1950 to 2000.

Resource 7 shows the changes to population size in Metropolitan Buffalo during the same time period of 1950 to 2000.

- (a) Describe the relationship between urban density (persons/hectare) and greenhouse gas emissions seen in Resource 4. [3]
- (b) Explain why Resource 4 is insufficient for understanding urban sustainability and suggest how **two** other indicators can be used to supplement the understanding of urban sustainability. [4]
- (c) Using evidence from Resource 5, explain the rise of suburbanisation in higher-income countries in the 1930s. [6]
- (d) With reference to Resource 6, explain how urban sprawl would impact urban sustainability. [4]
- (e) With reference to Resources 6 and 7, and your own knowledge, discuss the extent to which migration may have contributed towards urban sprawl in Metropolitan Buffalo. [8]

[Turn Over

Section C

Answer **two** questions from this section.

Either Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3 (a) Explain how the evidence found in the tropics can be used to account for the climate change since the last ice age. [9]
- (b) 'Alternative energy sources hold the key for an effective response to climate change.'
- Evaluate the validity of this statement. [16]
- 4 (a) Compare the nature of overland flows in the humid and arid tropics. [9]
- (b) To what extent can human activities influence the flows and storages of hydrological cycles in the humid and arid tropics? [16]

Theme 2: Urban Change

- 5 (a) Compare the needs of different social groups within cities. [9]
- (b) Discuss the extent to which urban liveability can be enhanced within cities for **one** social group you have studied. [16]
- 6 (a) Compare the changing patterns of urbanisation in higher-income and lower-income countries. [9]
- (b) Evaluate the role of rural-urban migration as a cause of crowding in the cities of lower-income countries. [16]

[End



ANGLO-CHINESE JUNIOR COLLEGE

JC 2 Preliminary Examinations 2017

GEOGRAPHY
Higher 1

8813/01

INSERT

Time: 3 hours

15 August 2017
(Tuesday)

READ THESE INSTRUCTIONS FIRST

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

This Insert consists of 6 printed pages.

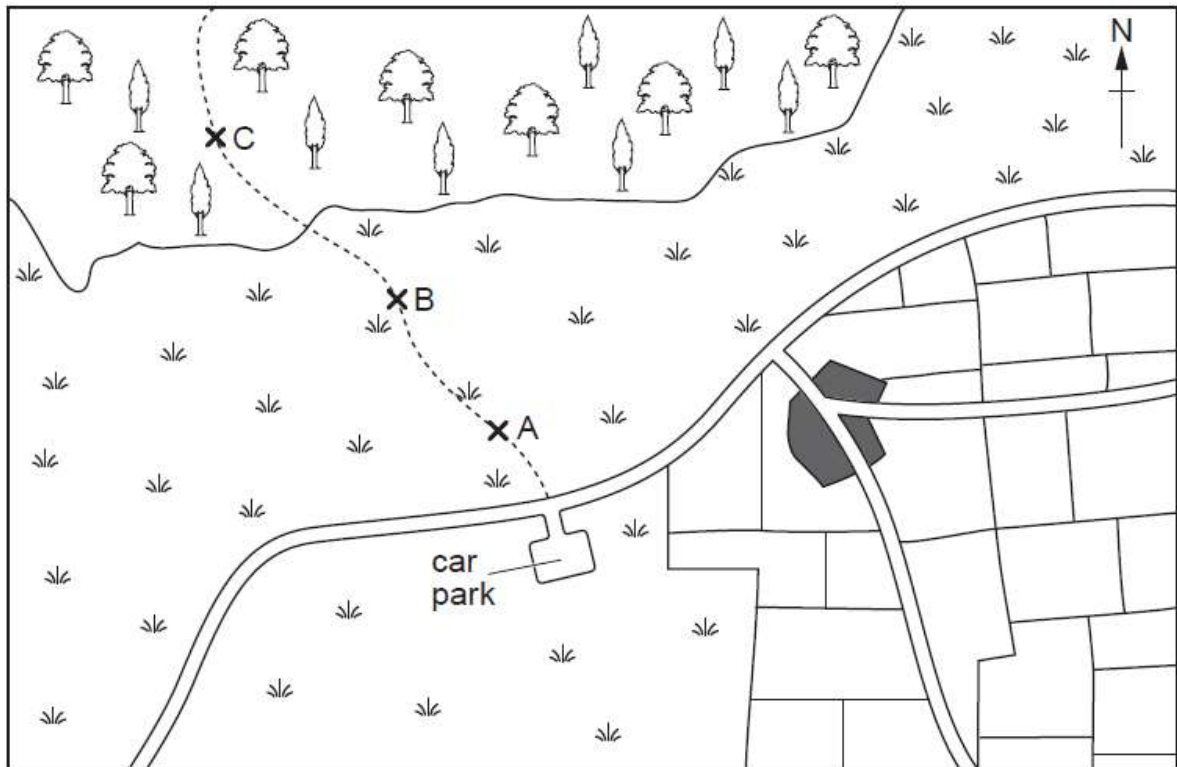


Department of Geography
Anglo-Chinese Junior College
25 Dover Close East Singapore 139745

[Turn Over

Resource 1 for Question 1

Location of investigation sites



Key

- x Investigation site
- road
- transect
- building

0 1 2 3 4
km

- mixed woodland
- open grassland
- other built-up areas

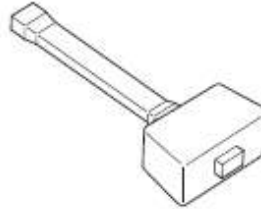
[Turn Over

Resource 2 for Question 1

Equipment used to measure infiltration



piece of
drainpipe



hammer or
mallet



water



measuring jug

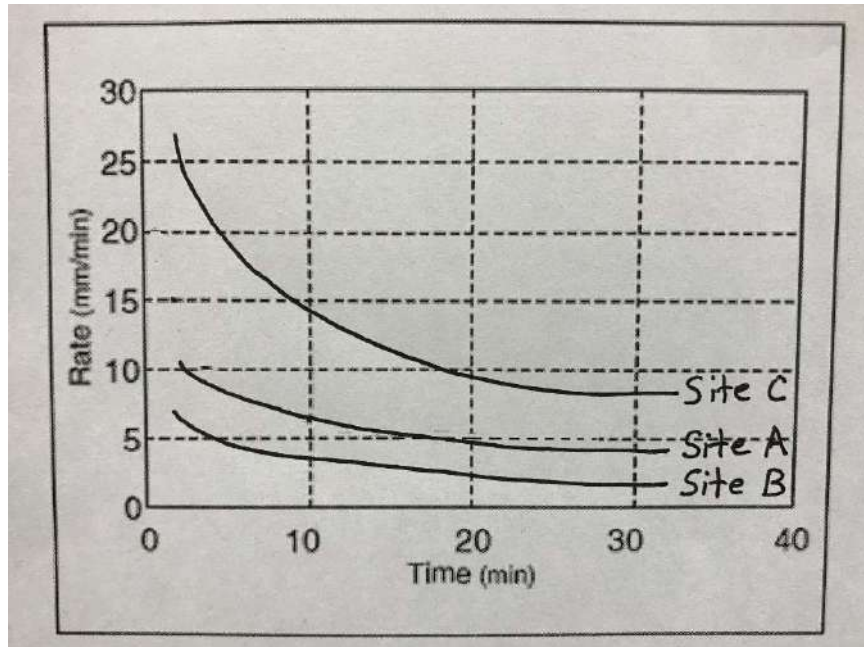


stopwatch

[Turn Over

Resource 3 for Question 1

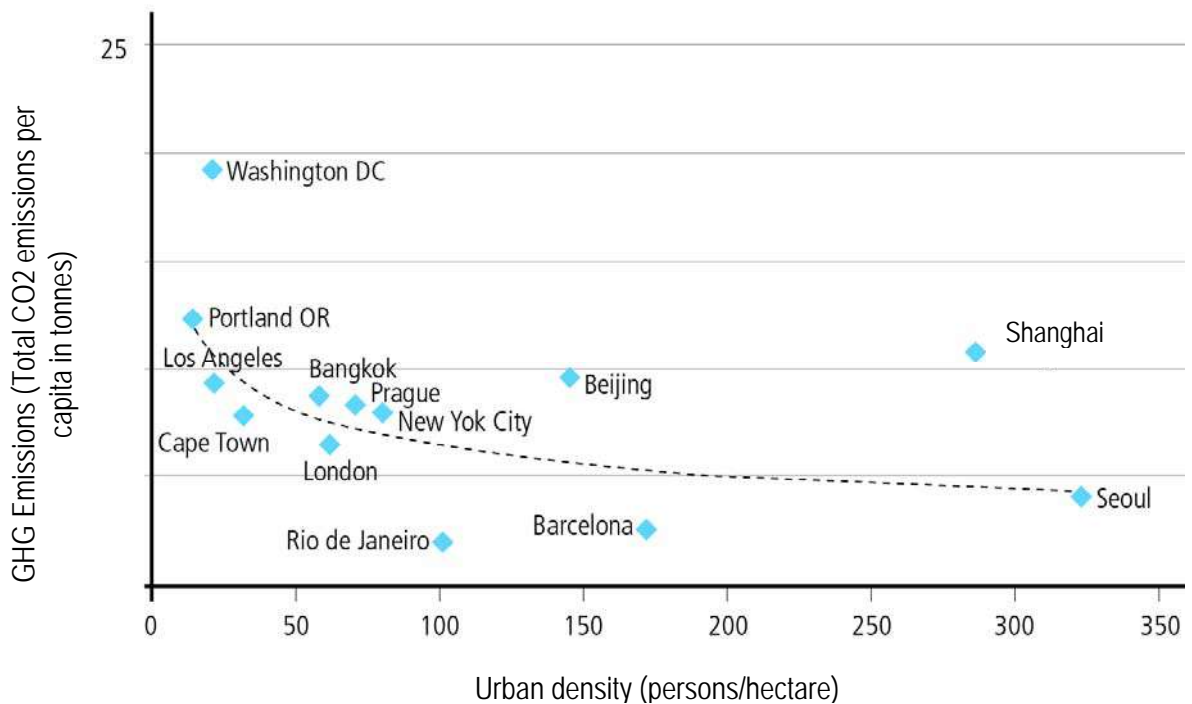
Data representation by investigation team



[Turn Over

Resource 4 for Question 2

Relationship between urban density and greenhouse gas emissions



Resource 6 for Question 2

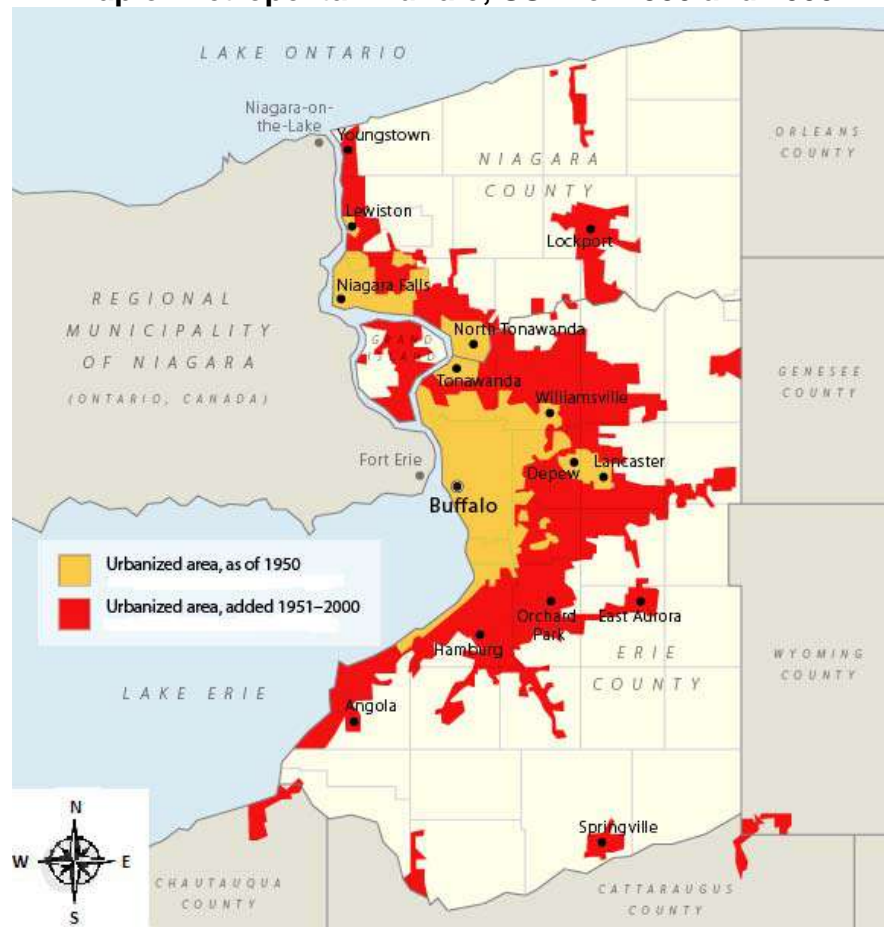
Advertisement for Suburban Living



[Turn Over

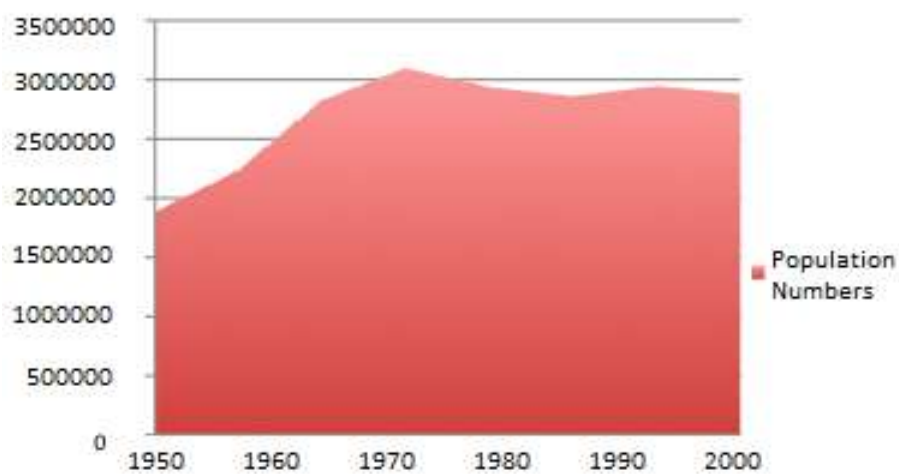
Resource 7 for Question 2

Map of Metropolitan Buffalo, USA for 1950 and 2000



Resource 8 for Question 2

Population size of Metropolitan Buffalo between 1950 and 2000



[End



Catholic Junior College
JC2 Preliminary Examinations
Higher 1

GEOGRAPHY

8813/01

Paper 1

22 August 2017

3 Hours

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Answer **four** questions in total.

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[Turn over]

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Section A

Theme 3: Geographical Investigations

- 1 A group of 25 18-year-old students were tasked to undertake a geographical investigation in Bishan Park, where the old concrete canal has been deconcretised and naturalised into a 3-km meandering river in 2012. They selected the eastern wing of Bishan Park as their study site.

The group conducted a survey to find out about residents' views about flood management measures and if they have felt that the occurrence of floods has reduced after the naturalisation of the river. They divided themselves into teams of 4 and randomly interviewed 10 residents at the park. They also conducted a pedestrian count to check on the potential disruptions to human activities should a flood occurs.

The group conducted the investigation on a weekday afternoon in July and were given 3 hours to complete the tasks from 1-4 pm.

Resource 1 shows the eastern part of the park where the group conducted its investigations. Resource 2 shows a photograph of a stretch of the river where they were working at. Resource 3 shows a questionnaire which the group used to collect views from the residents.

- (a) Based on Resource 1, craft a suitable research question/hypothesis for flood risks. Give two reasons why it is of a suitable scale. [3]
- (b) Draw an annotated sketch of the physical and human environment near the river in Resource 2 which can aid in the understanding of the flood risks. [4]
- (c) With reference to Resource 3, explain some challenges that may be faced when conducting the survey and how you would improve on the questionnaire. [6]
- (d) Explain how the group can conduct a pedestrian count at the park. [4]
- (e) Evaluate the usefulness of collecting residents' views about flood management measures and pedestrian count in studying flood risks. [8]

Section B

Theme 2: Urban Change

Urban Reimaging in Rotterdam

- 2** Rotterdam is a city in the Netherlands. Once a bustling port, manufacturing and port employment started to decline in the 1980s. As such, the government decided to redevelop the city through improving its dwelling spaces, establishing new green spaces, world-class museums and shopping malls. Two of such areas in Rotterdam that had undergone redevelopment is Oude Noorden and Spangen.

Resource 4 shows the changes in selected neighbourhood characteristics in Oude Noorden and Spangen. Resource 5 shows the deviation of liveability indicators from the national average in Oude Noorden and Spangen. Resource 6 shows the increase in property tax values in Rotterdam from 2000 to 2008.

- (a)** Compare the changes in the neighbourhood characteristics of Oude Noorden and Spangen as shown in Resource 4. [4]
- (b)** With reference to Resource 5, describe the changes in the deviation of the liveability indicators in Spangen between 1998 and 2008. [4]
- (c)** With reference to Resource 6, describe the variations of the percentage increase in property tax in the city of Rotterdam. [4]
- (d)** Suggest reasons why there may be differences in the percentage increase in property tax between Oude Noorden and Spangen with reference to Resources 4 to 6. [6]
- (e)** With reference to Resources 4 to 6 and your own knowledge, explain why urban reimaging may not always be beneficial for urban dwellers. [7]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3(a) Explain how flows and storages in a drainage basin in a semi-arid area may vary in the course of the year. [9]
- (b) To what extent are climatic factors the major cause of river floods? [16]
- 4(a) Explain how climate change is affecting climatic patterns in the tropics. [9]
- (b) "Climate change can only be mitigated with the collective effort of nations." To what extent do you agree with this statement? [16]

Theme 2: Urban Change

- 5(a) Explain the challenges associated with measuring sustainable urban development levels of cities. [9]
- (b) Assess the effectiveness of strategies used to improve the lives of slum dwellers in cities. [16]
- 6(a) Explain the needs of the elderly and one other social group in cities of countries at high levels of development. [9]
- (b) With reference to the elderly and one other social group, to what extent are cities in high-income countries more effective in catering to their needs than those in low-income countries? [16]

**** END OF PAPER ****



Catholic Junior College
JC2 Preliminary Examinations
Higher 1

GEOGRAPHY

8813/01

Paper 1

22 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 6 printed pages and 1 blank page.

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Resource 1 for Question 1
Eastern Wing of Bishan Park



Resource 2 for Question 1
Photograph of Field Investigation Site



Source: <https://fi.pinterest.com/pin/320811173435247846/>

Resource 3 for Question 1

Questionnaire for Flood Risk Survey

1. How long have you lived near this park?

- ☐ Less than 1 year
- ☐ 1–5 years
- ☐ 6–10 years
- ☐ 11–20 years
- ☐ More than 20 years

2. What is your age?

- ☐ Less than 18-years-old
- ☐ 19 to 35-years-old
- ☐ 36 to 59-years-old
- ☐ 60-years-old and above

3. What is your gender?

- ☐ Male
- ☐ Female

4. What is your housing type?

- ☐ 3-room flat HDB
- ☐ 4-room flat HDB
- ☐ 5-room flat HDB
- ☐ Condominium

5. On a scale of 1 (not at all concerned) to 4 (very concerned), how concerned are you about the risk of flooding in this park? (Circle the appropriate circle)

1 2 3 4

6. Has your current home ever been flooded in the past? YES/NO

If YES, can you tell us briefly when, and what caused the flood?

7. On a scale of 1 (very low) to 4 (very high), what is your current understanding of the risk of your home being affected by flooding?

1 2 3 4

8. What do you think of flood management measures in the park?

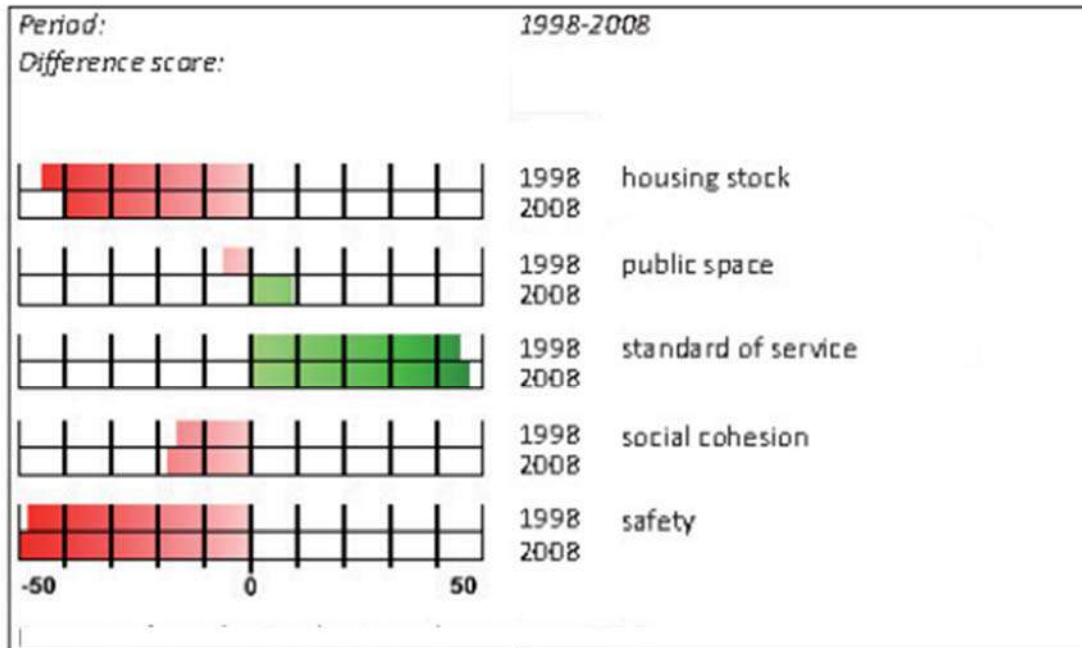
Resource 4 for Question 2

Changes in selected socio-economic characteristics in Oude Noorden, Spangen and Rotterdam average

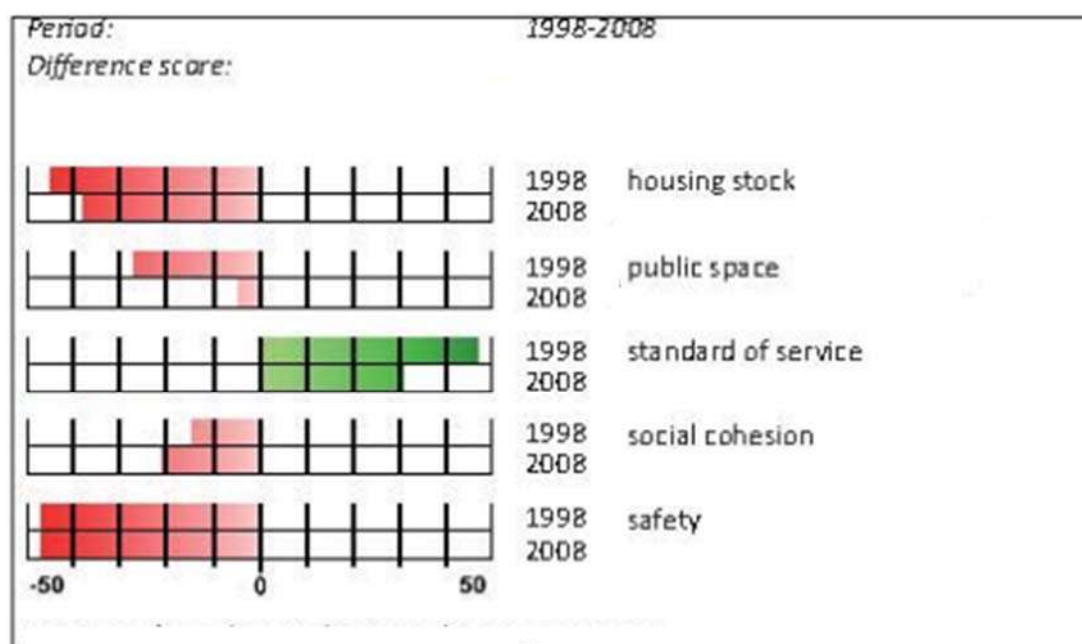
Specification	Oude Noorden		Spangen	
	Initial Measurement	Recent	Initial Measurement	Recent
Share of Immigrants (1999-2009)	58%	65%	80%	85%
Share of low income (2002-2008)	62%	65%	75%	66%
Unemployment percentage (2000-2010)	10%	6%	11%	6%
Liveability Score (1998-2008)	Negative	Mediocre	Very Negative	Negative
Share of inhabitants that is satisfied with their area (2002-2009)	47%	64%	31%	66%

Resource 5 for Question 2
Deviation of Liveability Indicators of Oude Noorden and Spangen from the National Average

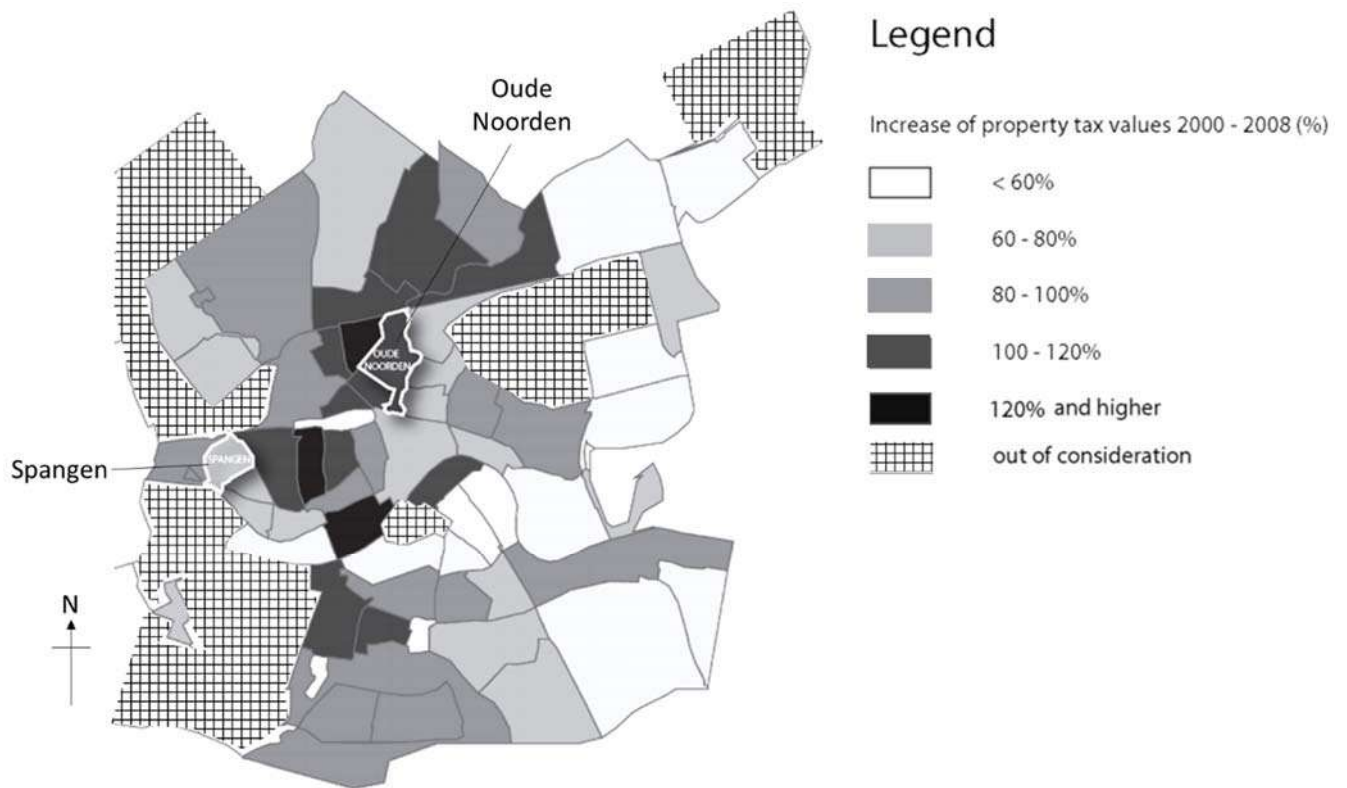
Liveability indicators- Deviation from national average (Oude Noorden)



Liveability indicators- Deviation from national average (Spangen)



Resource 6 for Question 2
Increase in Property Tax Rates in Rotterdam (2000 to 2008)



Name:		Index Number:		Class:	
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DUNMAN HIGH SCHOOL PRELIMINARY EXAMINATIONS Year 6

HIGHER 1 GEOGRAPHY

8813/01

Paper 1

Monday

11 September 2017

3 hours

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Answer **four** questions in total.

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Answer Question 2.

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

This document consists of **5** printed pages, **1** blank page and **1** Insert.

[Turn over

Section A

Theme 3: Geographical Investigation

- 1 You and a group of classmates were tasked with undertaking a fieldwork investigation at two contrasting river channels to ascertain the flood risk at the sites shown in Resource 1. River A is located in a forest reserve. River B is a managed river channel.

The group was divided up into teams of four to measure river velocity and wetted perimeter of each river. 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 March and were given 4 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:

- Oranges
- Tape measure
- Stop watch

The time taken for the floating object to cover a pre-determined distance, defined by the position of 2 students standing by the side of the river, was recorded. At River A, the group found that the floating object was often obstructed by fallen trees or debris in the river. The data collected was recorded using a data collection sheet.

To measure the wetted perimeter of the river, 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 wetted perimeter of the river and then the cross sectional areas of the two rivers were calculated.

Resource 1 shows the land use associated with Rivers A and B. Resource 2 shows the photographs of the locations where field investigation was conducted at River A and River B. Resource 3 shows the velocity data collected by your team.

- (a) With reference to Resource 1, 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 2. [5]
- (c) Suggest two limitations of the data representation method shown in Resource 3 and sketch one line graph 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. [6]
- (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. [8]

Section B

Theme 2: Urban Change

Slums in Developed Countries (DCs) and Less Developed Countries (LDCs)

- 2** Resource 4 shows the change in the slum and non-slum population in Mumbai and Ahmedabad, India, a LDC. Resource 5 shows the distribution of slums and some features of the urban structure of Mumbai in 2008. Resource 6 shows slum housing in Dharavi, Mumbai; and low-income housing in Paris, France, a DC. Resource 7 shows two excerpts on life and the future development of slums in Mumbai; and also slum housing in Le Banlieues, a suburb in Paris.
- (a) With reference to Resource 4, suggest reasons for the differences in the size and extent of slum population between Mumbai and Ahmedabad. [4]
 - (b) With reference to Resource 5, suggest **three** reasons for the locations of slum development in Greater Mumbai. [5]
 - (c) With reference to Resource 6, contrast the characteristics of slum housing between Mumbai and Paris. [4]
 - (d) With reference to Resources 6 & 7, and your own knowledge, explain how urban liveability issues may differ between residents in LDCs and DCs. [6]
 - (e) Using Resource 7 and your own knowledge, explain if housing strategies used to improve the lives of slum dwellers are effective. [6]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3** **(a)** With the aid of an annotated diagram, explain the key features of storm discharge characteristics in the arid tropics. [9]
- (b)** 'Climate is the most important factor influencing hydrological processes of drainage basins in the tropics.'
- Discuss. [16]
- 4** **(a)** Explain the evidence of climate change in the tropics since the Late Pleistocene Epoch. [9]
- (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. [16]

Theme 2: Urban Change

- 5** **(a)** Explain how the issue of crowding or fear is produced in cities with high levels of development. [9]
- (b)** Discuss the extent to which urban reimagining strategies in high-income countries have raised the quality of urban living for its dwellers. [16]
- 6** **(a)** Explain how cities with varying levels of economic development manage non-hazardous solid waste. [9]
- (b)** 'Strategies to ease traffic congestion in cities have had little success.'
- Discuss the extent to which you agree with the statement. [16]

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DUNMAN HIGH SCHOOL PRELIMINARY EXAMINATIONS Year 6

HIGHER 1 GEOGRAPHY

8813/01

**Paper 1
INSERT**

Monday

11 September 2017

3 hours

READ THESE INSTRUCTIONS FIRST

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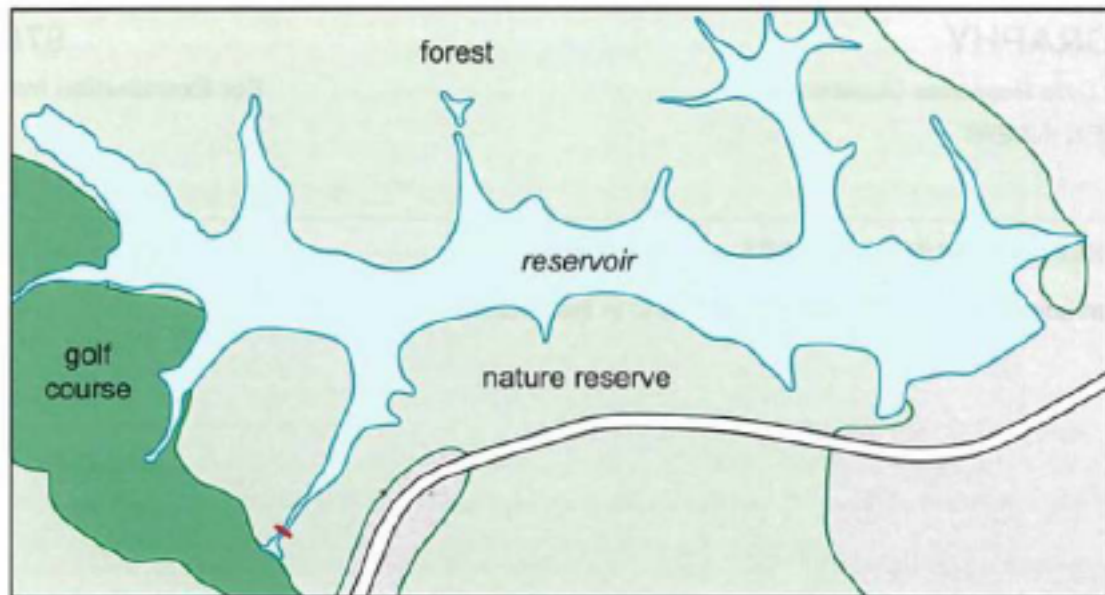
Need a home tutor? Visit smiletutor.sg

8813/1/2017/Preliminary Examinations/INSERT



Resource 1 for Question 1

Land use associated with River A and River B

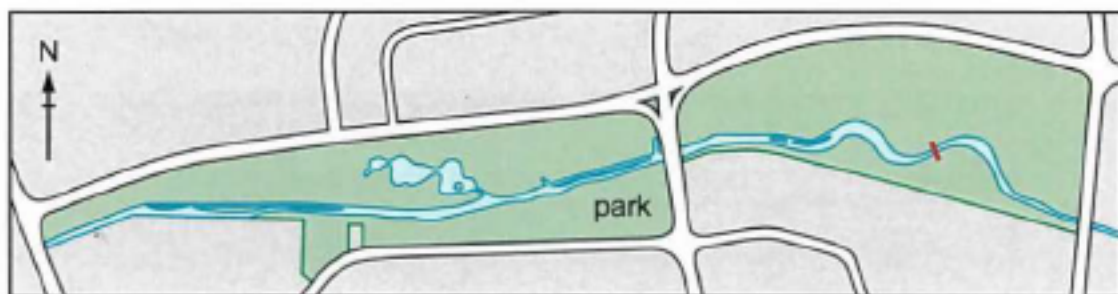
River A





Key

-  site of river fieldwork
-  built up area

River B



Key

-  site of river fieldwork
-  built up area

Resource 2 for Question 1

**Photographs of the locations where field investigation was conducted
at River A and River B**

River A



River B



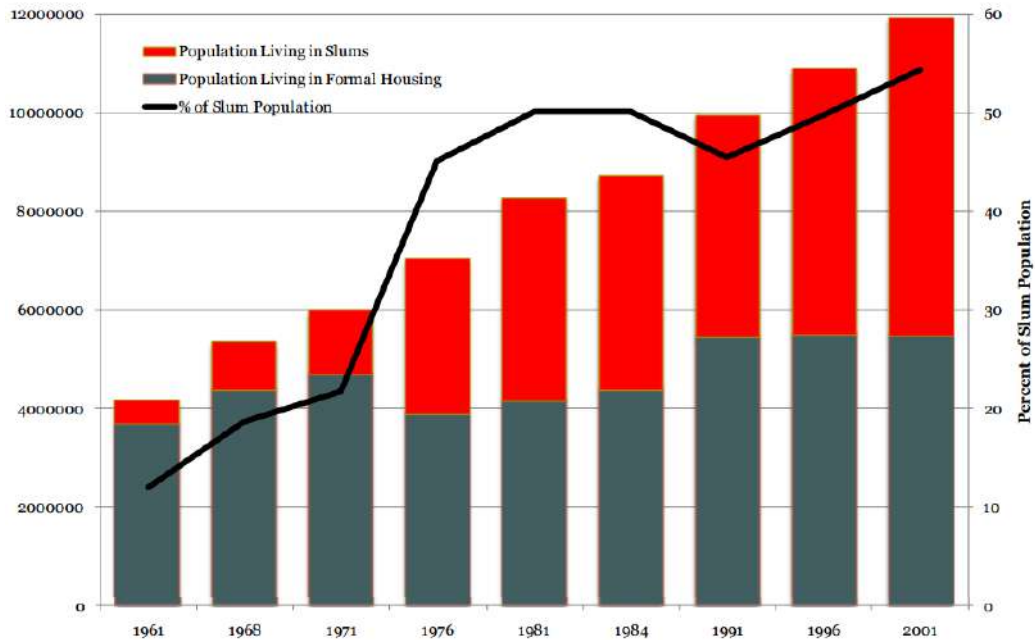
Resource 3
Velocity Data of Rivers A and B

River A					River B			
Time	Velocity (m/s)				Velocity (m/s)			
	1	2	3	average	1	2	3	average
10:00	0.42	0.52 0.48	0.46	0.45	0.36 0.40	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	0.52 0.53	0.52	0.54	0.53	0.51	0.53	0.56	0.53
14:00	0.48	0.46	0.48 0.45	0.46	0.48	0.49	0.50	0.49

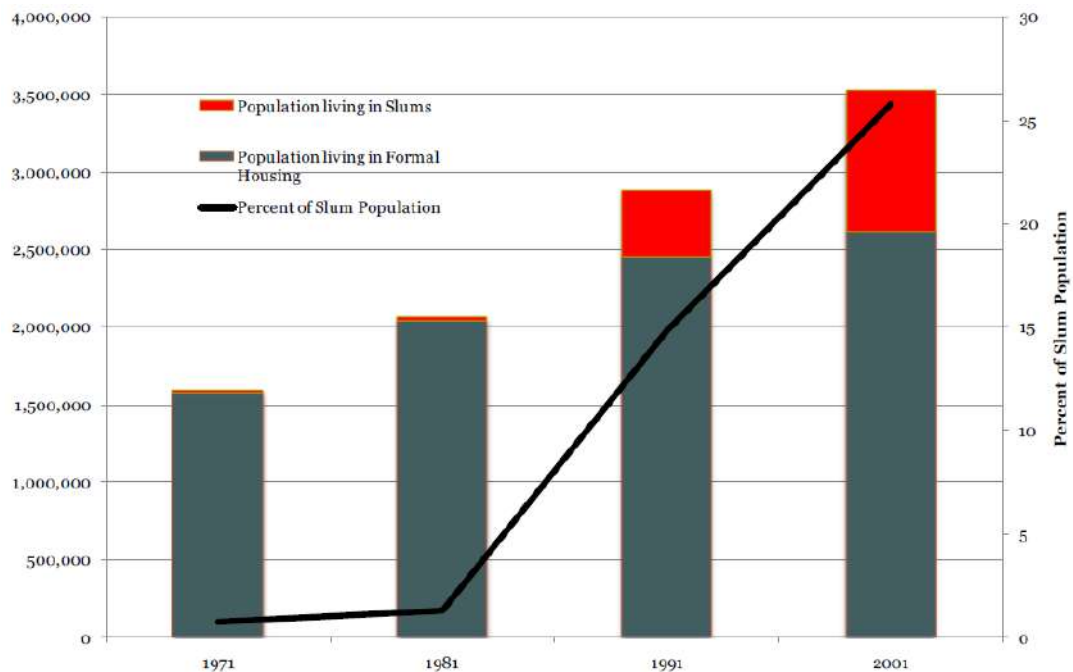
Resource 4 for Question 2

Change in the slum and non-slum population in Mumbai and Ahmedabad,
two cities in India, a LDC

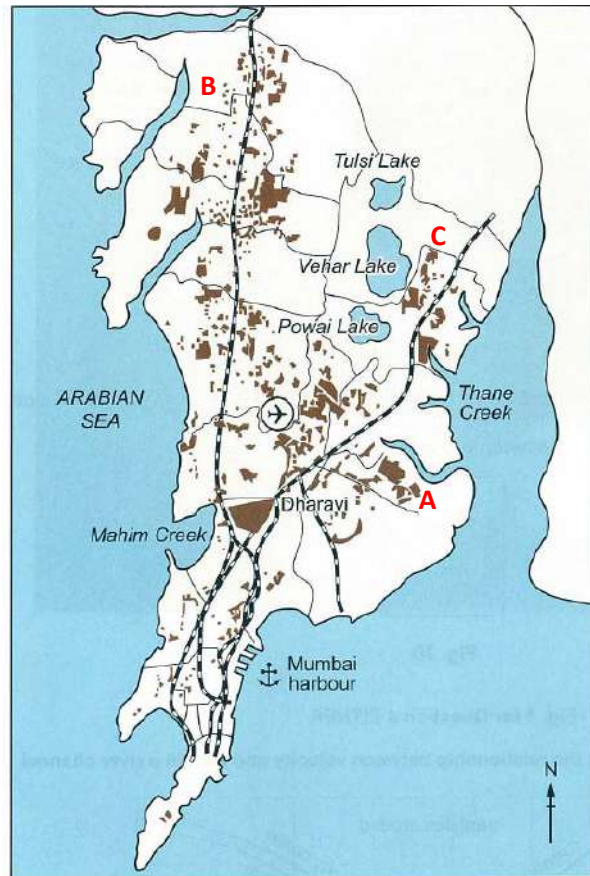
Mumbai



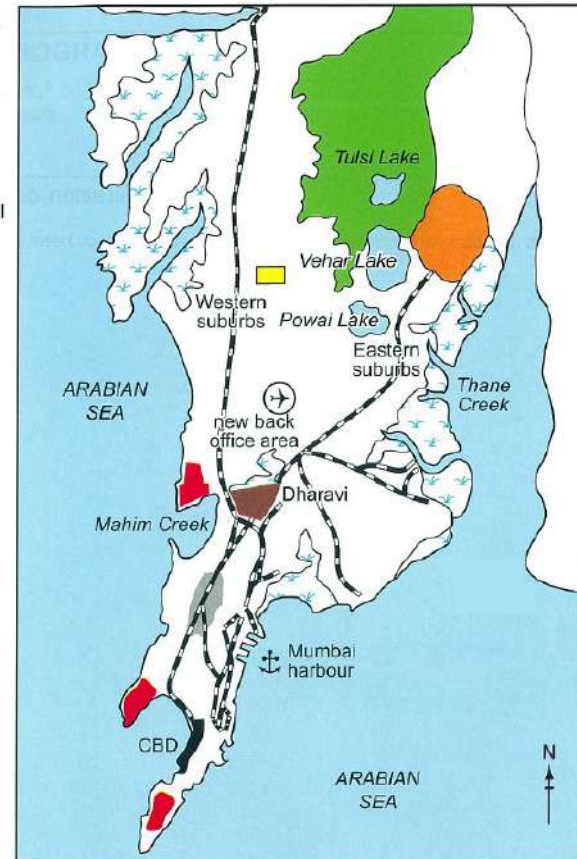
Ahmedabad



Resource 5 for Question 2
Slum Locations and Features in Mumbai, India



0 5
km



0 5
km

Resource 6 for Question 2
Slums in Mumbai and Paris

A slum in Mumbai slum (LDC)



A slum in Les Banlieues, Paris (DC)



Resource 7 for Question 2**Abridged excerpts on life and future development of slums in Mumbai and Paris**

Dharavi's population has achieved a unique informal urban development over the years without any external aid. It is a humming economic engine. While not everyone has formal access to safe water and sanitation, the residents have been able to lift themselves out of poverty by establishing thousands of successful businesses. Dharavi currently has close to 5,000 industrial units, producing textiles, pottery and leather, and performing services like recycling.

But Dharavi is no longer safe from demolition. Massive growth over the last two decades has engulfed Dharavi's plot of 525 acres. Today, Dharavi is situated in the heart of the megapolis where land prices are highest in India. Its position sits at the intersection of two main train lines, and is near the new business district. Under the government-led Dharavi Redevelopment Project, developers will provide the people living there – who can prove residency since 2000 – a new and nearby 300 square foot house for free.

In contrast, life seems glum for slum residents in Paris. Those who live in the suburbs have no hope of employment due to racism and a lack of jobs. They spend their days taking drugs and avoiding arrest from cops. One resident said that "*there is nothing to do. You wake up looking for work, but there isn't any.*"

Paris city officials have decided to locate new low-income buildings in a couple of the most affluent neighbourhoods. The move is part of a broader push by the city to create more affordable homes in the French capital's wealthier neighbourhoods. In the past, low-income housing has largely been limited to the city's poorer areas and the suburbs outside of Paris.



HWA CHONG INSTITUTION
JC2 Preliminary Examination
Higher 1

**CANDIDATE
NAME**

--

CT GROUP

--

**CENTRE
NUMBER**

--	--	--	--

**INDEX
NUMBER**

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GEOGRAPHY

8813/01

Additional Materials: Answer Paper
1 Insert
World outline map

4 September 2017
3 hours

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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.

Submit your answers in two separate sets:

1. Question 1
2. Questions 2 - 6

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 3 : Geographical Investigation

- 1 A group of 20 18 year-old students wanted to examine the needs of the elderly living in Bukit Merah, a mature housing estate in Singapore. The group wanted to gain information on the social background of elderly individuals as well as the infrastructure and services available such as elderly care amenities, medical services, recreational facilities for elderly and general services (shops, banks, neighbourhood police post etc) to gain a fuller picture of the needs of the elderly.

The group decided to survey 20 households for their field investigation located in the same neighbourhood in Bukit Merah. The students visited the field site on three consecutive days in June to conduct a survey of the resident population aged 65 years and over in Bukit Merah and record observations of the services available in the neighbourhood.

The group also had access to general census data on the residents in Bukit Merah about their:

- (i) Living arrangement
- (ii) Mobility status
- (iii) Main source of financial support
- (iv) Highest qualification attained

Resource 1 shows a map of a part of Bukit Merah Estate. Resource 2 shows the Silver Zone traffic management programme. Resource 3 shows the mobility status and living arrangement of resident population aged 65 years and over in Bukit Merah.

- (a) Suggest a suitable research question for the group investigation and explain why the research question is clearly defined and at a suitable scale. [4]
- (b) With reference to the context provided, select and describe a sampling method to obtain a sample that is representative of the population. [4]
- (c) With reference to the context provided, explain one advantage and one disadvantage of the sampling method you have chosen in 1(b). [4]
- (d) With reference to Resources 1 and 2 and other information, explain how such data can help in understanding the needs of the elderly in Bukit Merah. [6]
- (e) Evaluate the usefulness of the census data and its graphic representation shown in Resource 3 in the analysis of the needs of the elderly. [7]

[Turn over

Section B**Theme 1 : Climate Change and Flooding****Nigeria's tropical climates**

- 2 Resource 4 shows the location of Kano (12°N) and Lagos (6.5°N) in Nigeria. Resource 5 shows average monthly rainfall and mean monthly temperatures of Lagos and Kano. Resource 6 surface wind and pressure over West Africa during winter and at the peak of the summer monsoon. Resource 7 shows the position of the ITCZ over Africa during summer in the Northern Hemisphere.
- (a) With reference to Resource 5, compare the rainfall distribution of Lagos and Kano. [3]
 - (b) With reference to Resources 4, 5 and 6, explain the differences in rainfall distribution in Lagos and Kano. [4]
 - (c) Explain the nature of wind patterns shown in Resource 6. [6]
 - (d) With reference to Resource 7, account for the towering cumulonimbus (Cu) clouds over Africa in summer in the Northern Hemisphere. [4]
 - (e) With reference to Resources 6 and 7 and other information, evaluate the factors that influence the tropical monsoon (Am) climate. [8]

[Turn over]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1 : Climate Change and Flooding

- 3 (a) Explain the possible effects of climate change on human activity. [9]
- (b) To what extent can man respond effectively to the effects of climate change? Discuss with reference to specific examples. [16]
- 4 (a) With the aid of a diagram, describe and explain the characteristics of a flood hydrograph. [9]
- (b) To what extent does the level of economic development influence the impact of floods? Discuss with reference to specific examples. [16]

Theme 2 : Urban Change

- 5 (a) Resource 8 shows an example of an iconic building used in urban renewal. Explain the aim(s) of flagship projects used in urban renewal. [9]
- (b) With reference to specific examples, assess the effectiveness of various strategies to achieve liveability in cities. [16]
- 6 (a) Explain the difficulties of defining 'urban' and measuring liveability. [9]
- (b) 'The management of slums remains the most pressing area in achieving sustainable urban development.' Discuss with reference to specific examples. [16]

--- End of paper ---

Acknowledgements:

Question 1 Resource 1 @ www.streetdirectory.com
 Question 1 Resource 2 @ <http://ifonlysingaporeans.blogspot.sg/>
 Question 1 Resource 3 @ <https://www.singstat.gov.sg/>
 Question 2 Resource 4 @ <http://www.srh.noaa.gov/jetstream/tropics/itcz.html>
 Question 2 Resource 5 @ <https://en.climate-data.org/location/46648/>
 Question 2 Resource 6 @ <https://www.hindawi.com/>
 Question 2 Resource 7 @ <https://www.hindawi.com/>
 Question 5 Resource 8 @ <https://www.e-architect.co.uk/bilbao/guggenheim-museum-bilbao>



HWA CHONG INSTITUTION
JC2 Preliminary Examination
Higher 1

**CANDIDATE
NAME**

CT GROUP

**CENTRE
NUMBER**

**INDEX
NUMBER**

GEOGRAPHY

8813/01

Paper 1

4 September 2017

INSERT

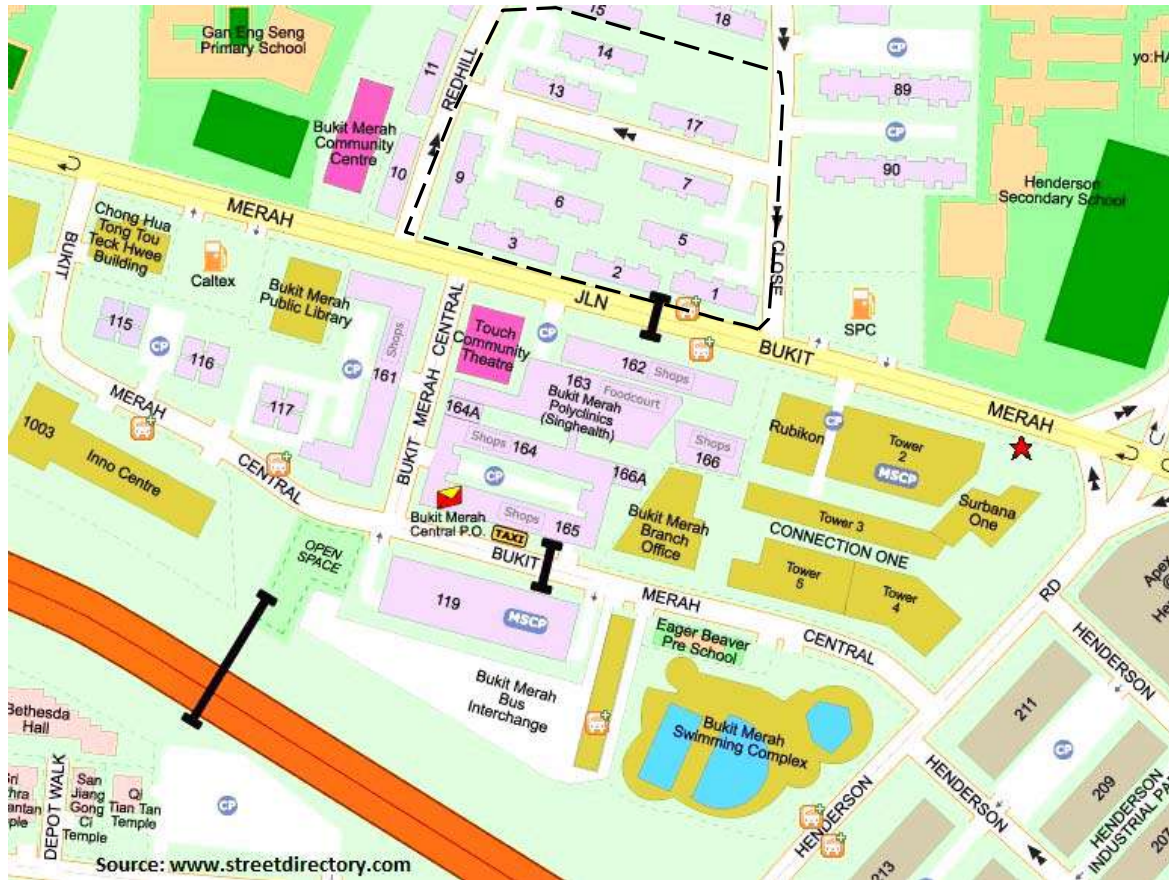
3 hours

READ THESE INSTRUCTIONS FIRST

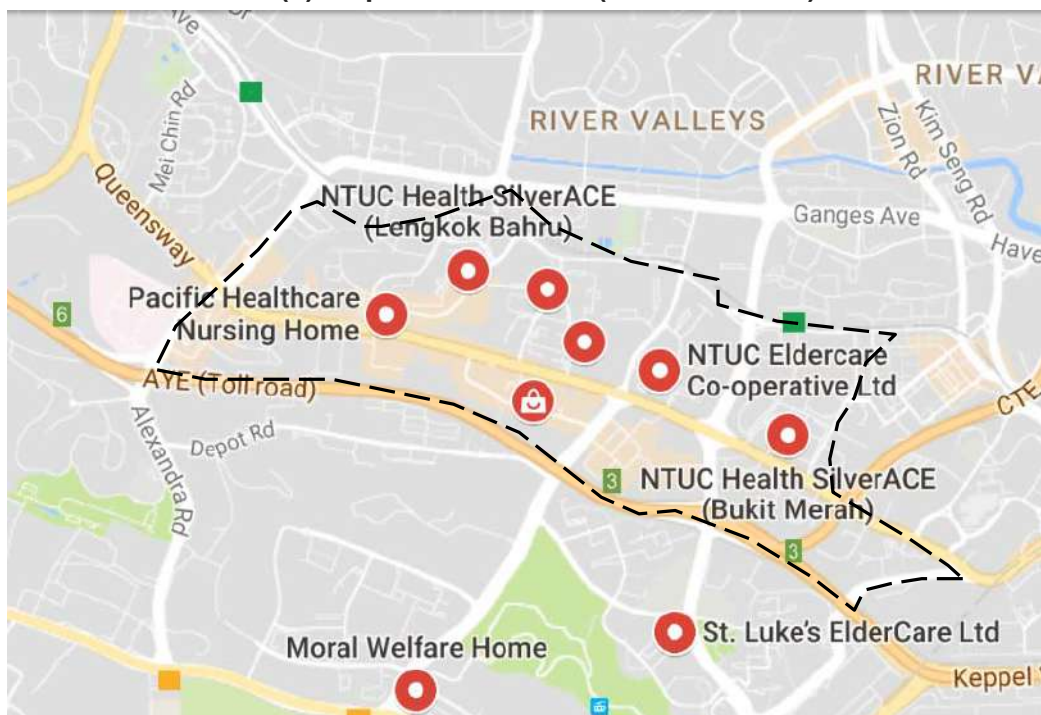
This insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

(a) Map of a part of Bukit Merah Estate and area of investigation (dashed outline)



(b) Map of Bukit Merah (dashed outline)



[Turn over]

Resource 2 for Question 1

The Silver Zone traffic management programme to address road safety for the elderly

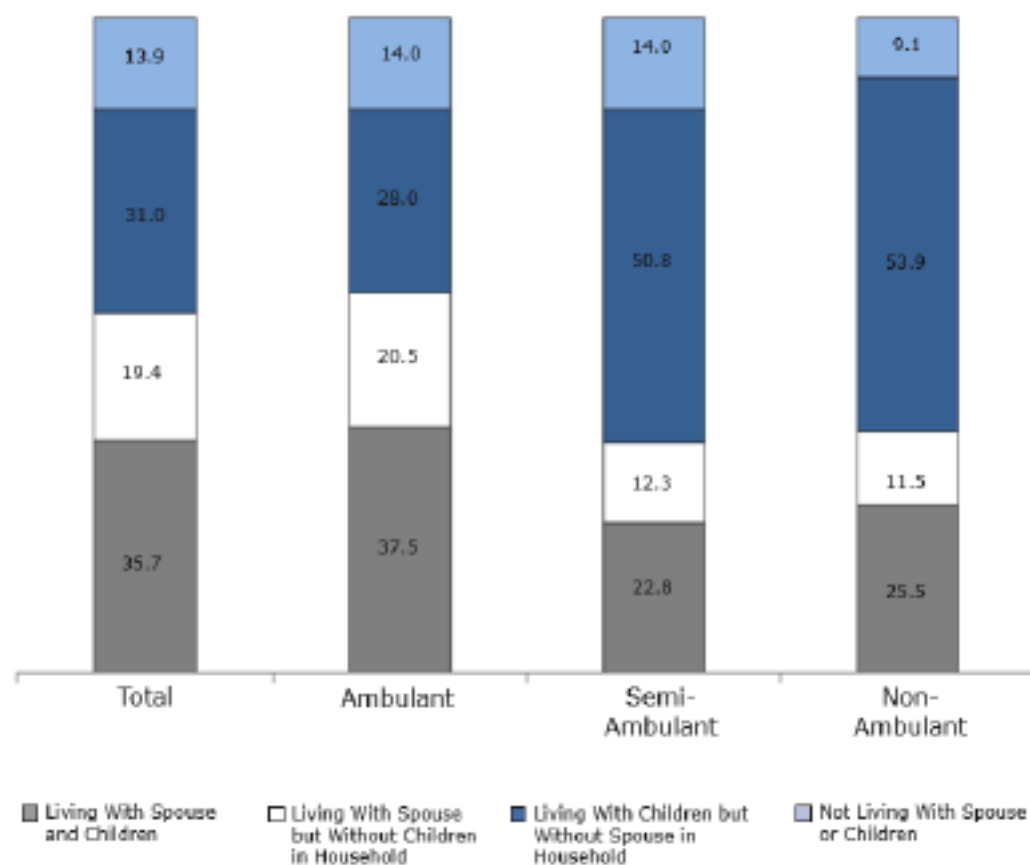


Bukit Merah View, one of the five estates announced to have the Silver Zone implemented. The zones are marked with road signs and rumble strips at the entrance. Motorists will also find large painted markings indicating the 40km/h speed limit within the zone.

[Turn over

Resource 3 for Question 1
Mobility status and living arrangement of resident population aged 65 years and over
in Bukit Merah

Per Cent



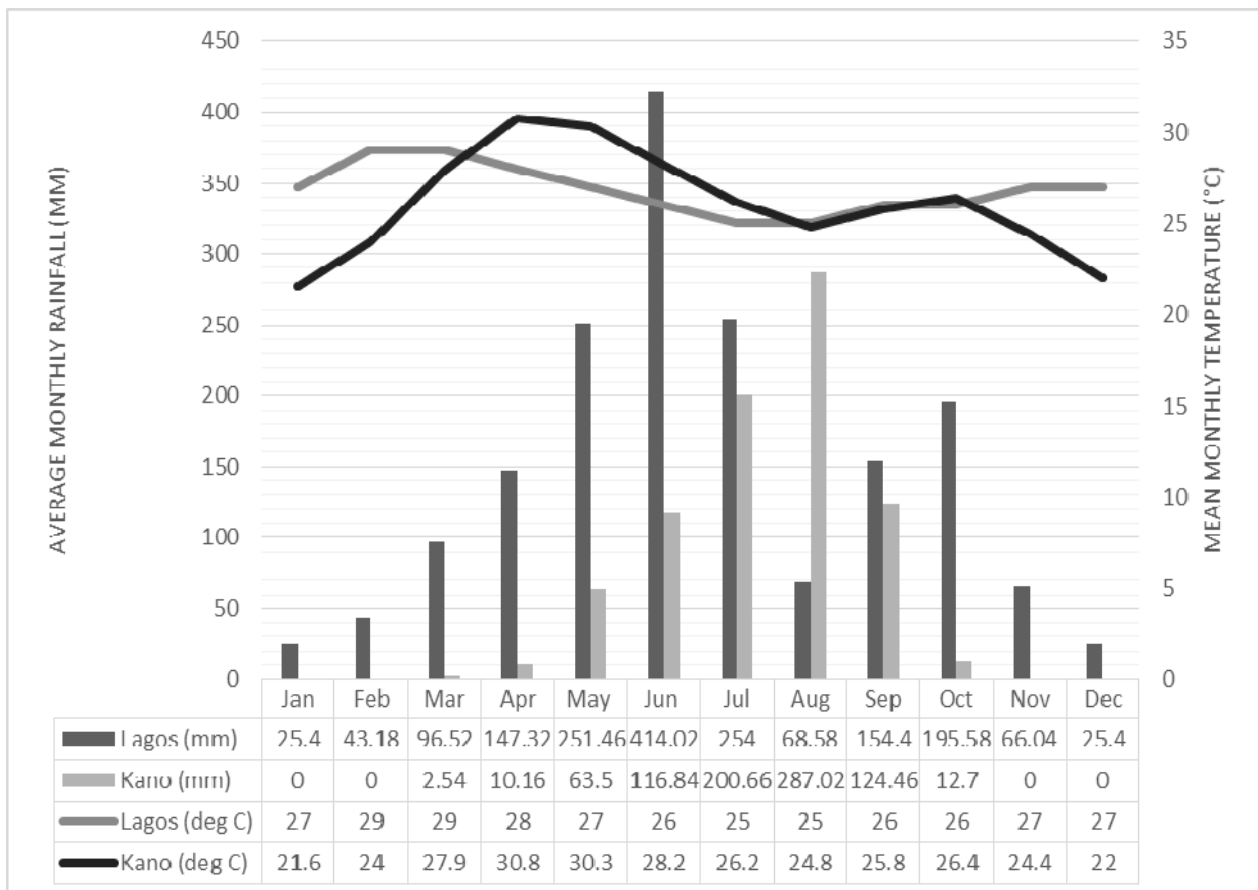
***Ambulant** : able to walk about; not confined to bed

[Turn over

Resource 4 for Question 2
Location of Kano (12°N) and Lagos (6.5°N) in Nigeria



Resource 5 for Question 2
Average Monthly Rainfall and Mean Monthly Temperatures of Lagos and Kano, Nigeria

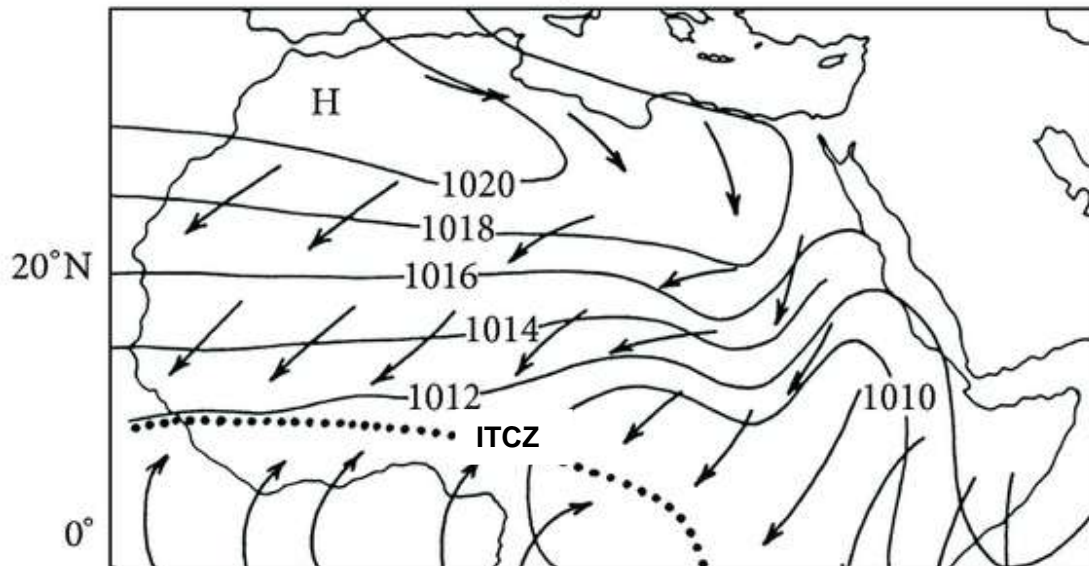


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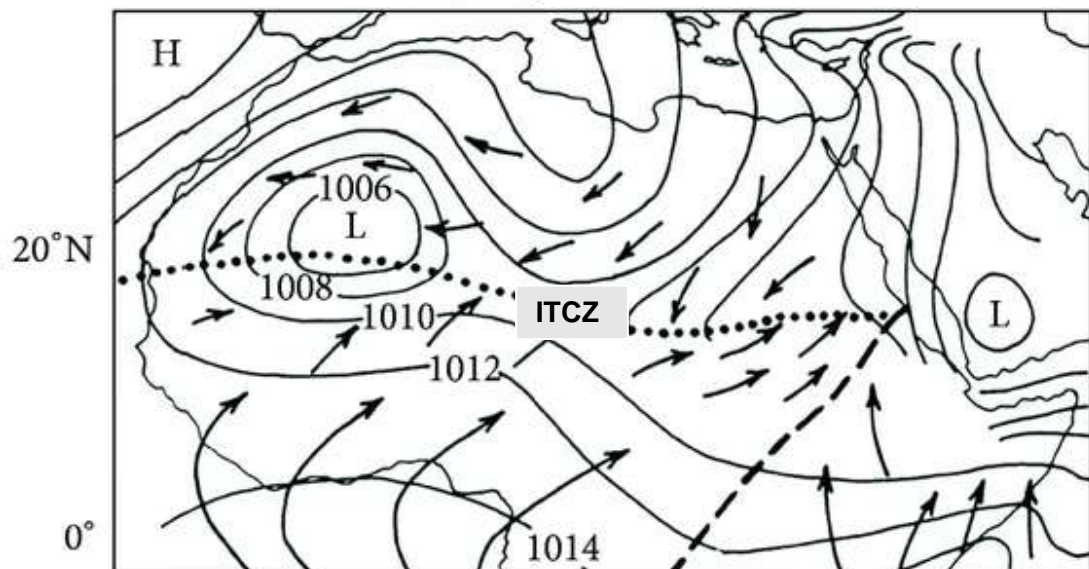
Resource 6 for Question 2

Surface wind (arrows) and pressure (mb) over West Africa during winter (January) and at the peak of the summer monsoon (July/August)

January circulation



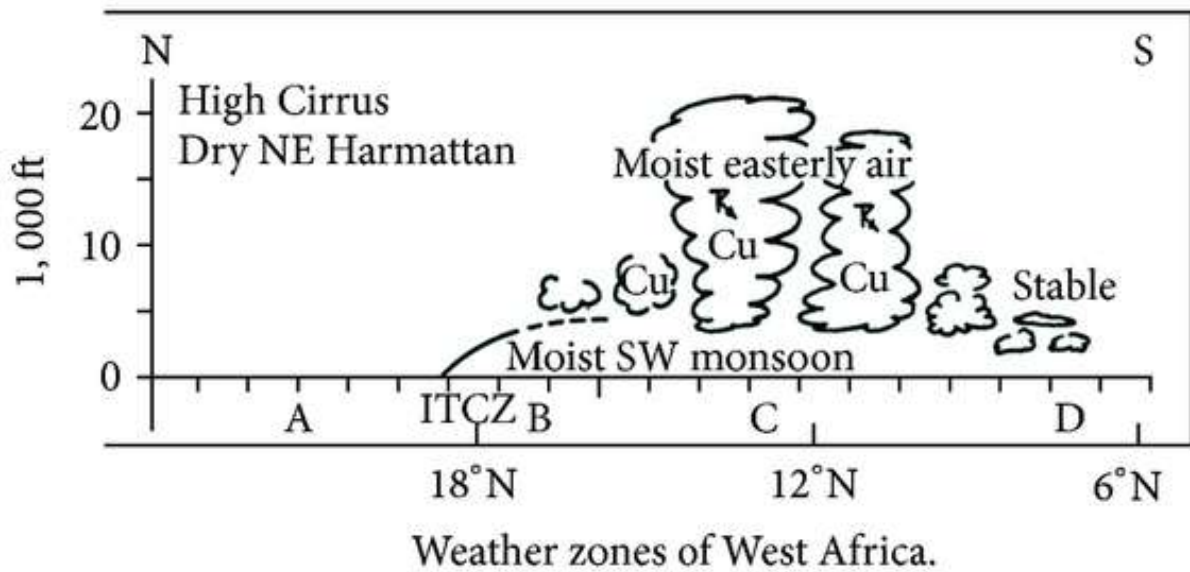
July/august circulation



[Turn over

Resource 7 for Question 2

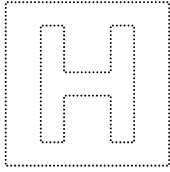
Position of the ITCZ over Africa during summer in the Northern Hemisphere



Resource 8 for Question 5(a)

The Guggenheim Museum, Bilbao, Spain





INNOVA JUNIOR COLLEGE
JC2 MID YEAR EXAMINATIONS

in preparation for General Certificate of Education Advanced Level
Higher 1

GEOGRAPHY

8813/01

Paper 1

24th August 2017

3 hours

Additional Materials: Answer Paper
 1 Insert
 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 **four** questions in total

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer two questions, each from a different theme.

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.
Diagram 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 Section A, B separately from Section C.
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **4** printed pages.



Innova Junior College

[Turn over
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Section A

Theme 3 – Geographical Investigation

- 1 As part of your overseas geographical investigation project to New Zealand, you and your classmates were tasked with undertaking a field exercise to ascertain the flood risk in a predetermined segment along a tributary stream of the Waikato River in the North Island. After some discussion, the following hypothesis was selected for investigation.

Hypothesis : The sites which have low-lying farmland and town in the lower course are more vulnerable to flooding.

The group was divided into 5 teams of eight members each to measure the cross-sectional area and river velocity of the 10 survey sites shown in Resource 1. Discharge is calculated by multiplying the cross-sectional area of the channel by the river velocity.

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

- Tape measure
- Metre ruler
- Stop watch
- Flow metre
- 4 ranging poles

Your team was assigned to study sites 1 and 2 as shown in Resource 1 and completed your investigation in slightly more than an hour because it started raining and your group had to stop the fieldwork investigation. Although your team was able to complete the investigation, one of your team member realised that the ranging poles were not used for the investigation.

Resource 1 shows the location of the survey sites along a tributary stream of the Waikato River. Resource 2 shows the plan sketch and river cross section that your team has compiled. Resource 3 shows the data collected on river velocity along the 2 selected sites. Resource 4 is a protected environment in Singapore.

- (a) With reference to Resource 1, evaluate the suitability of the chosen hypothesis. [4]
- (b) With reference to Resource 1 and 2, suggest ways to minimise the risks in conducting the river investigation. [4]
- (c) Assess the usefulness of the data collected in Resource 2 to ascertain flood risk along sites 1 and 2 of the Waikato River. [5]
- (d) Suggest two limitations of the data representation method shown in Resource 3 and sketch an appropriate diagram to represent velocity of sites 1 and 2 over time. [5]
- (e) As an extension of your geographical investigation back in Singapore, your group is tasked to examine infiltration rate in a protected environment (Resource 4).
Discuss how you would plan to conduct a study of infiltration rate in the area. [7]

Section B**Theme 2 : Urban Change****Urban Reimaging**

- 2** Resource 5 shows photographs of 2 regions in Bangkok, Thailand.
Resource 6 shows a poster of Singapore's strategy to reimage itself as a 'smart city'.
Resource 7 shows a run-down place facing social and economic issues in Flint Street in Nottingham, UK.
- (a)** Using Resources 5A and 5B, explain the contrast in liveability in Bangkok. [6]
- (b)** Using Resource 6, account for Singapore's reimaging strategy into a 'smart city'. [6]
- (c)** With reference to Resource 7, suggest **one** appropriate strategy to improve the image of Nottingham, UK. [5]
- (d)** Using all the resources and your knowledge, explain how reimaging can affect different social groups. [8]

Section C

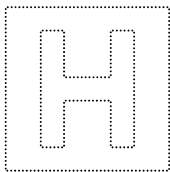
Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1 : Climate Change and Flooding

- 3 (a)** Explain the role of anthropogenic activities in climate change. [9]
- (b)** To what extent should the use of alternative energy sources be relied upon to mitigate the effects of climate change? [16]
- 4 (a)** Explain why lag time varies between drainage basins with different land use. [9]
- (b)** Human action has both increased and decreased the magnitude of floods at different locations.
- How far do you agree that human factor is the most important influence for flood occurrence? [16]

Theme 2 : Urban Change

- 5 (a)** Explain the challenges faced by developing countries in the management of non-hazardous solid wastes. [9]
- (b)** Assess the effectiveness of the strategies to improve the lives of the slum dwellers in low-income countries. [16]
- 6 (a)** Explain why urbanisation varies across different countries. [9]
- (b)** Evaluate the effectiveness of the strategies to cope with fear OR lessen crowding in the city. [16]



INNOVA JUNIOR COLLEGE
JC2 MID YEAR EXAMINATIONS
in preparation for General Certificate of Education Advanced Level
Higher 1

GEOGRAPHY

8813/01

Paper 1

24th August 2017

INSERT

3 hours

READ THESE INSTRUCTIONS FIRST

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

INSERT

This document consists of **7** printed pages and **1** blank page.

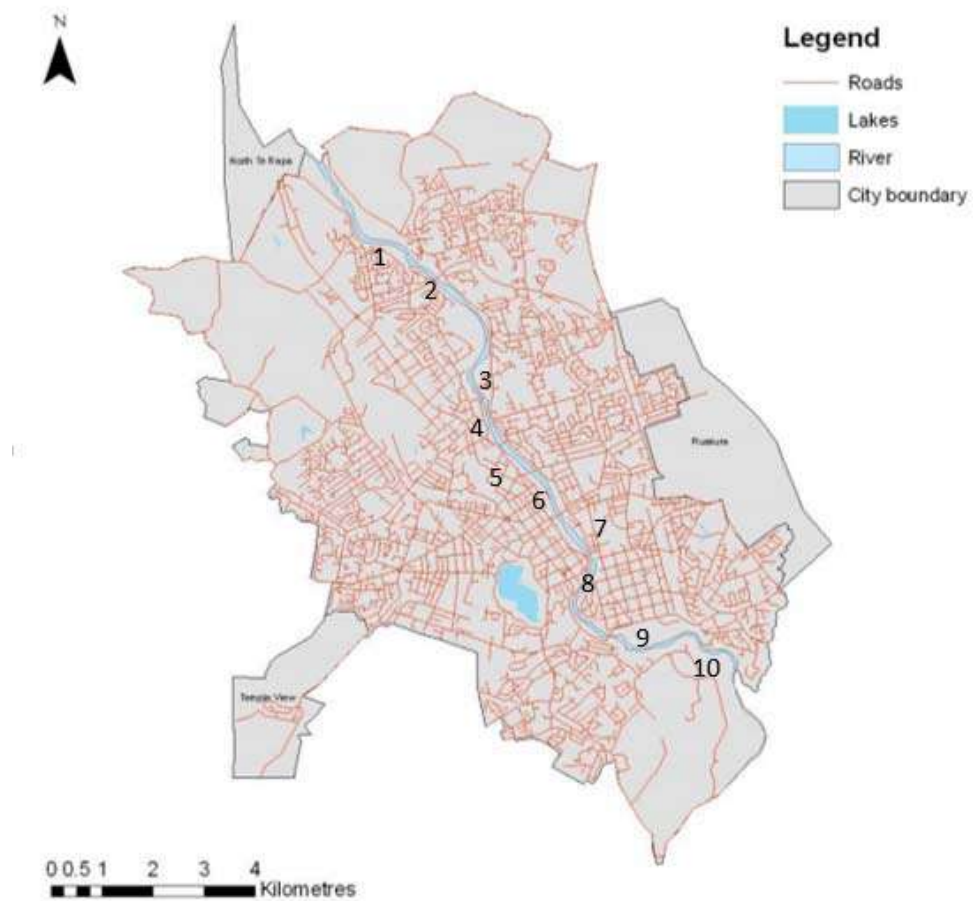


Innova Junior College

[Turn over
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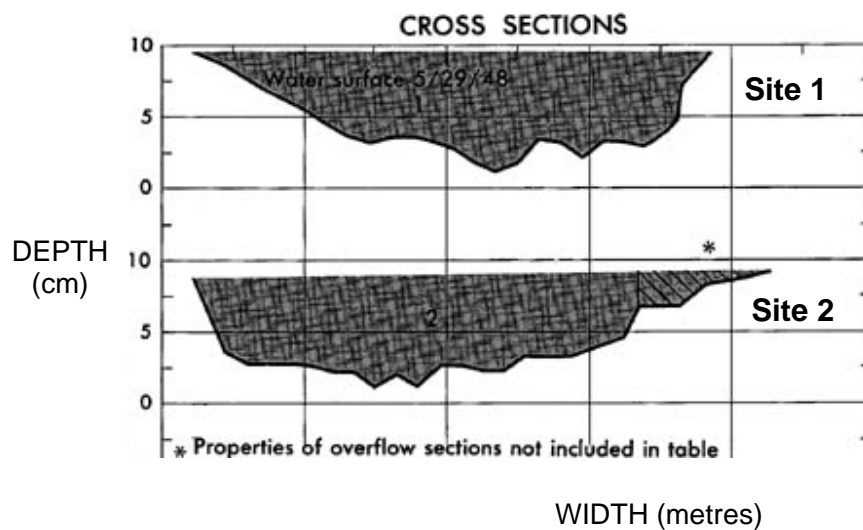
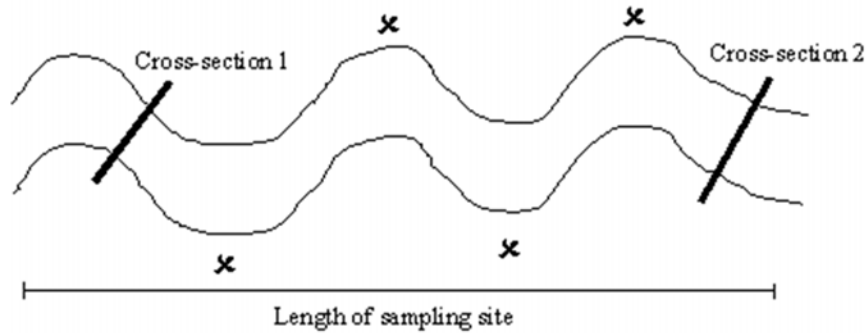
Resource 1 for Question 1

A tributary stream of the Waikato River and the 10 study sites



Resource 2 for Question 1

Plan sketch of sites 1 and 2



Resource 3 for Question 1

Data collected on river velocity at Site 1 and 2

Time	Site 1 Velocity (m/s)				Site 2 Velocity (m/s)			
	Left bank	Mid-section	Right bank	average	Left bank	Mid-section	Right bank	average
10.00	0.42	0.48	0.46	0.45	0.36	0.40	0.45	0.44
10.30	0.50	0.50	0.48	0.49	0.52	0.58	0.56	0.55
11.00	0.56	0.59	0.55	0.56	0.62	0.63	0.66	0.67

Resource 4 for Question 1

A protected environment in Singapore



Resource 5 for Question 2

Photographs of two regions in Bangkok, Thailand



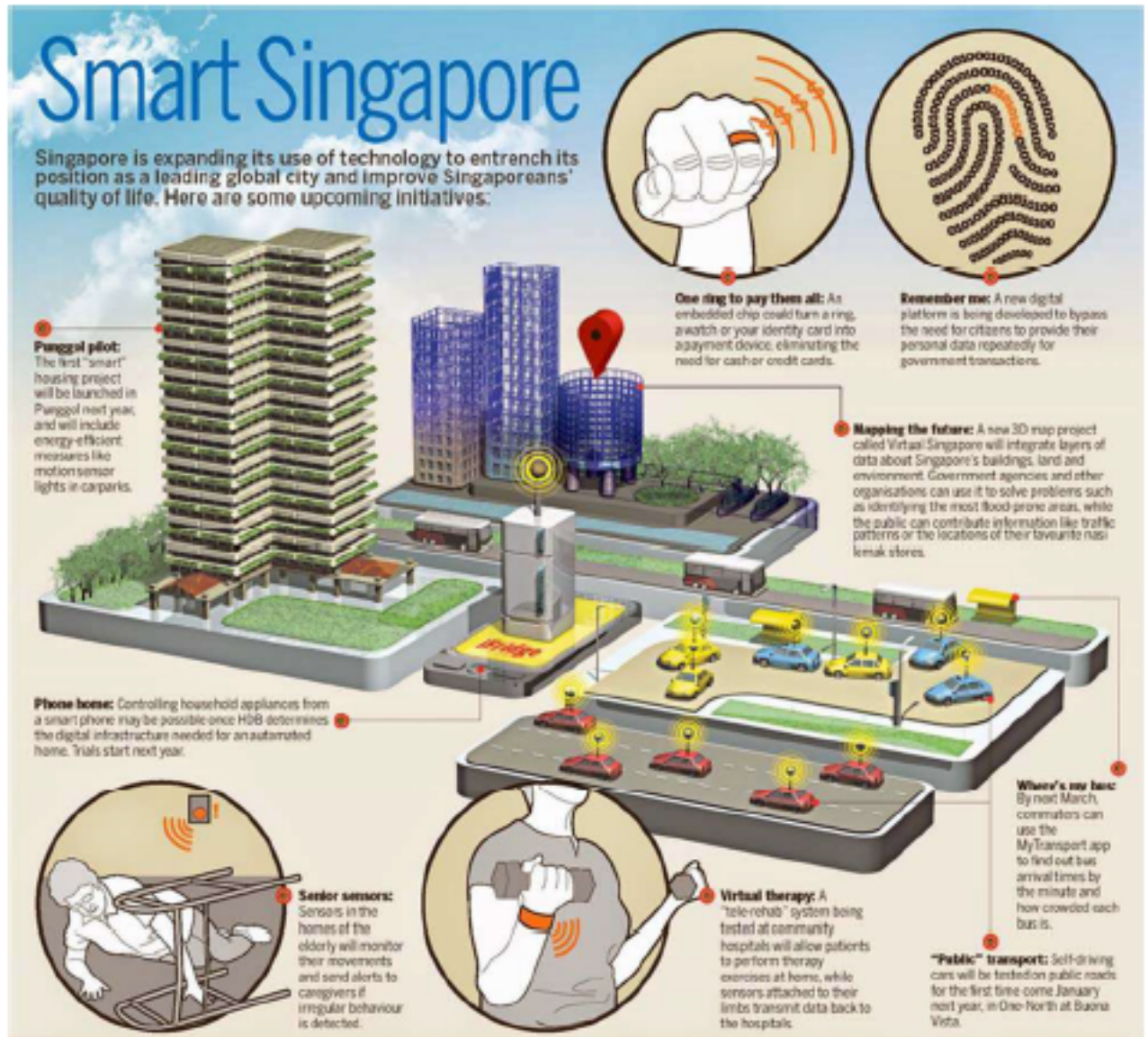
Resource 5A shows Ideo O2 Condominium in Bangkok



Photograph 5B shows the slum region under a bridge in Bangkok, Thailand

Resource 6 for Question 2

A poster of Singapore's reimagining strategy to become a smart city



Resource 7 for Question 2**An area in Nottingham, UK which has gone through decline**

Nottingham takes over Glasgow and Liverpool as Britain's number one blackspot in unemployment.

A run-down mill in Nottingham. Constructed in the 19th century, it once provided employment to hundreds of Nottingham residents, making it an integral part of the community. Finally closed down in the late 20th century, the Victorian mill quickly decayed into a ruin.



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JURONG JUNIOR COLLEGE
JC2 GEOGRAPHY
PRELIMINARY EXAMINATION 2017

GEOGRAPHY

8813

Higher 1

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 **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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.

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.

Section A

Theme 3: Geographical Investigation

- 1** A group of 24, eighteen year old students from Jurong Junior College in Singapore wanted to examine liveability in Taman Jurong neighbourhood. They had access to selected demographic data of the residents in Taman Jurong.

The students also wanted to investigate the residents' satisfaction in relation to the amenities in the neighbourhood. They wanted to investigate the various areas that could enhance the urban liveability of the neighbourhood for the residents. They were allocated three days for field investigations at the end of November.

Resource 1 shows selected demographic data of the residents in Taman Jurong. Resource 2 shows survey results of Taman Jurong residents' general satisfaction levels of the neighbourhood amenities. Resource 3 shows survey results by locals and foreigners on the common meeting spaces with their neighbours.

- (a)** With reference to Resources 1 and 2, outline why there might be contrast in urban liveability standards amongst the Taman Jurong residents. [4]
- (b)** Explain how the students could have conducted an investigation to gather the data presented in Resource 3. [7]
- (c)** Assess the usefulness and limitations of the data collection and representation methods used in Resource 3. [6]
- (d)** Using Resource 2, explain the limitations of the data technique of using surveys to measure urban liveability. [5]
- (e)** Suggest another form of data representation method to showcase the information in Resource 2. [3]

Section B
Theme 1: Climate Change and Flooding

Climatic Zones in the Tropics and Climate Change

2. Resource 4 shows the climograph of Kolkata, India (22°N). Resource 5 shows the climograph of Cairo, Egypt (29°N). Resource 6 shows the El Nino climate impacts in December-February and June-August.
- (a) With reference to Resources 4 and 5, contrast the climate characteristics of Kolkata, India and Cairo, Egypt. [6]
- (b) Explain the differences described in (a). [7]
- (c) With reference to Resource 6, describe **two** differences between the El Nino climate impacts in December-February and June-August. [4]
- (d) With the help of Resource 6, describe how El Nino affects the climate characteristics of Kolkata, India and suggest the possible impacts of such changes on Kolkata. [8]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

3

- (a) Explain the conditions necessary for the development of a tropical cyclone. [9]
- (b) To what extent do humans and human activities contribute to the devastating impacts of tropical cyclones? [16]

4

- (a) Explain how the different components of a storm hydrograph help us in understanding the flows of water in a river. [9]
- (b) “Climatic factors play the most important role in influencing the hydrological processes within a drainage basin”.
Discuss the validity of this statement. [16]

Theme 2: Urban Change

5

- (a) Explain the reasons for the development of slums in developing countries. [9]
- (b) Assess the success of the strategies used to improve the conditions of slum dwellers in developing countries. [16]

6

- (a) Outline the problems associated with transport in urban areas in developed countries. [9]
- (b) Discuss the extent to which strategies used to manage transport problems in urban areas in developed countries have been successful. [16]



JURONG JUNIOR COLLEGE
JC2 GEOGRAPHY
PRELIMINARY EXAMINATION 2017

GEOGRAPHY

8813

Higher 1

Paper 1

Tuesday 29 August 2017

3 hours

Name: _____

Class: _____

INSERT 1

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

This document consists of **5** printed pages and **1** blank page

Resource 1 for Question 1

Selected demographic data of the residents in Taman Jurong

Household Monthly Income (Singapore Dollars)			Education Level		
\$2999 and below	149	37.3 %	None	14	3.5 %
\$3000 – \$3999	39	9.8 %	Primary	65	16.4 %
\$4000 – \$4999	28	7.0 %	Secondary	130	32.7 %
\$5000 – \$5999	30	7.5 %	ITE	32	8.1 %
\$6000 – \$6999	21	5.3 %	Junior College	21	5.3 %
\$7000 – \$7999	16	4.0 %	University	92	23.2 %
\$8000 and above	35	8.8 %	Others	43	10.8 %
Missing	82	20.5 %	Total	397	100.0 %
Total	400	100.0 %			

Type of Residence		
HDB public housing	360	90 %
Condominium	24	6 %
Landed property	16	4 %
Total	400	100 %

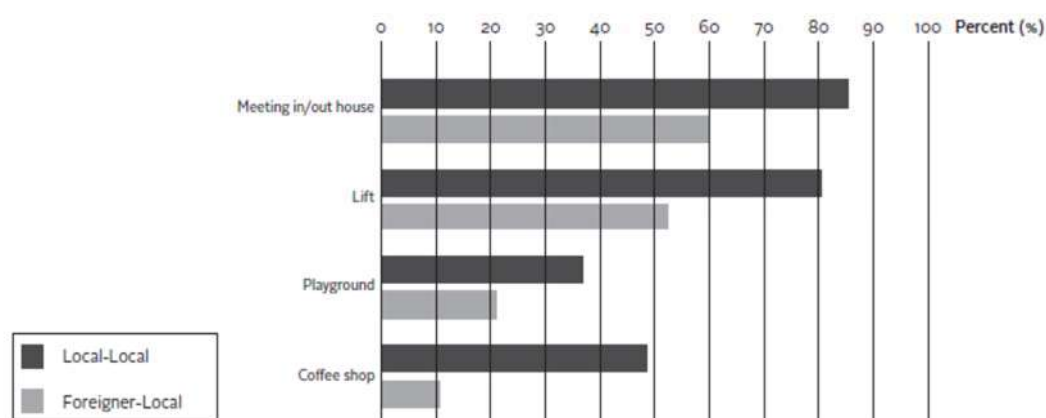
Resource 2 for Question 1

Survey results of Taman Jurong residents' general satisfaction levels of the neighbourhood amenities.

General Satisfaction with Amenities and Infrastructure	Agree (Percent)
1 There are provision shops/wet market(s) in my neighbourhood	92.3 %
2 There is good access to green space in this neighbourhood	87.1 %
3 There are enough play areas for children in this neighbourhood	77.5 %
4 The footpaths in this neighbourhood are adequate (reverse coded)	77.1 %
5 There is affordable public transport service to and from this neighbourhood	76.9 %
6 This neighbourhood is becoming quite an expensive place to live	65.6 %
7 There are adequate sports and exercise facilities in this neighbourhood (reverse coded)	63.4 %
8 There are affordable educational facilities near my neighbourhood	62.8 %

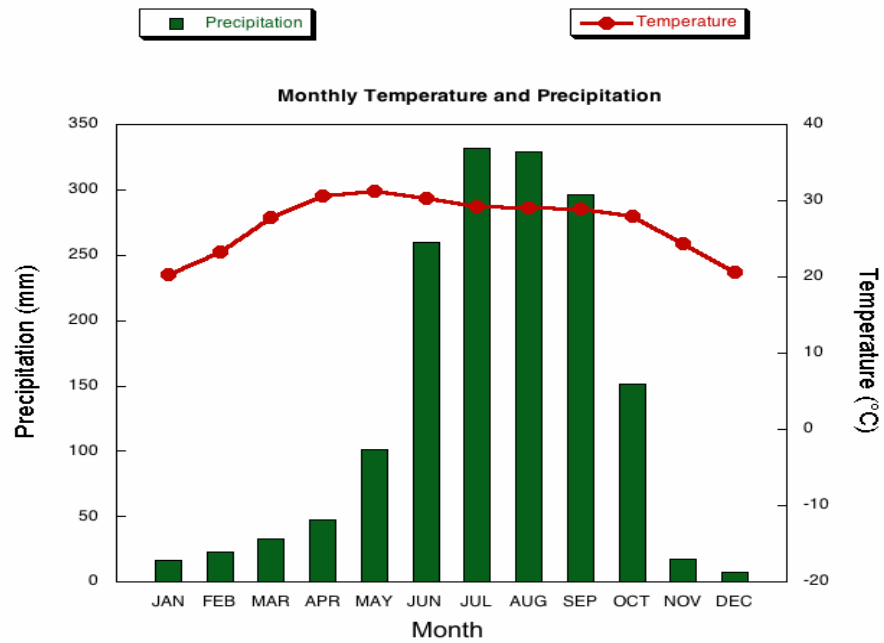
Resource 3 for Question 1

Survey results by locals and foreigners on the common meeting spaces with their neighbours



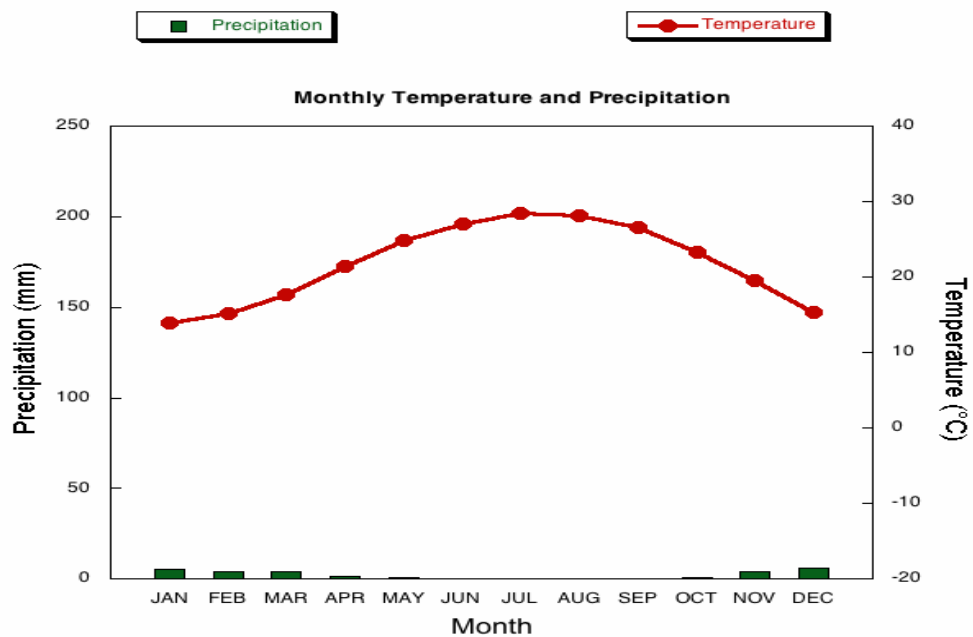
Resource 4 for Question 2

Climograph of Kolkata, India



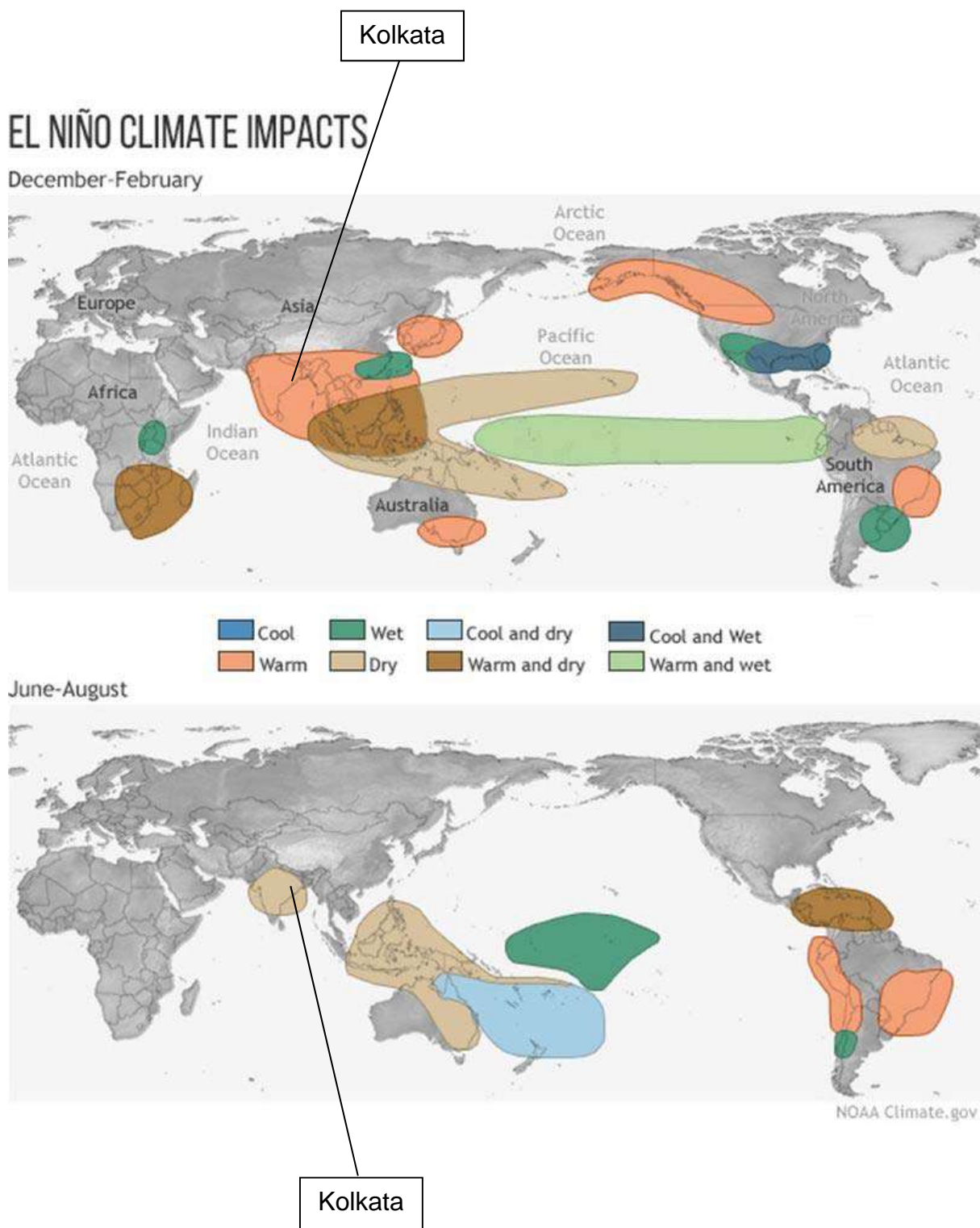
Resource 5 for Question 2

Climograph of Cairo, Egypt



Resource 6 for Question 2

El Nino impacts in December-February and June-August



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MERIDIAN JUNIOR COLLEGE
PRELIM EXAMINATION
Higher 1

JC 2 H1 Geography

8813/01

Paper 1

14 September 2017

3 Hours

Additional Materials: Insert
World Outline map

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 **ALL QUESTIONS** in **Section A**.

Answer **two** questions, each from a different theme in **Section B**.

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 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 **6** printed pages including **1** blank page

Name: _____

Class: _____

Index number: _____

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

*Please **circle** the question number attempted accordingly

Section A

Answer **ALL** questions in this section.

Theme 3: Geographical Investigation

Residential Satisfaction of the Elderly in Prague

- 1 Since the 1990s, Prague, the capital city of the Czech Republic, has undergone urban revitalisation in the form of tourism and property-led regeneration. Significant changes have therefore been observed in Prague given the physical upgrading and enhancement of the city for new social and economic uses. In 2012, a research study was conducted to investigate the residential satisfaction of the elderly living in some Prague neighbourhoods that have experienced revitalisation.

The residential satisfaction of the elderly was investigated in two Prague city centre neighbourhoods. The first neighbourhood was the historical centre Prague 1 which is an area exposed to mass tourism and intense commercial developments. The second neighbourhood was Central Smichov which has experienced intense commercial and residential regeneration.

To measure the residential satisfaction of the elderly, a questionnaire survey containing open and closed questions was used. The open questions took the form of short interviews. The respondents were contacted directly on the streets of the neighbourhoods. The key areas discussed in the survey included the accessibility of shops and services, public spaces and safety, local community interaction and support, and housing. In total there were 225 respondents (149 in Prague 1; 76 in central Smichov) that researchers based their evaluation on the residential satisfaction of the elderly in Prague.

The study concluded that the elderly managed to carry out their critical daily activities of living despite the significant transformations of their neighbourhoods. The impacts of urban revitalisation have not drastically reduced the quality of life of the local elderly. However, certain findings in the research indicate possible risks for the future.

Resources 1 – 3 are selected information from the study.

Resource 1 shows the old-age index by basic settlement units of Prague and the age structure of the population in the study neighbourhoods. Resource 2 shows the satisfaction of the elderly with access to daily stores. Resource 3 shows how safe the elderly feel in the two neighbourhoods.

- (a)** With reference to Resource 1, suggest a possible hypothesis for the research undertaken? [1]
- (b)** With reference to Resources 1, assess the suitability of the sample for the research study that was undertaken. [5]
- (c)** Suggest some considerations in collecting the data for this research. [4]
- (d)** Are Resources 2 and 3 sufficient to support the study's conclusion that the elderly managed to carry out their critical daily activities of living despite the significant transformations of their neighbourhoods? Explain your answer. [6]
- (e)** Identify two other considerations that should have been a part of this study and suggest a plan to carry out an investigation to collect data that will improve the rigour of this research. [9]

Theme 1: Climate and Climate Change
Flooding in Brisbane, Australia

- 2** Resource 4 shows monthly average rainfall and monthly rainfall for Brisbane in 2010. Resource 5 shows the Brisbane River catchment and the extent of flooding in January 2011. Resource 6 shows a photograph of the Brisbane flooding in January 2011.

- (a)** Using Resource 4, compare the monthly average rainfall and monthly rainfall for Brisbane in 2010. [3]

- (b)** Using Resources 4, 5 and 6, account for the Brisbane flooding in January 2011. [6]

- (c)** Using Resource 6, suggest changes in fluvial processes that may occur during the Brisbane flood event in January 2011. [6]

- (d)** Using Resource 6 and your own knowledge, explain 2 ways whereby impacts of the 2011 Brisbane flood may be reduced. [4]

- (e)** Using Resources 4, 5, 6 and your own knowledge, suggest other information required to better evaluate the impacts of the 2011 Brisbane flood. [6]

Section B

Answer **two** questions in this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate and Climate Change

- 3 (a) Account for the variation of temperature in the tropics. [9]

What's the variation of temperature in tropics?
What are the factors resulting in temperature variations in tropics?

IOQ: Factors affecting temperature

Intro:

(Describe the variation first, you need to know what you are explaining!)

Temp variation

- Diurnal
- Annual tempt range
- Low (Af) vs high (BWh)

Explain:

FPO each point! 1 Para 1 Factor!

1. Latitude → seasonality → day + night
2. Cloud cover → Af (high) vs BWh (diurnal, annual)
3. Reflection of SW → reduce daytime tempt
4. Continentality / maritime / ocean currents
5. Altitude
6. UHI

Choose distinct factors!! Support each with examples

- (b) "The weakening of the Walker Circulation greatly affects rainfall patterns in the tropics." To what extent do you agree with this statement. [16]

What is walker circulation and what is the weakening of walker circulation?

What are the impacts of weakening walker circulation wrt rainfall patterns?

Under what conditions does weakening of walker circulation have that greatly affects walker circulation?

What other factors also affect rainfall patterns?

IOQ: factors affecting rainfall patterns in tropics

Intro:

- What is the walker circulation & what is weakening of walker circulation? (3-7yrs, W & E Pac, mechanism, effects) → draw the diagrams (annotate!! What's happening, why, effects) → refer to diagram in writing and no need to repeat in words
- **NOT** define ppt/ tropics

Weakening of walker circulation greatly affects rainfall patterns	Weakening of walker circulation DOES NOT greatly affects rainfall patterns (other factors)
ONLY W & E Pacific (limited places in the tropics, generally coastal)	Pressure zones (ITCZ/ STH) → THIS IS THE MAJOR CONDITION affecting rainfall patterns
ONLY once every 3-7yrs, during the weakening of WC	Monsoon winds / continental location / topography
Temporal and spatial limited	Climate change
	Tropical Cyclones – bigger spatial influence
	Landuse changes → deforestation → desertification
	Landuse changes → UHI

- 4 (a) Explain the causes of contemporary climate change. [9]
- (b) Discuss the view that use of alternative energy sources is a highly effective solution to combat climate change. [16]

Theme 2: Urban Change

- 5 (a) What are the challenges in managing traffic congestion in less economically developed countries? [9]

- (b)** 'The difficulty in measuring sustainable development is its biggest challenge'.
Do you agree with this statement?

[16]

- 6 (a)** Account for the development of slums in cities of developed countries. [9]

- (b)** 'Slums are undesirable in cities but they do offer solutions to some urban challenges'. Do you agree with this statement? [16]

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MERIDIAN JUNIOR COLLEGE
PRELIMINARY EXAMINATION
Higher 1

JC 2 H1 Geography

8813/01

Paper 1

14 September 2017

INSERT

3 hours

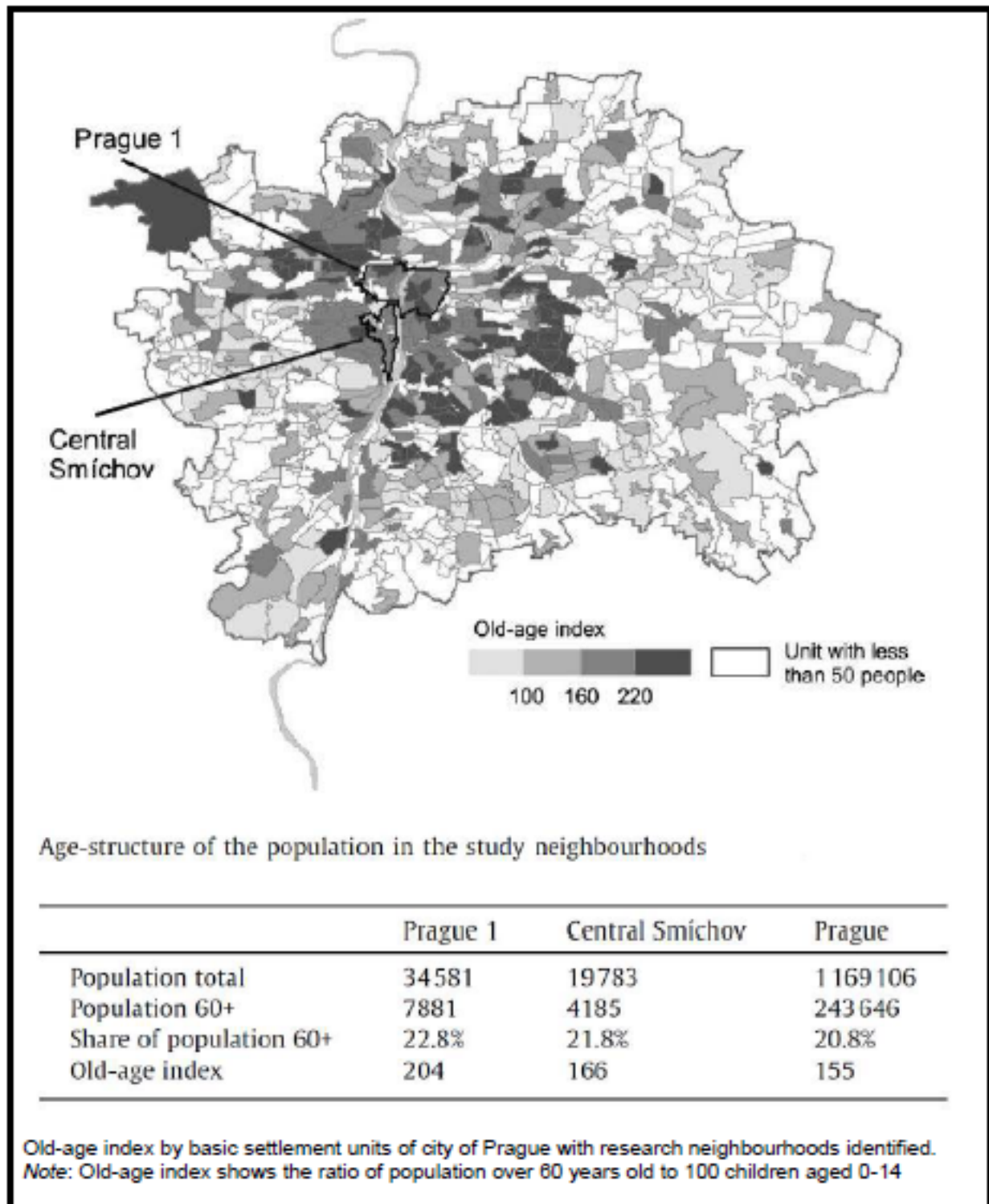
READ THESE INSTRUCTIONS FIRST

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

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

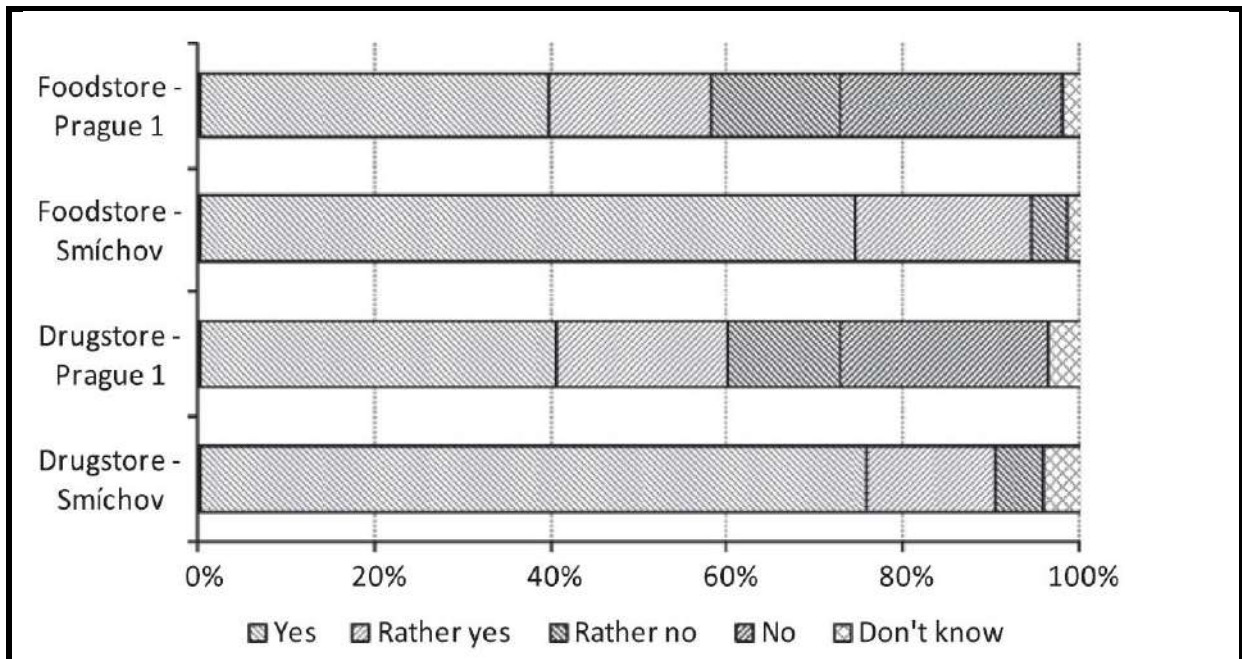
Resource 1 for Question 1

Old-age index by basic settlement units of Prague and age structure of population in study neighbourhoods Prague 1 and Central Smíchov



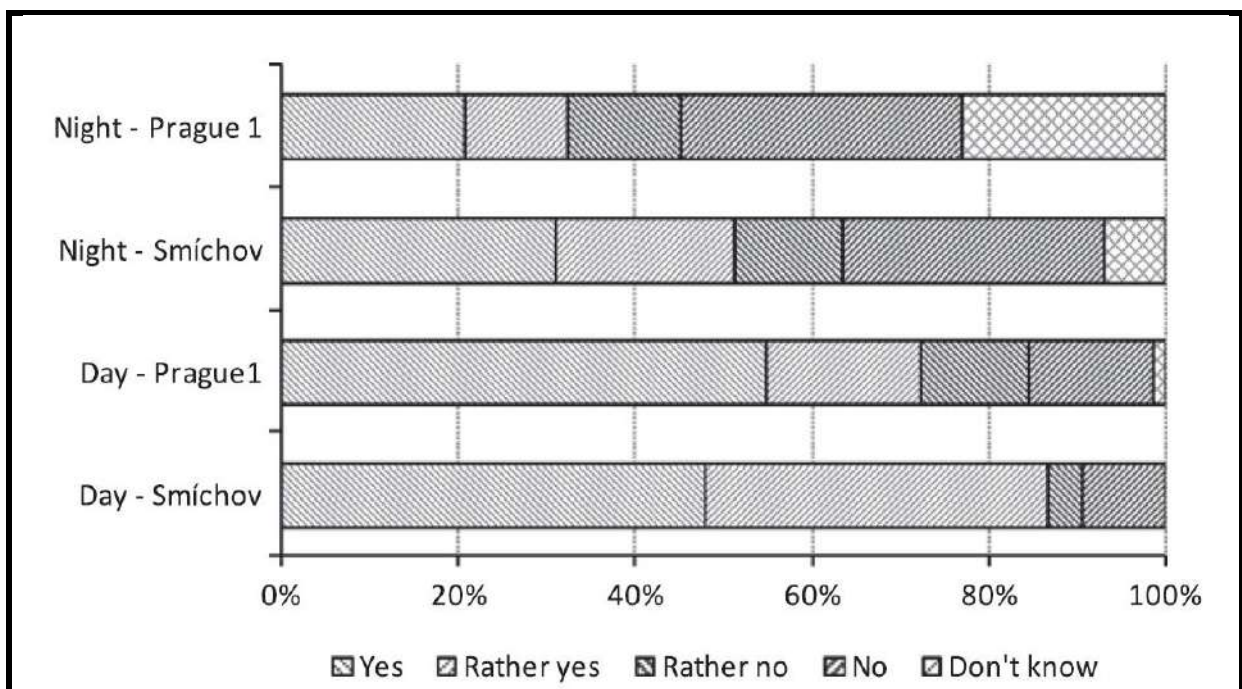
Resource 2 for Question 1

Satisfaction of the elderly with access to daily stores



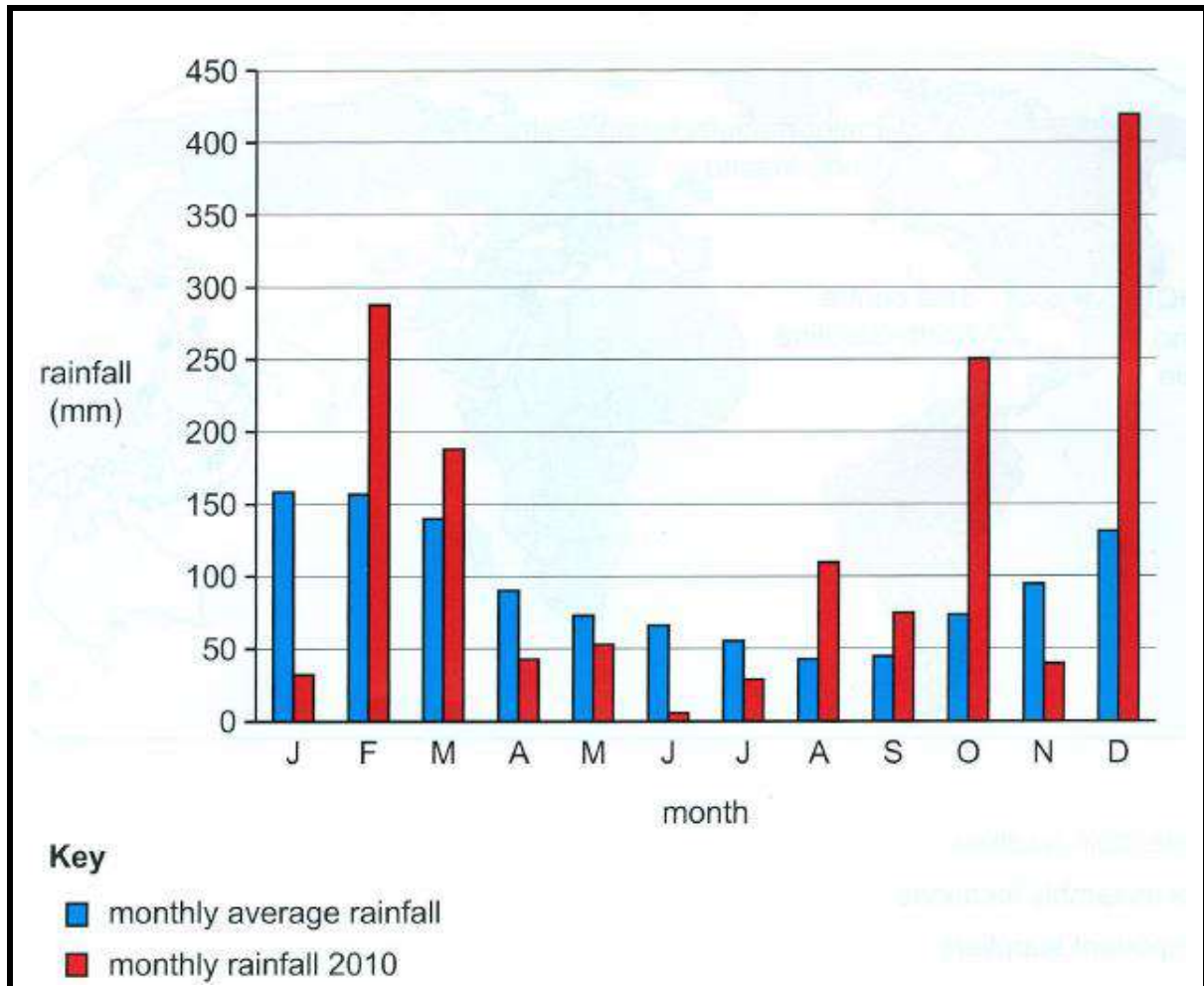
Resource 3 for Question 1

How safe the elderly feel in their neighbourhoods



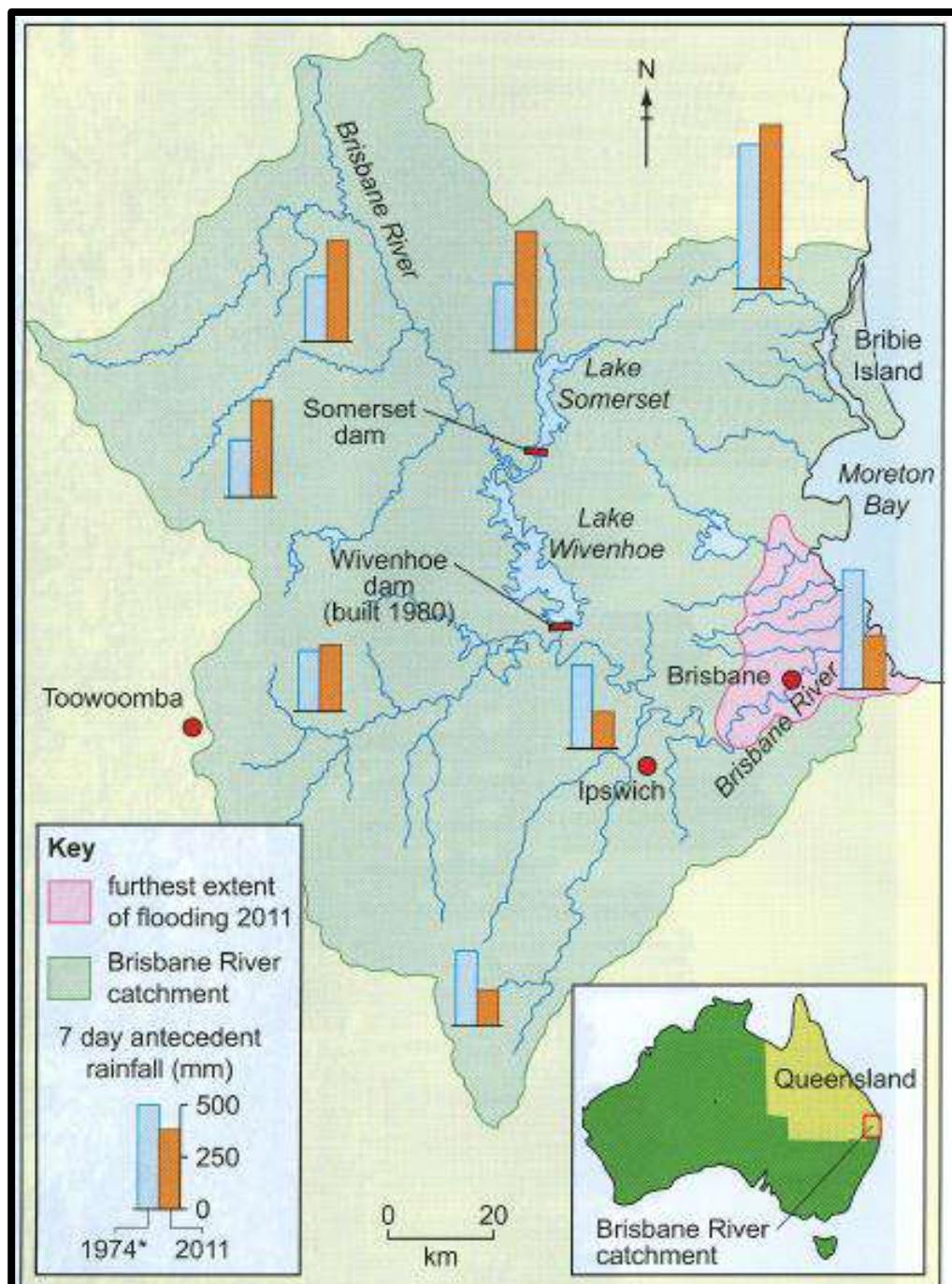
Resource 4 for Question 2

Monthly Average Rainfall and Monthly Rainfall for Brisbane in 2010



Resource 5 for Question 2

Brisbane River catchment and the extent of flooding in January 2011



* The Brisbane River catchment experienced widespread flooding in January 1974.

Resource 6 for Question 2

Photograph of the Brisbane flooding in January 2011

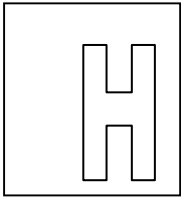


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Class

Adm No

Candidate Name: _____



2017 Promotional Examination II Pre-University 2

GEOGRAPHY (HIGHER 1)**8813****12 September 2017****3 hours**

Additional Materials: Answer Paper
 1 Insert
 World outline map

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 a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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.
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 3: 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 state-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. [6]
- (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. [8]

Section B**Theme 1: Climate and Climate Change****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 two impacts caused by the floods due to Tropical Cyclone Enowa in Antananarivo, Madagascar as shown in Resources 5 and 6. [4]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6

Theme 1: Climate Change and Flooding

- 3 (a) Explain the climate characteristics of regions experiencing Tropical Monsoon (Am) climate. [9]
- (b) To what extent does monsoon winds influence the rainfall patterns in the tropics? [16]
- 4 (a) Explain why hydrological processes may differ in the humid and arid tropics. [9]
- (b) Evaluate the extent to which natural factors influence the occurrence of floods. [16]

Theme 2: Urban Change

- 5 (a) Explain the reasons for the development of slums in cities with low levels of development. [9]
- (b) Evaluate the success of slum improvement strategies in cities. [16]
- 6 (a) Explain the sources of either crowding **or** fear in cities in countries at high levels of development. [9]
- (b) Assess the success of strategies used to cater for the different needs of social groups in cities. [16]

- End of Paper -

Copyright Acknowledgements:

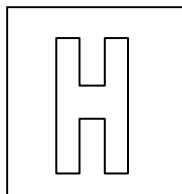
Question 1 Resource 1 & 2	http://www.fendylee.com/master-plan-2013/archives/11-2013/3 (Last accessed: 21 August 2013)
Question 1 Resource 3	Millennia Institute
Question 2 Resource 4	http://www.geocoops.com/tropical-storms.html
Question 2 Resource 5	http://www.gdacs.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3eddb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)
Question 2 Resource 6	https://maps.mapaction.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3eddb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)

Candidate Name: _____

Class

Adm No

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2017 Promotional Examination II Pre-University 2

GEOGRAPHY (HIGHER 1)

8813

INSERT

12 September 2017

3 hours

INSTRUCTIONS TO CANDIDATES

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

This insert consists of 8 printed pages.

[Turn over

Need a home tutor? Visit smiletutor.sg

Resource 1 for Question 1

State-led efforts to improve liveability in Kallang, Singapore

KALLANG

Near the city centre, Kallang is well served by commercial and community facilities. The area will be further rejuvenated with quality housing, including new waterfront developments. The enhancement of green spaces and waterbodies will provide fresh leisure options for residents, while exciting new facilities like the Sports Hub will add vibrancy to the area.



URBAN
REDEVELOPMENT
AUTHORITY

To make Singapore a great city to live, work and play



Sports Hub



Rochor Canal



Pek Kio Community
Hospital



Keong Wai Shiu
Hospital



Asperia Shopping
Mall



Jalan Besar
Conservation Area



Condominium
Development

For more information and photo credits, visit the Draft Master Plan 2013 exhibition website at www.ura.gov.sg/MS/DMP2013.

Resource 2 for Question 1

State-led efforts to improve liveability in Punggol, Singapore

PUNGGOL

Punggol has transformed into a residential eco-town, providing a high-quality living environment amidst a dense green and blue network. As the town continues to develop, residents can look forward to new retail amenities, more community and recreation facilities, enhanced transport connectivity, as well as more job opportunities close to home.



To make Singapore's great city to live, work and play



Northshore District



Maltida District



Waterfront Living



Punggol Point Park



Waterway Kayaking



Punggol Promenade

For more information and photo credits, visit the Draft Master Plan 2013 exhibition website at www.ura.gov.sg/MS/DMP2013.

Resource 3 for Question 1

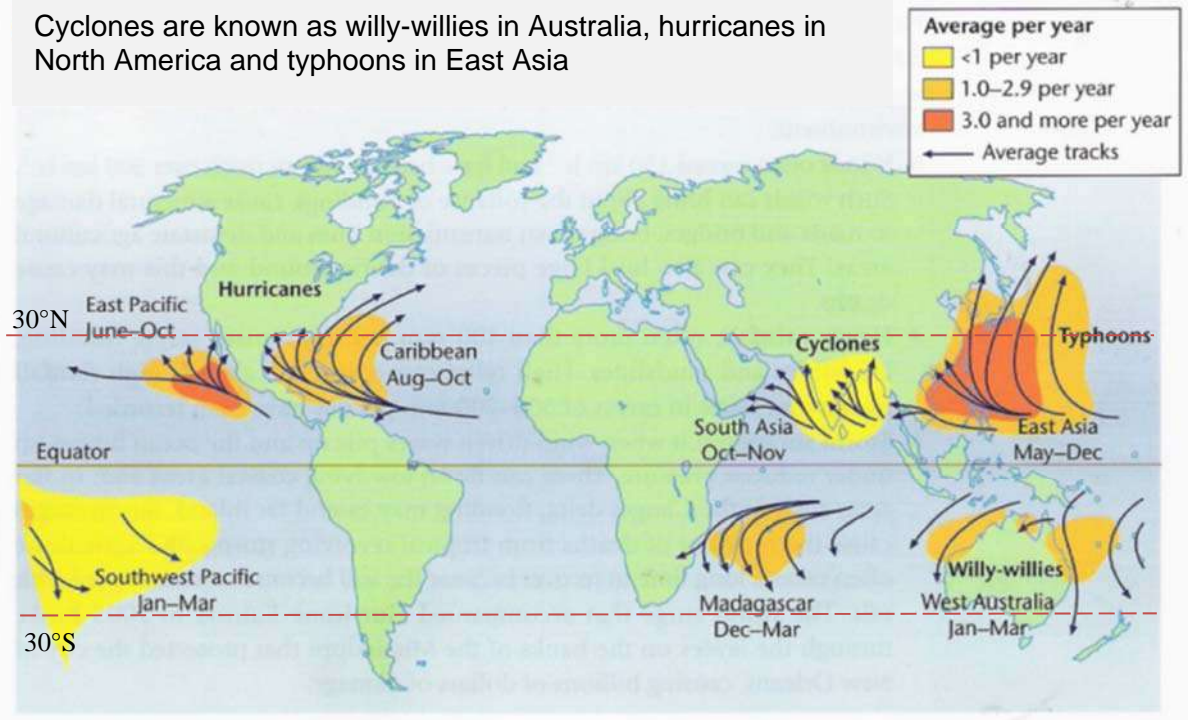
Survey questionnaire results collected from the neighbourhood of Kallang, Singapore

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

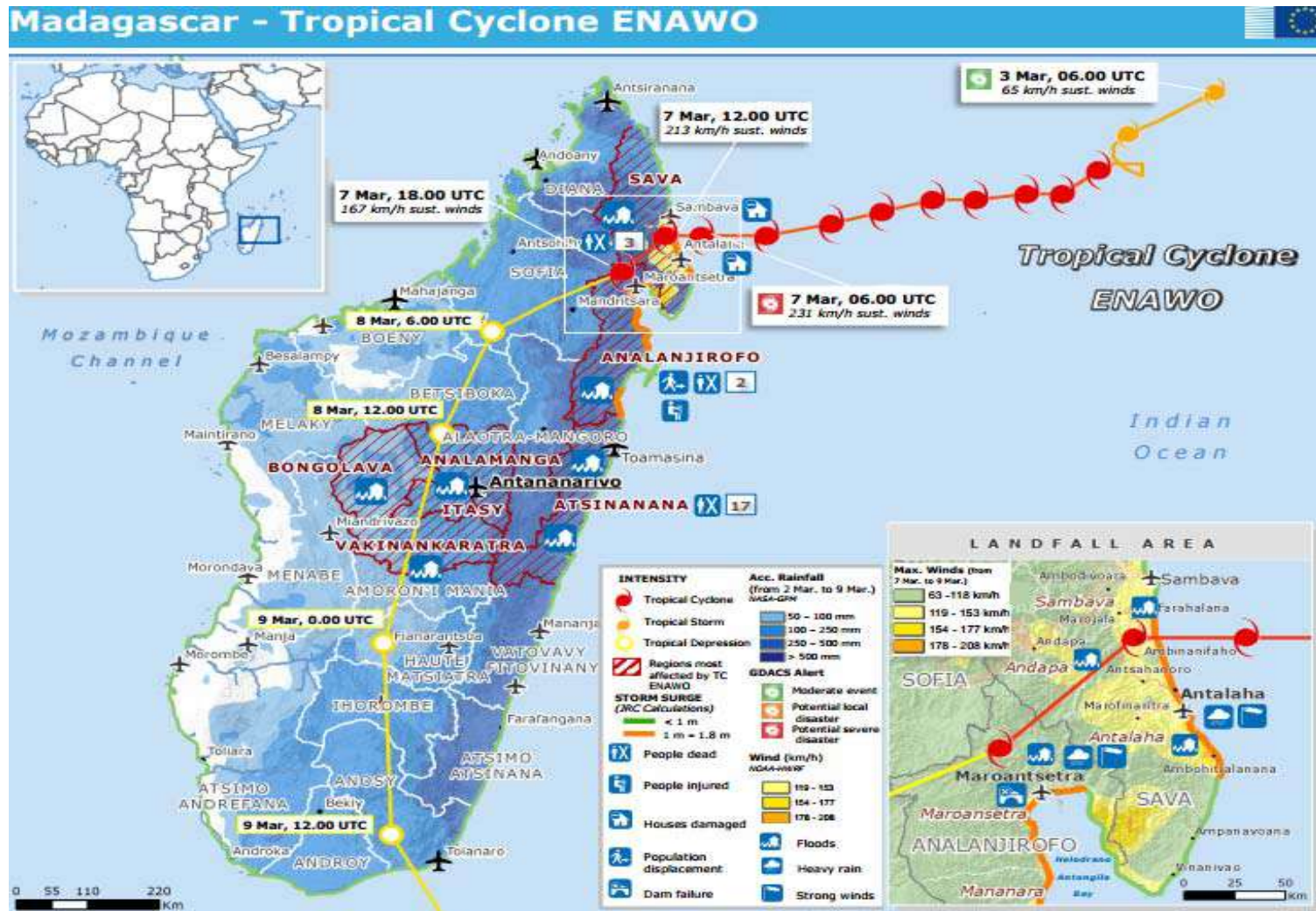
Global distribution of tropical cyclones

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



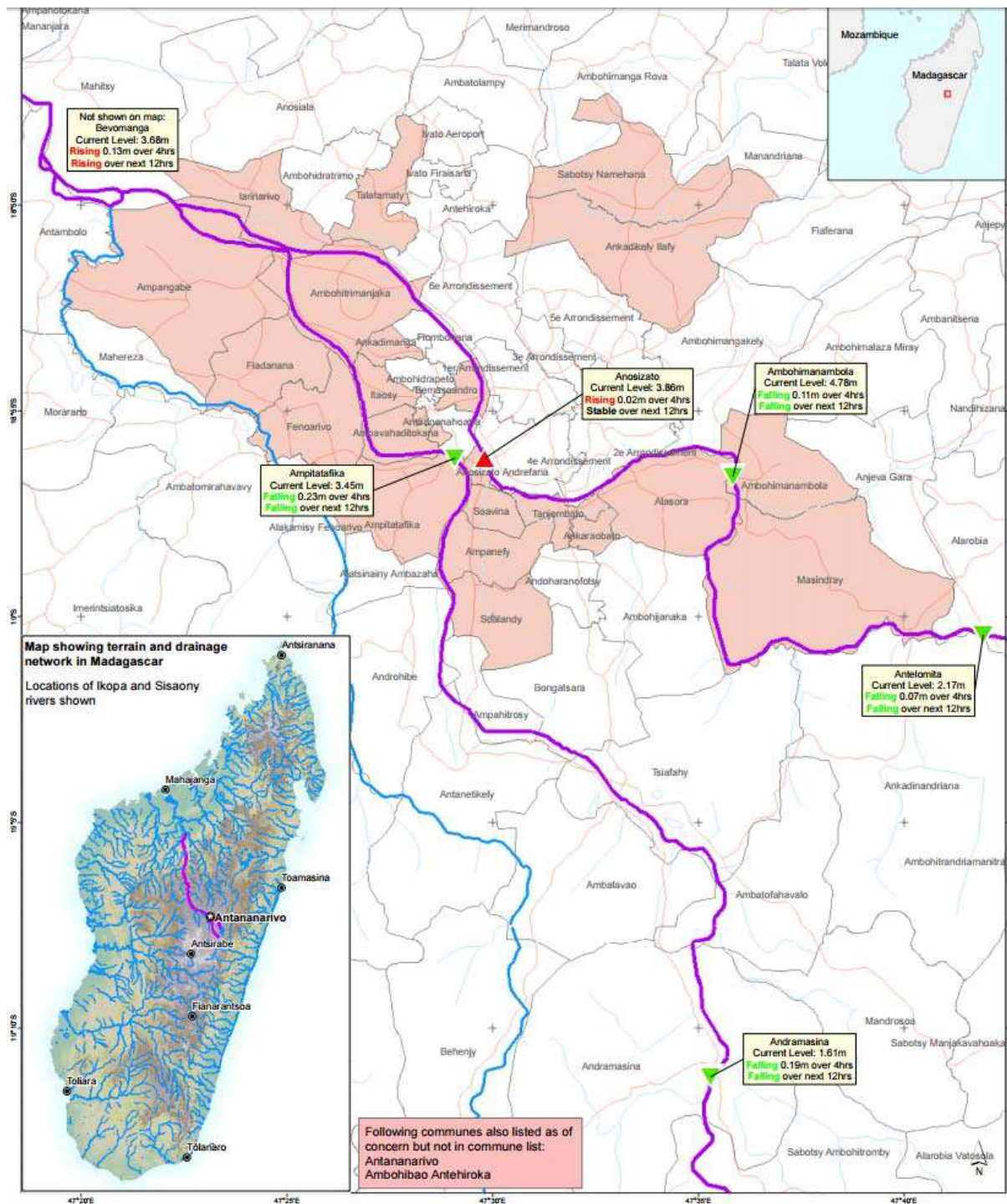
Resource 5 for Question 2

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



– End of Insert –

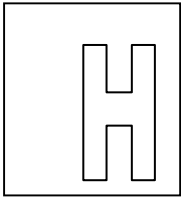
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Question 2 Resource 5	http://www.gdacs.org/datareport/dailymap/TC/1000341/20170310_Madagascar_TC_ENAWO.pdf (Last accessed: 10 August 2017)
Question 2 Resource 6	https://maps.mapaction.org/dataset/5338c40f-3446-4aaf-abb9-07eb7ec3edbb/resource/8e9478ba-7958-43df-a259-5e006f2d8cad/download/ma003antananarivofloods10032017-300dpi.pdf (Last accessed: 10 August 2017)

Class

Adm No

Candidate Name: _____



2017 Promotional Examination II Pre-University 2

GEOGRAPHY (HIGHER 1)**8813****12 September 2017****3 hours**

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Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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Section A

Theme 3: 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]

Award 1 mark for a suitable research question.
Award 1 mark for each reason up to a maximum of 3 marks.

Possible Research Question Include: What is the effect of recent state-led efforts on the liveability of Singapore? (1m)

Possible Reasons why Research Question is at a Suitable Scale: Spatial scale of the research is well defined - Focussed on 2 neighbourhoods in Singapore (1m); Research is not conducted by a one student, but a group/team (1m); There are 3 days allocated for the research (1m)

Point marked

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

Award 1m for each risk and 1m for associated mitigation to a maximum of 4m.

Possible responses include:

- One possible risk of undertaking the fieldwork are physical attacks, particularly if the geography students are going to access areas high crime activity or perform their fieldwork outside the daylight hours. (1m) To mitigate this, fieldwork activities can be undertaken during daylight hours. Lone working by individuals should also be avoided wherever possible. Fieldwork activity should also be thoroughly planned to ensure the personal safety of the students. This can include consultation with local police force. (1m)
- Another possible risk of undertaking the fieldwork is being lost in the neighbourhoods. (1m) To mitigate this, the geography students can study maps of the area before setting out. They can also plan their routes carefully to ensure that they know of a second route

should the first be impassable. They should ensure that they have means of raising alarm if they are lost (eg. access to data connection on their handphones etc.). (1m)

Point marked

- (c) Recommend and explain other data collection methods to supplement the findings as shown in Resource 3. [6]

Indicative Content

Resource 3 contains relevant and pertinent quantitative data addressing the research question on the effects of recent state-led efforts on the liveability of Singapore. With reference to Resource 3, it is found out that less than half of Kallang residents are aware or are satisfied with the current liveability of Kallang. While at least 4 in 5 of residents are satisfied with the retail life conferred in Kallang, a large fraction (63%) continues to feel that the environmental aspect of liveability in Kallang is unsatisfactory. These data reflects that recent state-led efforts to improve liveability in Singapore have not been (holistically) effective. While quantitative methods utilised allowed for greater objectivity in the research, they are also limiting in many ways. As a concept, liveability is highly subjective and often takes different definition to different people/stakeholders. For example, different people may place different levels of emphasis on the aspects/components that constitute liveability (social, economic, environmental etc.). This open ended nature of liveability can only be more fully captured through qualitative methodologies. Unlike quantitative methods, qualitative methods are typically more flexible - that is, they allow greater spontaneity and adaptation of the interaction between the researcher and the study participant. To collect richer information to answer the research question, qualitative data collection methods such as in-depth interviews can be used. Widely used in qualitative research, in-depth interviews provide an opportunity for detailed investigation of people's personal perspectives. In-depth interviews are particularly effective in providing greater understanding of the research question as it provides the opportunity for the neighbourhood residents to articulate their subjective understanding of how state-led efforts to improve liveability have impacted their lives. In addressing the research question, focus group conversation can be utilised as well. In focus group conversations, respondents are brought together to discuss the research topic as a group. In the context of the research investigation, focus groups are effective in generating "broad overviews" of the impacts of state-led effort on the neighbourhood of Kallang. In addition, focus group conversation - in allowing the opportunity for the neighbourhood residents to explore their ideas through conversation with each other - can also provide a good opportunity for reflection and refinement which can deepen respondents' insights into their own circumstances, attitudes and behaviour. This makes possible for richer information addressing the research question to be collected.

Levels marked

Level	Marks	Descriptors
3	5-6	Response demonstrates strong and accurate knowledge of the strengths and limitations of different data collection methods that can be utilised to answer to the research question. Explanation is detailed, thorough and relevant.
2	3-4	Response demonstrates adequate knowledge of the strengths and limitations of different data collection methods that can be utilised to answer to the research question. Explanation is valid but may be somewhat limited in relevance and detail.
1	1-2	Response demonstrates limited or no knowledge of the strengths and limitations of different data collection methods that can be utilised to answer to the research question. Explanation lacks detail. Overall the response does not address the context of the question.
0	0	No creditworthy response

- (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]

Award up to 3 marks for pie chart or any other suitable data representation method

For pie chart, 1m awarded for each of the following:

- Title
- Accuracy of proportion of sector
- Clear and relevant labels

Point marked

- (e) Evaluate the usefulness of the investigation in understanding the impacts of recent state-led efforts to improve urban liveability in Singapore. [8]

Indicative Content

The investigation is useful to a small extent in understanding the impacts of state-led efforts on liveability of Singapore.

The investigation allows for a general understanding of how residents of Kallang and Punggol perceive levels of liveability in their neighbourhood. This can help deepen understanding on whether the range of state efforts introduced in Punggol and Kallang as observed in Resource 1 and 2 respectively have been effective. Specifically, and making reference to Resource 3, it is found that less than half of Kallang residents are aware or are satisfied with the current liveability of Kallang. While at least 4 in 5 of residents are satisfied with the retail life conferred in Kallang, a large fraction (63%) continues to feel that the environmental aspect of liveability in Kallang is unsatisfactory. These data point to the idea that recent state-led efforts to improve liveability in Singapore have not been (holistically) effective.

However, the investigation is not useful as the adoption of random sampling as a data collection method is problematic in a few ways. While the utilisation of random sampling is relatively simple as it only requires minimum knowledge of the study of group (Residents of Kallang and Punggol) in advance, the method fails to consider the fact that the residents of Kallang and Punggol are heterogeneous – different gender, age, race, ethnicity and coming from different socio-economic class/background. These differences in identity is likely to colour and influence their subjective idea/understanding of what constitutes liveability. The fact that social groups/identities might not be equally represented would render the information collected ineffective in addressing the demands of the research question.

In addition, the investigation is not useful as the design of the research question is not clearly defined. It is difficult to ascertain what qualifies as “recent” state efforts to improve liveability in Singapore. Moreover, residents’ perception of liveability may be influenced by vectors and sources other the efforts observed in Resources 1 and 2. It may also be noteworthy to highlight that the scope of the research question is overly ambitious and broad. A more manageable investigation would be to focus to one aspect of liveability – social, economic, environmental etc.

Levels marked

Level	Marks	Descriptors
-------	-------	-------------

3	7-8	Response demonstrates strong and accurate knowledge of geographical investigation skills and methods. Provides a logical and well developed evaluation that 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. 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. Provides little or no evaluation. May include material that is irrelevant to the question.
0	0	No creditworthy response

Section B

Theme 1: Climate and Climate Change

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 Enawa.

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 Morondava 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 region.
- (e) Explain **two** 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.

Possible responses:

- 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

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6

Theme 1: Climate Change and Flooding

- 3 (a) Explain the climate characteristics of regions experiencing Tropical Monsoon (Am) climate. [9]

Tropical Monsoon (Am) climate is a humid tropical climate that lie within 15°N/S of the equator/the tropics. Like the other tropical climate, regions experiencing Am climate has high mean annual temperature. They are also characterised by high total annual precipitation but the influence of monsoon winds result in distinct wet and dry seasons experienced by regions with the Am climate.

Regions experiencing Am climate has high mean annual temperature because they lie within the tropics where the sun is overhead for most period of the year. The tropics is a region where the average temperature of the coldest month is above 18°C. 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. When the sun is directly overhead, 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 higher. Though regions experiencing Am climate has a high mean annual temperature due to its location (latitude) within the tropics, there is a slight variation whereby the warmest months occur just prior to the onset of the wet season. This is because of high air temperature that is able to hold more moisture and the lack of cloud cover allows greater amount of insolation to reach the surface. This temperature characteristic of Am climate is evident in Akyab, Myanmar that experiences monthly average temperature of more than 20°C and its highest temperature of 27°C occurring in April to May before its wet season from June to August. Hence, regions experiencing Am climate has high mean annual temperature due to its location on earth where the sun is overhead for most period of the year.

Besides high mean annual temperature, regions experiencing Am climate have distinct wet and dry seasons due to the influence of monsoon winds. Monsoon winds are seasonal reversals of winds caused by unequal heating of the earth surface by the Sun. During July in the Asia-Pacific region, when the sun is overhead at the northern hemisphere, a region of low pressure is formed at Central Asia. However, at the southern hemisphere, as Australia is experiencing winter and cold air sinks, a region of higher pressure is formed. Due to pressure gradient force, the difference in air pressure causes air to move from Australia to Central Asia. Southeast winds blow from Australia and is deflected to the right when they cross the equator to form the Southwest monsoon winds. This southwest monsoon winds crosses the Indian Ocean and picks up moisture, bringing heavy rain to the Indian sub-continent. This explains why the Indian sub-continent, for example places like Dhaka, Bangladesh, receives high amount of rainfall from May to July due to the onset on moist southwest monsoon winds. However, the reverse happens when the sun is overhead at the southern hemisphere during January. Instead of receiving moist monsoon winds, the Indian sub-continent now receives cold, dry Northeast monsoon wind that originates from inland central Asia that brings little to no rain. Due to the characteristics of the monsoon winds, regions experiencing Am climate tend to have distinct wet and dry seasons.

Despite the distinct wet and dry season, regions experiencing Am climate have high total annual precipitation due to the influence of the inter-tropical convergence zone (ITCZ). The ITCZ is a zone of convergence of trade winds where air is forced to rise to form clouds and hence is associated with high rainfall. It is also associated with the rising limb of Hadley cell, where the overhead sun creates a zone of low pressure at the earth surface, causing air to move from regions of higher pressure to this zone of lower pressure where winds converge and air rises. As the sun is overhead the tropics for most time of the year, the ITCZ brings rainfall to regions experiencing Am climate from 6 to 12 months of the year, hence explaining its high total annual precipitation. For example, Yangon in Myanmar receives 2690mm of rain a year. The dry season Am climate has is a result of the ITCZ not overhead the region during the particular time of the year, for example, the ITCZ is not overhead the Indian sub-continent during the start of the year, hence bringing little to no rainfall to the region. The high total annual precipitation that Am climate has could be attributed to the influence of the ITCZ that brings heavy rainfall to these regions for most part of the year.

Marker's Report:

- Many students were not able to clearly explain for the climatic characteristics of Am climate
- Many were able to describe but that can only get a maximum of L1
- Students were not specific in their explanation/description
- Students should provide e.g. as and when possible to further support the explanation

- (b) To what extent does monsoon winds influence the rainfall patterns in the tropics? [16]

Introduction

Monsoon winds are winds which direction is completely reversed from one season to the next. The tropics lie within 30°N/S of the equator. Rainfall patterns in the tropics are influenced by many factors that include the Hadley cell and trade winds, monsoon winds, El Nino and topography. Thus, monsoon winds influence on rainfall patterns in the tropics is to a small extent only. In this essay, the various factors will be discussed by taking a global to a regional and then local scale perspective.

Body Paragraphs

In the tropics, the operation of the Hadley cell and trade winds have a major influence on the rainfall patterns. The rising limb of the Hadley cell is associated with the position of the overhead sun. In this region, due to insolation heating the earth's surface, air expands and rises to the upper troposphere where it condenses to form clouds when dew point temperature is reached. An area of low pressure is formed at the earth's surface associated with this rising limb of Hadley cell. Air diverges to the north and south at the upper troposphere to about 30°N/S of the equator where this air has been cooled and starts to sink. At the subsiding limb of the Hadley cell, air that is sinking undergoes adiabatic warming and this prevents clouds from forming at this region. A region of high pressure is formed on the earth's surface associated with the subsiding limb of the Hadley cell. Due to a difference in pressure between the rising and subsiding limb of Hadley cells, trade winds are formed that travel from the subsiding limb to the rising limb of the Hadley cells. The convergence of Northeast and Southeast trade winds results in the formation of the Inter-Tropical Convergence Zone (ITCZ) at the rising limb of the Hadley cell and it is characterised by bands of clouds and high rainfall. The trade winds often bring heavy convectional rainfall to eastern parts of continents in the tropics, such as in Eastern Peninsula of Malaysia. As the Hadley cell is not 'fixed' in position but follows the position of the overhead sun, it affects the rainfall that the tropics receive. Nearer to the equator, the presence of the ITCZ and its association with the rising limb of the Hadley cell for most time of the year results in high total annual precipitation for humid tropics like in Singapore and Brazil. Whereas over at nearer to 30°N/S of the equator, such as in places experiencing arid tropics like Egypt, as this region is usually associated with the subsiding limb of the Hadley cell, total annual precipitation is very low and scant. Thus, it can be seen how the operation of the Hadley cell and its resultant trade winds affect the rainfall patterns in the tropics.

However, despite the Hadley cell determining the rainfall patterns associated with latitude, there is seasonal variation in rainfall patterns in the tropics brought about by the effect of monsoon winds. Monsoon winds is by far the most significant disturbance of the pattern of the general circulation, particularly in Asia and in Africa. For the Asian monsoon, due to differential rates of heating and cooling over land and water over the Asian region, it produces large scale regional seasonal changes in wind patterns. During July, when the sun is overhead at the northern hemisphere, a low pressure region is formed over at central Asia. However, Australia experiences winter and the cold air exerts high pressure over the region. Pressure gradient force causes air to move from region of high pressure to a region of low pressure, and in this case, from Australia to central Asia. Southeast winds blowing from Australia gets deflected to the right in the northern hemisphere to form Southwest monsoon winds. This Southwest monsoon winds crosses the Indian Ocean, picks up moisture and brings heavy rain to the Indian sub-continent. However, during January, the opposite holds true for the Indian sub-continent. Northeast monsoon winds that blow from central Asia towards Australia crosses vast lands prior to reaching the Indian sub-continent, resulting in low amount of precipitation during that period of the year. Similarly, West African monsoon brings rainfall to west Africa during northern hemisphere summer but East African monsoon brings little rainfall to this same region during northern hemisphere winter. This is why regions experiencing tropical monsoon climate, such as Dhaka, Bangladesh or Yangon, Myanmar have distinct wet and dry seasons brought

about by the effects of monsoon winds. Hence, monsoon winds do influence the rainfall patterns in the tropics by varying the effect of the Hadley cell at the regional scale.

Besides the effect of monsoon winds, another regional phenomenon that can influence rainfall pattern in the tropics is the El Nino Southern Oscillation (ENSO). ENSO is a result of the weakening of the Walker Circulation. Under normal conditions, trade winds blow from eastern to western pacific, dragging warm ocean surface currents towards the western pacific. Air rises in the western pacific to create a region of low pressure and together with the warm ocean surface currents, it causes local convective thunderstorms to develop in this region, bringing high rainfall to places like Australia and Indonesia. However, on the other end, the upwelling of cold ocean currents and high pressure result in relatively dry conditions along the western part of South America, such as in Peru. The Walker Circulations brings about heavy rainfall conditions to the western Pacific and dry conditions to the eastern Pacific. But, this Walker Circulation is weakened every 3 to 7 years, resulting in a 'seesaw' of pressure where high pressure now develops over at western Pacific and low pressure over at eastern Pacific, in a phenomenon known as ENSO. Due to this 'seesaw' of pressure, the warm ocean surface currents now amass in the eastern Pacific, and together with the low pressure region, brings heavy rainfall to the usually dry eastern Pacific. While at the western Pacific region, high pressure leads to the inhibition of formation of clouds which brings little to no rainfall and may even cause drought. During El Nino period, uncommon abundance of rain may cause floods in normally dry parts of Ecuador and Peru while lack of rainfall brings huge crop losses in the Philippines and Indonesia. Therefore, ENSO is an atmospheric phenomenon that can influence rainfall patterns in the tropics too.

Lastly, at the local scale, topography can also influence the rainfall patterns in the tropics. Topography refers to the surface configuration of a region. In the presence of topographic barriers such as mountains, orographic rainfall is resulted. This is because winds carrying moist air towards the windward slope of mountains are forced to rise over the topographic barrier, and as air rises, adiabatic cooling occurs and reaches saturation when dew point temperature is reached. This then results in condensation and the formation of clouds that leads to rainfall to occur at the windward slope. However, on the other side of the mountain, the leeward slope, air descends and undergoes adiabatic warming. With warming, relative humidity of the air parcel decreases, and neither cloud nor rain will be formed, causing the leeward slope to be usually dry. An example of a topographic barrier is the Himalayas which results in heavy rainfall in Terai region located in the windward slope but dry conditions to the leeward slope, such as places like the Tibetan plateau and Mongolia's Gobi Desert. This shows how topography at the local scale can also influence rainfall patterns in the tropics.

Conclusion

In conclusion, unarguably monsoon winds do have an effect on the rainfall patterns in the tropics. However, its influence is to a small extent as there are many other factors operating at the global, regional and local scale that influence rainfall patterns in the tropics too. To understand rainfall patterns in the tropics, there is a need to understand the different wind systems, phenomenon and environmental conditions operating at different scales that can influence the occurrence of rainfall.

Marker's Report:

- Students were able to provide the various factors in influencing climatic characteristics of the tropics
- However, many did not provide clear explanation to:
 - The process itself
 - How it affects RAINFALL patterns
- Many students obtained a level 2 due to lack of evaluation
 - Need to justify the stand taken!

4 (a) Explain why hydrological processes may differ in the humid and arid tropics.

[9]

Hydrological processes in a drainage basin can be categorised into input, transfers, storages and outputs. Due to differing climatic (temperature and precipitation characteristics) and soil conditions, hydrological processes in the humid and arid tropics are different.

The differing climatic conditions of the humid and arid tropics, in particular precipitation characteristics, cause the amount of water to be circulated through the various hydrological processes under these 2 climatic conditions to differ. In the humid tropics, the high total annual precipitation and occurrence throughout the year leads to rivers with discharge throughout the year, like the Amazon River in Brazil. Whereas for the arid tropics, low total annual precipitation compounded with scant precipitation throughout the year result in rivers to have no flow in certain time of the year. For example, more than 95% of streams in Arizona, USA are ephemeral in nature, where there is flow only after precipitation. However, the precipitation that arid tropics receive tend to be of high intensity that often result in flashy discharge in its river. The sudden, high intensity rainfall often leads to high amount of hortonian overland flow due to infiltration being limited, and hence the flashy discharge in the river. Whereas for humid tropics, intensity and duration of rainfall can vary. As long as rainfall intensity is below the infiltration capacity of the soil, infiltration will take place and less overland flow will be resulted. Thus, due to differing precipitation characteristics in the humid and arid tropics, hydrological processes in these 2 regions may differ.

Besides precipitation characteristics, temperature characteristics of the 2 climatic types can also influence hydrological processes. Although both humid and arid tropics are characterised by high mean annual temperature, it is the relationship between evapotranspiration and precipitation that can affect hydrological processes. In arid tropics, such as in places like Cairo, Egypt, they are characterised by evapotranspiration exceeding precipitation. Due to its association with the subsiding limb of the Hadley cell, cloud formation is limited which causes insolation to reach the ground surface most of the time, thus having high temperatures and low rainfall. This promotes high rates of evapotranspiration to take place in the arid tropics which also leads to low amount of soil moisture, groundwater and channel storages. On the other hand, humid tropics is characterised by precipitation exceeding evapotranspiration for most period of the year (unless is the dry season). The higher amount of input than output encourages more amount of water to be stored in various storages, such as soil moisture, groundwater and channel storages. Hence, differing climatic characteristics of the humid and arid tropics lead to hydrological processes in regions experiencing these 2 climatic types to differ.

Besides looking at climate, it is also crucial to look at how the environment affects hydrological processes. Due to the climatic conditions, the nature of soil in the humid and arid tropics differ and this has an influence on the type and amount of transfers that take place in the respective drainage basins. In arid tropics like the Sahara Desert, due to high temperature and low precipitation, the soil surface is often sun-baked and clay-like. This lowers the porosity of the soil surface which lowers the infiltration capacity of the soil. When precipitation occurs in arid tropics, which is often of high intensity, rainfall intensity often exceeds the infiltration capacity of the soil, resulting in high generation of hortonian overland flow. While for the humid tropics, such as in Singapore, infiltration capacity of soil is often not a limiting factor, unless during a thunderstorm. Instead, prolonged rainfall causes soil to reach saturation and since additional rainfall is unable to infiltrate into the saturated soil, excess water flow overland as saturation overland flow. Though both arid and humid tropics may generate overland flow, the conditions under which these flows occur differ and they are mainly associated with different types of overland flow. Therefore, the conditions of the soil may influence the hydrological processes in the humid and arid tropics.

Additional (Vegetation)

The nature of vegetation, in terms of type and density, can also be used to explain why hydrological processes may differ in the humid and arid tropics. Due to differing climatic characteristics, the type and density of vegetation in humid and arid tropics differ and this has an influence on hydrological processes, such as interception, infiltration, overland flow and biological water storage. As the climatic conditions in humid tropics are more favourable for vegetation growth, vegetation is of higher density as compared to arid tropics. Furthermore, in the humid tropics, vegetation are of tall evergreen trees as opposed to in the arid tropics where vegetation is made up of grasslands and succulents. With higher density of vegetation such as tropical rainforests in Borneo, Malaysia, these trees tend to intercept higher amount of rainfall and lowers the intensity of rainfall reaching the ground which encourages more infiltration to take place and reduces the amount of overland flow. This also helps to increase sub surface storages (soil moisture and groundwater storage) and the high density of vegetation leads to higher biological water storage too since water is taken up by vegetation for growth. Whereas for arid tropics like the Outback in Australia, scant vegetation (savannas) do not intercept as much rainfall and biological water storage is much lesser as compared to those in the humid tropics. The vegetation, soil and climate characteristics in the arid tropics do not encourage as much infiltration to take place, resulting in higher generation of overland flow after a rainfall event. This shows how environmental conditions (climate, vegetation, soil) can all influence hydrological processes in the humid and arid tropics.

Marker's Report:

- Some students misinterpreted hydrological processes as fluvial processes
- Many did not do well for this question as they fail to answer the question on why hydrological processes differ in the humid and arid tropics
 - Question is asking for the reasons as to why hydrological processes differ in these 2 regions

(b) Evaluate the extent to which natural factors influence the occurrence of floods. [16]

Introduction

Floods occur when the discharge in a river exceeds its bankfull discharge. There are various factors, both natural and human, that can cause a river to flood, either by causing unusually high river discharge or lowering the river capacity. However, the occurrence of floods can also be managed by humans' intervention. The extent to which natural factors influence the occurrence of floods is small. Although the amount of precipitation determines the river discharge and natural hazards like mass movement can increase the occurrence of floods, human activities can either increase or prevent the occurrence of floods and the changes done to land use can have a lasting and knock-on impact in the occurrence of floods.

Body Paragraphs

One important natural factor that can influence the occurrence of floods is the amount of precipitation. Precipitation is the only input into the drainage basin water balance and river discharge is mainly attributed by precipitation, after accounting for evapotranspiration output and changes in water storages. When there is excessive or intense precipitation that exceeds the infiltration capacity of the ground or causes soil saturation to be reached, infiltration is limited and overland flow is generated instead. This overland flow, that is the faster lateral transfer, will flow downslope and contribute to river discharge. Because of this higher amount of overland flow that contributes to the river discharge quickly, the river discharge may easily exceed bankfull discharge of the river and result in floods. For example, Hurricane Paine brought intense rainfall in Southwest USA, causing floods to occur in the region in September 2016. Also, monsoon winds laden

with moisture have also brought heavy rainfall to Bangladesh in July 2004, causing the capital city, Dhaka, to be 40% under water. This shows how the amount of precipitation in a region can influence the occurrence of floods.

Besides the amount of precipitation, natural hazards can also influence the occurrence of floods by reducing the river capacity. Natural hazards include earthquakes and mass movements and the occurrence of these hazards can cause sediment, soil and regolith to be deposited in the rivers which will reduce the river capacity. A river capacity determines the amount of discharge it can hold and when the capacity is reduced, the river is at a higher risk of flooding. In April 2017, heavy rainfalls in Colombia caused a landslide to take place, in which the debris, mud and boulders get deposited in rivers and caused 3 rivers to flood that killed 300 people. Thus, it is possible that natural factors such as natural hazards can influence the occurrence of floods by reducing river capacity.

However, besides natural factors, human activities can also influence the occurrence of floods. One major human activity is urbanisation that result in the change in land use that has a lasting and knock-on impact on hydrological processes and subsequently floods. Due to urbanisation and urban growth, there is an increasing proportion of earth surface being covered by impermeable concrete ground. Compared to natural ground surface, concrete being more impermeable allows little to no infiltration to take place. This causes higher generation of overland flow that contributes directly and quickly to the river discharge. It is thus more likely for flood to occur when more proportion of land is covered by concrete due to the process of urbanisation. This is evident between an urban stream in Mercer Creek Washington, USA and a nearby rural stream in Newaukum Creek. Following a one-day storm, river discharge in Mercer Creek increases more quickly and reaches a higher peak discharge as compared to Newaukum Creek. Urban development has its impact on increasing peak discharge and reducing lag time between peak rainfall and peak discharge. Also, in Salt Creek, Illinois, USA, urban development has resulted in floods to increase by magnitude, from 1000 to 2000 cubic feet per second for large floods. Furthermore, such change in land use is often permanent and this has an impact on the occurrence of floods in the region in the long run. Therefore, human activity such as urbanisation can influence the occurrence of floods.

In addition, human activities can also reduce the chance of flood from occurring. Humans have put in place various flood management strategies to reduce the occurrence of floods. Different strategies have been adopted by different places to manage floods by reducing the frequency of occurrence of magnitude of flood. There are both hard and soft engineering strategies that could be adopted to manage floods. Hard engineering measures involve the construction of structures along the river to control discharge while soft engineering measures tend to be more ecologically sensitive and are done to reduce the impact of flood. For example, the construction of the Three Gorges Dam at the Yangtze River has been effective in reducing the occurrence of flooding along the Yangtze River by controlling the amount of discharge downstream. It has helped to reduce the amount of damage suffered by the people living along the river, especially in Hunan province. On the other hand, plantation forestry, which is a soft engineering measure, is built upon the basis that the change in land use cover to plantation forestry can help to improve catchment conditions and help in the management of flood by increasing infiltration ability of the soil which will reduce overland flow and lower the flood peak. This has been adopted in White Hollow of Tennessee, USA and it has reduced the peak discharge following a rainfall event by 85% and the lag time has increased from 1 to 8 hours. Hence, flood management strategies put in place by human can help to lower the occurrence of floods.

Yet, human intervention of flood management strategies to reduce the occurrence of flood could also possibly result in the increase of occurrence of floods elsewhere. Although flood management strategies are implemented to manage the occurrence of flood in one region, if the larger river system is not taken into consideration, the implemented strategy may end up changing the river dynamics downstream and cause flood there instead. For example, channel re-alignment involves the process to reduce the sinuosity of the river so as to increase the gradient of the long profile in that stretch of the river. This will then lead to an increase in flow velocity which will move river discharge out

of the area more quickly and reduce the chance of flooding upstream. This was done in the Mississippi River, USA, where the length of the river has been reduced by 240km to reduce the occurrence of flood. However, as flow velocity is faster, the river has more energy to erode the river banks and bed. This leads to the deposition of extra sediment that is derived from upstream erosion in the downstream reaches and aggradation of the river bed is resulted. This has an impact on the river dynamics as aggradation of river bed downstream would lower the river capacity to hold its discharge and in turn increase the occurrence of flood downstream. Thus, without careful consideration of how human intervention to reduce flood occurrence may have on the river system, flood management strategies implemented by humans may end up increasing the occurrence of flood elsewhere.

Conclusion

In conclusion, both natural factors and human activities can influence the occurrence of floods. However, the influence of natural factors on the occurrence of floods is to a small extent as they only lead to the increase in occurrence of floods. Whereas human activities such as changes in land use and flood management strategies have greater influence on the occurrence of floods as the intervention can either increase or reduce flood occurrence. Furthermore, such human modifications often have lasting impact. Yet, it is to note that it is not possible to pinpoint the occurrence of floods to either natural factors or human activities alone. Rather, there is a need to study the interaction between humans (activities) and its natural environment to understand how they come together in affecting the occurrence of floods.

Marker's Report:

- Many students are merely listing the factors in influencing the occurrence of floods rather than evaluating them
 - Why do natural factors influence flood occurrence to a larger/smaller extent compared to human activities?
- Note that influencing the occurrence can also mean the reduction of occurrence of floods → not necessarily just increasing

Theme 2: Urban Change

- 5 (a) Explain the reasons for the development of slums in cities with low levels of development.

[9]

I: Explain

R: Explain how and why slums develop in cities with low levels of development.

Introduction

Slums include the traditional meaning – that is, housing areas that were once respectable or even desirable, but which have since deteriorated as the original dwellers have moved to new and better areas of the cities. The condition of the old houses has then declined, and the units have been progressively subdivided and rented out to lower-income groups. But slums have also come to include the vast informal settlements that are quickly becoming the most visible expression of urban poverty in developing world cities. Although slum on the surface be may considered an easily understandable “catch-all”, the term in actuality is hugely complex. What is considered as a slum in one city may be regarded as adequate in another city – even in the same country. Moreover, slums change too fast to render any criterion valid for a reasonably long period of time. Slums come about because of, and are perpetuated by, a number of forces. These forces can be arranged under four domains: Economic, Social, Political and Environmental factors.

Body Paragraph 1:

Rural-urban economic migration is one the major causes for the formation of slums. Rural-urban economic migration is contributed by a combination of push and pull factors. Push factors are those that force the individual to move voluntarily, and in many cases, they are forced because the individual risk something if they stay. Pull factors are those factors that attract the individual or group to leave their home. The actual (and perceived) economic opportunities that urban area provide attract rural population to move to the city. However, most of the time rural migrants are unable to get immediate job, which leads to their financial shortage. On the other hand, many cities do not provide low-cost-housing to the large number of rural migrants and these ultimately result in them settling down in affordable slums.

Body Paragraph 2:

An expanding informal economy can contribute to the formation of slums. Informal economy can be defined as economy which is neither registered as a business nor licensed; that they do not pay any tax and are not monitored by local/state/federal government. Informal economy can grow faster than formal economy when government laws and regulations are opaque and excessive, government bureaucracy is corrupt and abusive of entrepreneurs, labour laws are strict, or when law execution is poor. The economic opportunities that an expanding informal economy provides can promote rural population can promote rural population to move to the city for a better living. An example would be Mumbai, India. Real estate in Mumbai is among the most expensive in the world. The contrast between rich and poor is stark, and about 60 percent of the

city's population of more than 18 million lives in slums. This makes Dharavi Slum a magnet for migrants from across India. The primary reason as to why migrants from across India choose to reside in Dharavi as compared to other locations is the size of its **informal economy**. Thousands of small businesses thrive in Dharavi today, creating an informal economy with annual turnover of \$1 billion by some estimates. Leatherwork is a major industry in Dharavi. Small garment factories have proliferated throughout the slum, making children's clothes or women's dresses for the Indian market or export abroad. According to a 2007 study sponsored by the United States Agency for International Development, Dharavi has at least 500 large garment workshops (defined as having 50 or more sewing machines) and about 3,000 smaller ones. Then there are the 5,000 leather shops. Then there are the food processors that make snacks for the rest of India. And then still more: printmakers, embroiderers and, most of all, the vast recycling operations that sort, clean and reprocess much of India's discarded plastic. Thus, with the lure of job opportunities via the informal sector and the prospect of improving standards of living, development of slums becomes an imminent process in the cities.

Body Paragraph 3:

Poverty is a major factor for the development of slums. With the migration of the rural poor, poverty is also migrating to urban area. For a large proportion of these rural migrants - slums are the only options to settle themselves as they struggle to afford decent housing in their new host city. Residing in slum neighbourhoods can entrap these rural migrants in a cycle of poverty – defined as a set of factors or events by which poverty, once started, is likely to continue unless there is external intervention. Socio-economic levels of residential neighbourhoods affect quality of life and life chances. Concentrated disadvantage in neighbourhoods is one of the most durable predictors of high rates of violent crime, and differences in neighbourhood disadvantage explains much of the class gap in exposure to violence. The spatial separation of the affluent and poor also produces a spatial mismatch between the demand for job and job seekers, contributing to high unemployment in poorer neighbourhoods. Likewise, high-poverty schools in poor neighbourhood tend to be ineffective educationally due to a lack of resources and have disproportionately high dropout rate as children/youths (or their family) lack the economic means to put themselves through education. A case study of this could be seen in Kibera, Nairobi. There are approximately 2.5 million slum dwellers in about 200 settlements in Nairobi representing 60% of the Nairobi population and occupying just 6% of the land. Kibera houses about 250,000 of these people. Kibera is the biggest slum in Africa and one of the biggest in the world. Residents in Kibera live on less than 1-2 USD per day. The poverty level creates a harsh environment with pressing problems like lack of sanitation, clean water, waste management etc. While it is key for children to go to school to be able to break the cycle of poverty, to find a job is hard without a proper education. Lack of financial resources continue to deter children from pursuing an education. But even if they do, schools located in Kibera are less than satisfactory. They are often ill equipped, dense and with few, low paid and often have uneducated teachers. With little opportunities for socio-economic mobility for rural migrants residing in slum neighbourhoods, slums can/will persist.

Body Paragraph 4:

Finally, presence of extended families can contribute to greater migratory flows – expanding the formation of slums. Chain migration refers to the social process by which immigrants from a particular town follow others from that town to a particular city or neighbourhood, whether in an immigrant-receiving country or in a new, usually urban, location in the home country. Peru's capital Lima has expanded rapidly. In the 1950s, the city had around 1 million residents. Today, nearly 10 million people call the city home. The city has continued to grow outwards through the expansion of slum settlements – where most of the residents are migrants from the rural countryside of Peru. An important reason promoting rural population to relocate to Lima is the presence of extended families and familial networks. A study on migrants from the Peruvian Highlands to Lima, Peru revealed that 90% of migrants rely on relatives for short term accommodation and 50% rely on relatives for employment arrangements. Thus, it is found that the more established a migrant community becomes in a city, the easier it appears for others in the same community to take the decision to migrate as there are support that they can fall on (pull factor).

Generic level Descriptors for 9m

Level	Marks	Descriptors
3	7-9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates exemplary display of 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 for weaker response. Response reflects relevant knowledge and understanding of the question. Response is structured and organised satisfactorily but may be unclear in parts. Use of terminology is generally accurate.
	1-3	Response does not address the requirements of the question fully. Depth of knowledge and understanding shown is limited. 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) Evaluate the success of slum improvement strategies in cities.

[16]

I: Evaluate

R: To what extent are slum improvement strategies successful?

A:

Introduction:

Although slum on the surface be may considered an easily understandable “catch-all”, the term in actuality is hugely complex. What is considered as a slum in one city may be regarded as adequate in another city – even in the same country. Moreover, slums change too fast to render any criterion valid for a reasonably long period of time. Whilst the term may be subjective, there are a few common characteristics which can help to identify and quantify the slums, such as informal structure and settlement, lack of security of tenure, overcrowding and lack of basic communal and public service and economic base. Whilst urban authorities have recognised the problems that slums may bring about and tried to improve slum dwellers’ standard of living with various slums improvement strategies, the strategies are often found wanting and have been successful to a small extent. This is mainly due to the strategies’ inability to solve the root cause of slum formation and low standard of living and the ‘top-down’ implementation and planning processes.

Counter Paragraph 1:

Slum improvement strategies can be effective and successful if they are able to help improve the overall standard of living of slum dwellers. Authorities would aim to eradicate the problem of poor sanitation and provide clean water, electricity and basic services and amenities. In this case, the strategy of New Town planning have largely been able to help raise the standard of living of the people. New towns deals with large-scale, holistic planning of a mixed use, self-sufficient community – one that include its physical design of streets and infrastructure, its provision of residential, commercial, education, recreational, shopping and service facilities, its blend of employment and leisure activities. A city that has managed to use new towns as a strategy to cope with housing problems is Singapore. Following self-governance in 1959, the government assumed a dominant role in the provision of housing, much of which has been relocating population from slum neighbourhoods in the city core to new town developments in the periphery. To date, there have been no more slums in the city and these new towns are homes to public housing highly subsidised by the Housing Development Board of Singapore, of which more than 89% of the population own these houses and the system has been touted as one of the most successful housing development project in the world to eradicate slums in cities in the past 30 years. Therefore, large scale housing development projects like New Towns have been successful in elevating the standards of living.

Support Paragraph 1:

However, very few slum development projects could be successful as they do not tackle the root cause of why there are slums in the first place – namely, poverty and rapid rural-urban migration. The poverty in slums is a vicious cycle, where the lack of education opportunity and job opportunities in the slums or in the cities themselves entrap urban dwellers in poverty for generations to come. In this case, most of the strategies are touch-and-go strategies which do not address these problems. For example, whilst site and service schemes include provision of plots of lands by state authorities, either on ownership or land lease tenures along with a bare minimum of essential infrastructure needed for habitation, these projects do not alleviate people out of poverty. For example, the Dandora Community Development Project is a site and service scheme in

Dandora, Nairobi, Kenya implemented by the Nairobi City Council with loan or credit support from the World Bank. The target group of people was slum dwellers earning between the minimum and median income and they were given technical support and a soft loan to build additional rooms. However, there is still a need for these residents to be able to afford these loans. Although overall, there is an improvement in the slums as plots were serviced with access roads, security, lighting, water and sewage, with provisions for primary schools and markets, residents will still be living in poverty and unable to get out of the poverty cycle to will entrap them in the slum neighbourhoods. In the case study of Singapore's New Town projects, it was highly successful as it was coupled with high speed economic growth and socio-economic policies such as the CPF system, which is a mandatory savings plan in which wages contributed by both citizens and their employer are saved in a government board. Thus, whilst there was adequate jobs for people, this mandatory savings account allowed residents to pay for the public housing. At the same time, the state put aside large amount of budget to develop high quality education system to improve the education level of its residents. As such, the New Town projects in Singapore was a success not only in improving standard of living in the housing environment, but also provided an impetus for its people to work hard themselves in order to be able to afford these public housing. Thus, given the fact that slum development stems from poverty and that it requires nation-wide multi-pronged approach to improve slums and its standard of living, it is generally very difficult for urban authorities to be successful in improving the slums.

Support Paragraph 2:

In times where various communities would like to have a say in how they can be helped to improve their housing environment, particularly in the slums, the top-down approach employed by many state agencies proved to impeded the success of the strategies commonly used by the state. Strategies of slum improvement should be based on the needs and demands of its residents. However, slum improvement strategies are mostly based on the governments' agendas and needs, mostly to revamp the city as part of its branding and marketing strategies rather than to really cater to the needs of the residents. A case in point would be the demolition and eviction strategies. Demolition and eviction relates to the forceful and purposeful destruction of substandard housing including slums. It results in the displacement or relocation of population to other areas. Demolition and eviction usually involves armed police allowing workers to move in to bulldoze the shacks when the land is needed for other uses. Demolition and eviction may be accompanied with other strategies such as the relocation of slum residents to new towns. Urban authorities' may cite different reason for such strategies, such as for 'city beautification', or that the slums pose as a crime and health hazard, or they could simply be reclaiming the land for redevelopment to use the land for more profitable activities. For example, slum neighbourhoods (or Favelas) in Rio De Janeiro, Brazil have been demolished and 22,059 families since 2009 to make way for transport and other infrastructure projects related to the Rio 2016 Olympic Games. In particular, Vila Autódromo - a favela on the fringes of the main Olympic Park in has seen half of its population been forcibly moved to new town/public housing sites as far away as 60km from the centre of Rio. This not only effectively eradicate homes that these urban dwellers may have painstakingly built up over the years but also forcing the residents to quit their jobs if they may be working in the city centre of Rio. This may result in either the residents refusing to move to the new town or public housing, and set up informal settlements elsewhere nearer to their sources of employment, which brings about another set of problems, or force these slum dwellers to be out of job as they will have to seek other sources of employment nearer to their new places. Thus, such top-down

approaches without seeking the opinions and getting active participation from the stakeholders, especially the slums residents would only lead to more problems.

Support Paragraph 3:

Finally, slum improvement strategies are usually not effective as they only take effect in a longer term, or that such improvements could only be taking place to tackle one issue at a time. Often times, there are too many issues and problems plaguing slums that it is impossible to try to eradicate the problems or at least improve the situation. Many slums face multiple issues of chronic absence of basic services such as potable water, sanitary services and electricity. Thus, to be able to provide all these services at the same time is almost impossible. For example, Orangi Township in Karachi is a massive slum neighbourhood with a population of 1.2 million. Until 1980s, most households had no access to sanitation facilities and used bucket latrines and soakpits for the disposal of human waste and open sewers for the disposal of waste - resulting in a high rate of water-borne diseases. This however has changed with the onset of Orangi Pilot Project – a project that has enabled low income families to finance, manage and maintain sanitary latrines in their homes, underground sewerage lines in the lanes and secondary sewers in the neighbourhood in a better and sustainable manner. Whilst such slum improvement projects provide improvements in-situ and harness on the community's efforts and labour to improve the environment, it can be haphazard without supervision and can only tackle one issue at a time, with slow improvements being made. Thus, the massive amount of problems plaguing slums may be difficult to resolve in the short run.

Conclusion:

To conclude, slum improvement strategies can be successful if the standard of living is largely improved. But for most of the time, this may prove to be a tall order as the range of issues plaguing slums may be too big and deep-rooted. Unless a range of complementary policies to eradicate poverty and improve level of education in the cities, the strategies would be at best some stop-gap measures which will see the problems recurring in a few years' time. Also, as long as the strategies continue to be top-down approach with no consultation with the slum residents and/or community leaders, the effectiveness and success would be largely impeded. In the near future, as urbanisation rates continue to climb and cities continue to swell, slums are projected to grow in numbers and size. This may make way for more effective and holistic strategies to be deployed to better address the issues from a multi-pronged approach.

Generic level Descriptors for 16m

Level	Marks	Descriptors
4	13-16	Response shows strong evaluative elements. Evaluation is relevant and comprehensive. Response fully addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and well-supported by relevant material. Use of terminology is accurate.
3	9-12	Response displays a sound evaluative element. Response addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and supported by relevant material. Use of terminology is relevant and mostly accurate.

2	5-8	Response has some elements of evaluation but is broadly descriptive. Response exemplifies knowledge and understanding of the question and is generally relevant. The weakest responses may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Use of terminology is inconsistent though generally accurate.
1	1-4	Response shows little or no evaluation. 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 terminology.
0	0	No creditworthy response.

- 6 (a) Explain the sources of either crowding **or** fear in cities in countries at high levels of development.

[9]

I: Explain

R: Sources of fear in cities in countries at high levels of development.

A:

Introduction:

Fear is an emotional reaction to a perceived threat. Urban dwellers are often fearful that individuals, places, actions and events can inflict physical or psychological harm on themselves or on the people and thing they hold dear. Sources of fear in the city stems from crime and terrorism and it must be noted that geographies of fear brought about by crime is highly uneven.

Body Paragraph 1:

One source of fear in the city is crime. Crime refers to an illegal act for which someone can be punished by the state. While cities are spaces of hope and aspirations, cities can also be sites of vulnerability and danger. It is found that in a majority of countries, most crime occur in urban areas. In Turkey, one fourth of all crimes in 2014 were committed in Istanbul, while almost half of all crimes in the country in general were committed in Istanbul in 2015. Low quality urban spaces prepare the basis for crime. Deserted, empty structures, irregular and uncontrolled green areas that are not well maintained or illuminated, and regions with complex road networks can easily be transformed into areas where gangs operate and become crime nests where they can organize. Research also suggests that crime is greater in poorer neighbourhoods, and in places occupied by disadvantaged populations. The occurrence of urban poverty and the rapid increase in the ratio of such poverty plays the most important role in the increase of urban crime. Fear of crime in the city can be produced by direct involvement with violence, the impact of the media or even shared knowledge of family, friends, peers, acquaintances, and co-workers.

Body Paragraph 2:

One other source of fear in the city is terrorism. Terrorism refers to the calculated use of unlawful violence or threat of unlawful violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological. In a world of intensifying globalization and urbanization, the “urban” and the “international” are fast blurring into one another. The division between “domestic urban” and “international” politics has now melted away. Terrorist acts are simultaneously global and local (urban) events. Facilitated by the advancement of transport and communication technologies, fear spurred by localised terrorist acts is no longer contained within urban/national boundaries, but is now “globalised” as it “travels”. There is a strong relationship between space and terrorism. Experiences of fear spurred by terrorism is spatially uneven - stronger in some cities, some locations within cities (usually high profile landmarks) and higher among certain social group than others. It has been found that residents in cities previously targeted and affected by terrorist acts tend to experience higher levels of fear. It has also been found out that those who are socially and economically marginalised and racialised and religious minorities experience greater levels of fear. For example, after the 2005 London bombings, Muslims felt more fearful than other groups. In New York City, it was women, those on lower incomes and those from non-white ethnic groups. In Providence, an urban settlement 3 hours away from New York, older people and those with low levels of educational attainment were more afraid of future attacks.

Body Paragraph 3:

Fear of terrorism and crime can be considered to create and reinforce exclusion from urban life and from particular urban spaces in a number of ways. When exclusion is created and reinforced, this creates and reinforce fear, forming a vicious cycle. Exclusion of urban dwellers due to fear can take place in 4 different ways: Exclusion through sub-criminal acts, exclusion through being constructed as a threat, exclusion through precautionary behaviour and exclusion through community safety policies. Policies which aim to improve the safety of cities can excite greater fear, isolation and social exclusion - limiting citizens from urban public space. For example, More recently, in 2017, Islamophobia has taken the form of increased travel restrictions imposed on the Muslim community. Starting from June, people from six mainly Muslim countries (Iran, Libya, Syria, Somalia, Sudan and Yemen) and all refugees now face tougher US entry due to President Donald Trump’s controversial travel ban. The US president insisted his ban was necessary for national security and pointed to terrorist attacks in Paris, London, Brussels and Berlin as evidence. This may further reinforce people’s fear of certain groups in the city and on top of that, result in fear within the Islam community as well, as there would be fear of the rise in uncivil behaviour towards Muslims and Arabs in the cities.

Conclusion:

As such, sources of fear of crime and terrorism in cities really stem from perceptions which may be shaped by media and state policies which tend to play up certain events or nuggets of information following crime and terror attacks. This has got implications on the way cities are perceived and how certain groups who are perceived to be perpetrators of such threats to actually become the victims of these perception of fear in the cities.

Generic level Descriptors for 9m

Level	Marks	Descriptors
3	7-9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates exemplary display of 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 for weaker response. Response reflects relevant knowledge and understanding of the question. Response is structured and organised satisfactorily but may be unclear in parts. Use of terminology is generally accurate.
	1-3	Response does not address the requirements of the question fully. Depth of knowledge and understanding shown is limited. 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) Assess the success of strategies used to cater for the different needs of social groups in cities. [16]

I: Assess

R: To what extent have the strategies used to cater to different needs of social groups in cities been successful?

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 will 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

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, due to 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, it may not be possible to satisfy all their needs. 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 down 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 Ontario 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 been effective to a small 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 (TAFEP) 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 16m

Level	Marks	Descriptors
4	13-16	Response shows strong evaluative elements. Evaluation is relevant and comprehensive. Response fully addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and well-supported by relevant material. Use of terminology is accurate.
3	9-12	Response displays a sound evaluative element. Response addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and supported by relevant material. Use of terminology is relevant and mostly accurate.
2	5-8	Response has some elements of evaluation but is broadly descriptive. Response exemplifies knowledge and understanding of the question and is generally relevant. The weakest responses may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Use of terminology is inconsistent though generally accurate.
1	1-4	Response shows little or no evaluation. 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 terminology.
0	0	No creditworthy response.

- 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 Millennium 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)



NANYANG JUNIOR COLLEGE

Year 2 Preliminary Examination

H1 GEOGRAPHY

8813/01

Paper 1

11 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.

Answer **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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 3 – Geographical Investigation

1. A group of 20 eighteen-year-old students wanted to examine the needs of the elderly in Braddell Heights. They were given access to the National Survey of Senior Citizens (NSSC) that was conducted in 2011 and a map of the locations of CHAS (Community Health Assist Scheme) and eldercare services in Braddell Heights.

The NSSC questionnaire was drafted by consultants commissioned by the Ministry of Social and Family Development (MSF) and a survey company was also commissioned to conduct the field survey.

The survey company used the structured questionnaire drawn up by the survey consultants and employed face-to-face interviews with the selected senior citizens at their homes. Fieldwork for the survey took approximately six months, from June to November 2011, to complete. 5,000 senior citizens were successfully interviewed then.

Based on the 2011 data from NSSC, the students wanted to investigate if the needs of the elderly residing in Braddell Heights have been met in 2016.

Resource 1 shows how the elderly managed their illness in 2011. Resource 2 shows the gender differences in the frequency of activities that the elderly participated in. Sports activities are understood to include activities such as swimming, tai-chi/qigong, brisk walking, jogging, badminton, etc. Resource 3 features a map with the locations of various CHAS and eldercare services available in Braddell Heights.

- (a) Sketch one pie chart to represent the elderly's management of illness using the information in Resource 1. [4]
- (b) Describe possible challenges the surveyors may have faced while carrying out the interviews in 2011. [4]
- (c) Explain how Resource 2 can help the students understand more about the needs of the elderly in Singapore. [5]
- (d) With reference to Resources 2 and 3, suggest a suitable research question for the students' investigation and give reasons why it is capable of being studied. [5]
- (e) Suggest a plan for the students to investigate the needs of the elderly living in Braddell Heights. [7]

Section B**Theme 2: Urban Change****Urban Liveability**

2. Resource 4 shows the ten most liveable cities in 2016 based on the liveability survey conducted by the Economist Intelligence Unit. Resource 5 shows the top ten cities from the Monocle Quality of Life survey 2016. Resource 6 shows the urban liveability indicators from the Economist Intelligence Unit survey and the Monocle Quality of Life survey.
- (a) Describe the spatial distribution of the ten most liveable cities in Resource 4. [3]
 - (b) Using Resource 6, account for the ten most liveable cities in Resource 4. [5]
 - (c) Compare the top ten rankings of cities in Resources 4 and 5. [5]
 - (d) Using Resource 6, explain why Melbourne is ranked top in Resource 4 but only achieved the sixth position in Resource 5. [4]
 - (e) With reference to Resources 4, 5, 6 and your own knowledge, evaluate the usefulness of having different indices to measure urban liveability. [8]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6

Theme 1: Climate Change and Flooding

- 3 (a)** Explain the development of El Nino and La Nina conditions. [9]
- 3 (b)** To what extent is latitude the major factor influencing climatic conditions in the tropics? [16]
- 4 (a)** Explain the importance of interception and groundwater flow (baseflow) in the hydrological system. [9]
- 4 (b)** Assess the role of prediction in mitigating the effects of flooding in the tropics. [16]

Theme 2: Urban Change

- 5 (a)** Explain the linear nature of production, consumption and disposal of non-hazardous solid waste and how it affects the goal of sustainable development. [9]
- 5 (b)** Assess the effectiveness of strategies used to manage non-hazardous solid waste in countries at different levels of development. [16]
- 6 (a)** Explain how the issue of crowding **or** fear is produced in cities in countries at high levels of development. [9]
- 6 (b)** Assess the success of strategies used to mitigate the issue of **either** crowding **or** fear in the city. [16]



NANYANG JUNIOR COLLEGE

Year 2 Preliminary Examination

H1 GEOGRAPHY

8813/01

Paper 1

11 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

Management of illness by elderly in 2011

Management of illness	55 years old and above
Government clinic	54.9
Private clinic	40.0
Traditional Medicine Practitioner	1.8
Self-medicate	2.5
Do nothing	0.4
Others	0.4

Source: <https://www.duke-nus.edu.sg/care/wp-content/uploads/National-Survey-of-Senior-Citizens-2011.pdf>

Resource 2 for Question 1

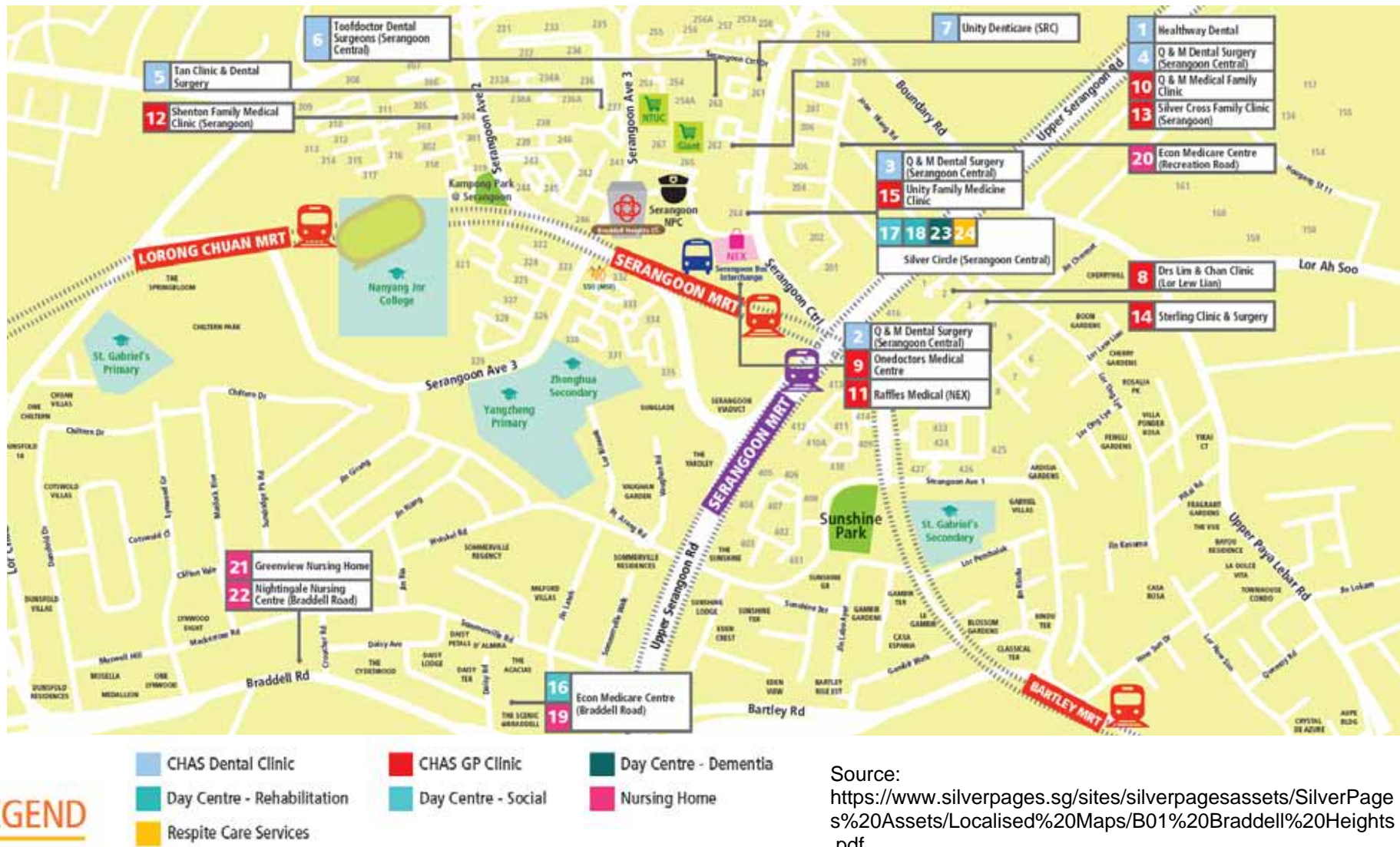
Frequency of activity by gender 2011 (%)

Frequency of activity	Males	Females
Sports activities		
Every day	33.4	28.0
4 – 6 times a week	7.5	5.5
2 – 3 times a week	18.3	19.4
Once a week	10.1	11.1
2 – 3 times a month	7.6	7.6
Once a month	4.1	3.9
Less than once a month	18.9	24.7
Social and cultural activities		
Every day	8.6	5.8
4 – 6 times a week	16.0	14.0
2 – 3 times a week	21.8	27.9
Once a week	21.9	22.7
2 – 3 times a month	9.2	8.2
Once a month	9.3	9.2
Less than once a month	13.3	12.3

Source: <https://www.duke-nus.edu.sg/care/wp-content/uploads/National-Survey-of-Senior-Citizens-2011.pdf>

Resource 3 for Question 1

Location of CHAS and eldercare services in Braddell Heights 2017



Source:

<https://www.silverpages.sg/sites/silverpagesassets/SilverPages%20Assets/Localised%20Maps/B01%20Braddell%20Heights.pdf>

Resource 4 for Question 2

Liveability survey results by the Economist Intelligence Unit

World's most liveable cities

2016, based on liveability index*

Rank	City	Country
1	Melbourne	Australia
2	Vienna	Austria
3	Vancouver	Canada
4	Toronto	Canada
5=	Calgary	Canada
5=	Adelaide	Australia
7	Perth	Australia
8	Auckland	New Zealand
9	Helsinki	Finland
10	Hamburg	Germany

*Based on 30 factors spread across five areas: stability, infrastructure, education, health care and environment

Source: Economist Intelligence Unit

Economist.com

Resource 5 for Question 2**Monocle Quality of Life survey 2016**

Monocle Quality of Life Survey 2016	
1	Tokyo, Japan
2	Berlin, Germany
3	Vienna, Austria
4	Copenhagen, Denmark
5	Munich, Germany
6	Melbourne, Australia
7	Fukuoka, Japan
8	Sydney, Australia
9	Kyoto, Japan
10	Stockholm, Sweden

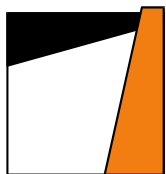
Adapted from: <https://monocle.com/film/affairs/top-25-cities-2016/>

Resource 6 for Question 2

Urban liveability indicators

Economist Intelligence Unit Global Liveability Index	Monocle Quality of Life Survey Editorial-based ranking that looks at:
1 Stability (25%)	1 Safety/Crime
2 Healthcare (20%)	2 Medical Care
3 Culture and Environment (25%)	3 Climate/ Sunshine
4 Education (10%)	4 International connectivity
5 Infrastructure (20%)	5 Public Transportation
	6 Quality of Architecture
	7 Environmental Issues and Access to Nature
	8 Urban Design
	9 Business Conditions
	10 Pro-active Policy Development
	11 Tolerance
	12 Housing
	13 Joy of life
	14 Nightlife

Source: <https://www.policyschool.ca/wp-content/uploads/2016/03/livability-conger.pdf>



PIONEER JUNIOR COLLEGE
JC2 Preliminary Examination
Higher 1

GEOGRAPHY

8813/01

Paper 1

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 a HB pencil for any diagrams or graphs.
Do no use staples, paper clips, glue or correction fluid.

Answer **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer two questions, each from a different theme.

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.

This document consists of **4** printed pages.

Section A

Theme 3: Geographical Investigation

- 1 Your class was divided into groups of 4 to undertake a fieldwork exercise to investigate the influence of land use on infiltration rates in Singapore.

Your group chose to conduct the study at 2 sites of different landuse. Site A is a built up residential area in Bukit Batok whilst Site B is a nature park in Bukit Batok.

Your group identified one suitable point at each site to conduct the investigation and took measurements twice: on a Saturday morning and early afternoon in June 2017. Your group was given 3 hours to complete each measurement.

The following equipment were provided to measure infiltration rate at the two different land use sites:

- Single-ring infiltrometer comprising a tin can about 30cm tall with a diameter of 10cm with both ends of it removed.
- 1.5 litre bottle of water
- A ruler
- Hammer
- Wooden plank
- Stopwatch

At the respective sites, the tin can was driven into the soil to about 10cm deep by using a hammer onto a wooden plank placed on the rim of the can. A ruler was placed vertically inside the tin can to record the fall in water level.

Water was poured to a depth of 10cm. Measurements of the remaining depth of water was taken every 15 minutes to compute the infiltration rate. At the same time constant top-ups of water were carried out to maintain a regular head of water above soil.

Your group also collected soil samples from both sites. It was deduced that the soil collected from Site A was clay whilst the soil collected at Site B was sand.

Resource 1 shows photographs of Sites A and B where the study was conducted. Resource 2 shows data collected on infiltration rates at Sites A and B. Resource 3 shows photographs of the soil samples collected at both sites.

- (a) With reference to Resource 1, suggest a suitable hypothesis for your group [1]
investigation.
- (b) Explain how your group would minimise the impact of your investigation differently [5]
at the two sites shown in Resource 1.
- (c) With reference to Resource 2, sketch a line graph to represent the infiltration rates for [5]
Site A and Site B over time respectively. Suggest 2 reasons why this method may be
better than the one depicted in Resource 2.
- (d) Your group concluded that some of the infiltration data collected may not be [7]
completely reliable and/or accurate.
Explain how the process of data collection could be improved.
- (e) Evaluate the usefulness of Resource 2 and Resource 3 in helping to understand the [7]
influence of landuse on infiltration rates in Singapore.

Section B**Theme 2: Urban Change****Urban Issues in Brazil**

2 Favelas in Brazil refer to slums located within or on the outskirts of the country's large cities. Resource 4 depicts the location of favelas in Brazil. Resource 5 shows a photograph of a favela in Rio de Janeiro. Resource 6 shows changes in service provision in a favela in Rio de Janeiro. Resource 7 shows an article on the relocation of slum dwellers in Rio de Janeiro prior to the World Cup.

- (a)** Describe the location of favelas in Brazil as depicted in Resource 4. [3]
- (b)** Explain the characteristics of favelas as seen in Resource 5. [5]
- (c)** With reference to Resource 5, explain the potential hazards faced by slum dwellers. [4]
- (d)** Account for the changes in service provision in favelas as shown in Resource 6. [5]
- (e)** With reference to Resource 7, evaluate the Brazilian government's strategy of relocating slum dwellers. [8]

Section C

Answer two questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

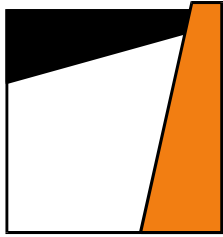
- 3 (a) Explain the possible effects of climate change on human activity. [9]
- (b) 'Utilizing alternative energy sources is the most promising measure to combat against climate change.' To what extent do you agree with this statement? [16]
- 4 (a) Explain the atmospheric and surface conditions necessary for the development of tropical cyclones. [9]
- (b) 'Soft-engineering strategies are the most effective protection against flooding.' To what extent do you agree with this statement? [16]

Theme 2: Urban Change

- 5 (a) Explain why the ecological footprint of cities vary at different levels of development. [9]
- (b) 'The key to managing waste in cities sustainably is to reduce waste generation.' To what extent do you agree with this view? [16]
- 6 (a) Explain how the issue of **either** crowding **or** fear is produced in cities in countries at high levels of development. [9]
- (b) Assess the success of strategies used to mitigate the issue of **either** crowding **or** fear in the city. [16]

Commented [CKL1]: Same comment as above

Commented [CKL2]: Following from the previous question, would it mean that the student need to evaluate the strategies undertaken by a city in countries of high development?



PIONEER JUNIOR COLLEGE
JC2 Preliminary Examination
Higher 1

GEOGRAPHY
8813/01

Paper 1
Insert

11 September 2017

3 hours

READ THESE INSTRUCTIONS FIRST

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

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

Need a home tutor? Visit smiletutor.sg

Resource 1 for Question 1

Site A



Site B



Resource 2 for Question 1

Data collected from Site A (Residential area)

Time	Infiltration rate (mm/hr)
15 mins	65
30mins	50
45 mins	30
60 mins	15
75 mins	10
90 mins	10
105 mins	10
120 mins	10

Data collected from Site B (Nature Park)

Time	Infiltration rate (mm/hr)
15 mins	125
30mins	110
45 mins	85
60 mins	80
75 mins	75
90 mins	70
105 mins	70
120 mins	70

Resource 3 for Question 1

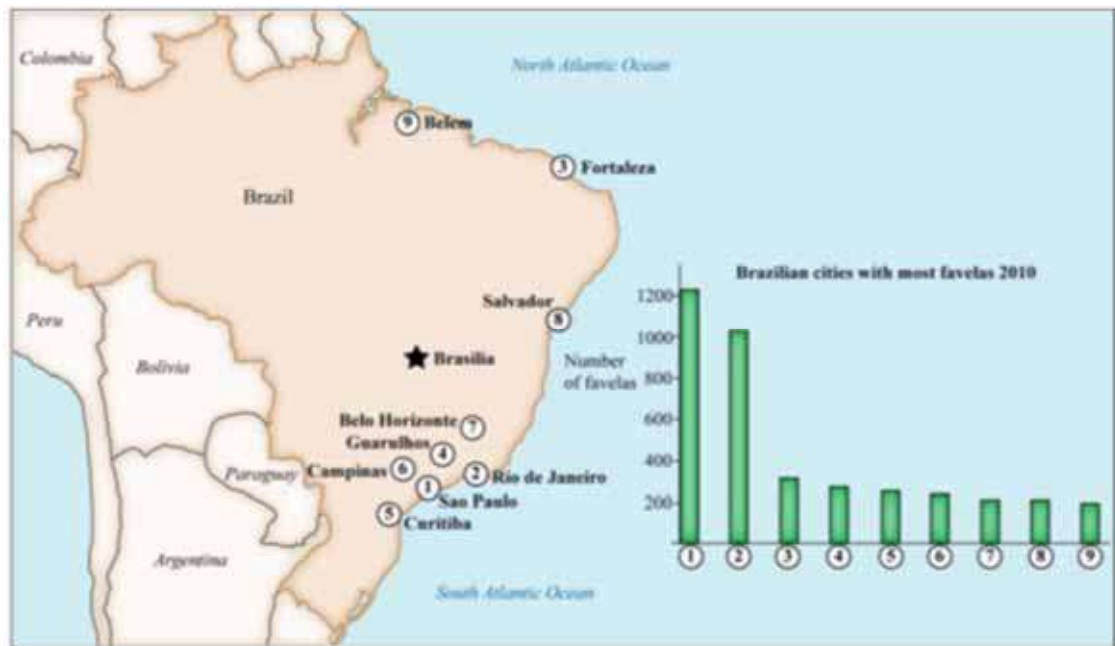
Photograph of soil sample at Site A



Photograph of soil sample at Site B



Resource 4 for Question 2
Location of favelas in Brazil



Resource 5 for Question 2
Photograph of a favela in Rio de Janeiro



Resource 6 for Question 2
Service provision in a favela in Rio de Janeiro, Brazil

	2000	2010
households with:	%	%
electricity	32	80
piped water	71	75
main sewers (sanitation)	11	51

Resource 7 for Question 2
Article on relocation of slum dwellers

The World Cup and the Olympics are being used as a pretext for "social cleansing" as tens of thousands of Rio slum dwellers are driven out to the city periphery, favela residents say. While millions of eyes turn to north-eastern Brazil for the World Cup draw on Friday, poor communities in Rio de Janeiro are still struggling to be heard as they fight against evictions they say are related to the city's mega sporting events.

At least 19,000 families have been moved to make way for roads, renovated stadiums, an athletes' village, an ambitious redevelopment of the port area and other projects that have been launched or accelerated to prepare the city for the world's two biggest sporting events. Countless communities are affected. As was the case in Beijing, London and South Africa before their mega events, the government says such programmes are necessary to modernise the city. Among the best known is Vila Autódromo, which will be the site of the main Olympic stadium and athletes' village.

The authorities insist that due process has been followed and no residents have been forcibly relocated. In Vila Autódromo the mayor said he would move people to a new place and build nice housing projects for people to move to a new area. "People started protesting, saying you couldn't evict people because of the Olympics. So after some time, the city admitted they should not have forced them to go. They talked to each one of the people living in that area, roughly half said they wanted to move and the other half wanted to stay," he said. "Then when they started to see the project going up they realised it was very nice and so they came here to demonstrate and demand to be moved to the new housing! The city talked to everyone."

This is refuted by residents. And in less prominent cases, residents complain of being harassed by officials and engineers who tell them their homes are not safe. In some cases, this is true. Thousands have died over the years in the floods and landslides that affect many river and hillside favelas during the annual rainy season.

Adapted from: <https://www.theguardian.com/world/2013/dec/05/world-cup-favelas-socially-cleansed-olympics>

END

H1 GEOGRAPHY PRELIMS 2017 MARKING GUIDE

Theme 3: Geographical Investigation

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

Possible responses can include:

- Site A would have a lower infiltration rate than Site B
- The residential area in Bukit Batok would have a lower infiltration rate than the nature park.

Award 1 mark for a suitable hypothesis.

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

Indicative content:

- At the nature park → minimize impact on the ecosystem through measures such as:
 - Minimize the removal of vegetation when driving the tin can into the soil
 - After removing the tin can at the end of investigation, ensure soil is evened out
 - Avoid littering at the nature park
- At the residential area → greater concern will be minimizing social impacts
 - Minimize disturbance to residents by conducting investigation away from pathways/ avoid obstructing pathways
 - Minimize noise when conducting investigation as residential blocks are within close proximity

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of geographical investigation methods and potential damage they might cause at both sites with a thorough explanation of strategies used to alleviate these. Reflects a good understanding of the context of the investigation and of work in the field.
2	3–4	Response demonstrates good knowledge of geographical investigation methods and their potential damage to the fieldwork sites. Provides an explanation of ways to minimise this damage, which may be limited in depth and detail or apply mostly to only one site. Some of the response may address generic fieldwork problems not relevant to the context of the investigation.
1	1–2	Response shows some knowledge of relevant geographical investigation methods and the ways in which they may cause damage at the two fieldwork sites. Strategies mentioned in the response may be generic to fieldwork but of limited relevance to the given context.
0	0	No creditworthy response.

- (c) **With reference to Resource 2, sketch a line graph to represent the infiltration rates for Site A and Site B over time respectively. Suggest 2 reasons why this method may be better than the one depicted in Resource 2.** [5]

- Award 3 marks for a valid line graph depicting the infiltration rates for both sites. Marks awarded for title, accurate proportion, accurate labelling of axis and line graphs.

2

- For reasons, point marked. Award 1 mark for each valid reason
 - Able to see infiltration over time better visually
 - Able to provide a better comparison across both sites as it is represented in 1 diagram

(d) **Your group concluded that some of the infiltration data collected may not be completely reliable and/or accurate. [7]**
Explain how the process of data collection could be improved.

Indicative content:

- Conduct investigation on more than one day as conditions may change based on rainfall events
- Repeat experiment at 2 different sampling points to increase reliability
- Use a double ring infiltrometer instead as it can minimize lateral flow of water
- Pick a shaded spot to conduct investigation to minimize water loss through evaporation which can affect accuracy of data

Level	Marks	Descriptors
3	6-7	Response demonstrates accurate knowledge of infiltration data collection methods. Issues with both accuracy and/or reliability of these and relevant improvements. Reflects a good understanding of context of the investigation and of data collection techniques
2	3-5	Response demonstrates good knowledge of infiltration data collection methods. Provides an explanation of issues relating to reliability and/or accuracy with some reference to possible improvements. Description may be limited in depth and detail. Some of the response may focus on generic fieldwork issues and improvement and not relevant to the context of investigation.
1	1-2	Response shows some knowledge of relevant data collection methods. Some reference is made to issues with accuracy and reliability but may recommend inappropriate or irrelevant improvement or provide incorrect explanation of methods. Response may be of limited relevance to the given context.

(e) **Evaluate the usefulness of Resource 2 and Resource 3 in helping to understand the influence of landuse on infiltration rates in Singapore. [7]**

Indicative content:

- Opinion/stand?
- How has it improved understanding?
 - Data collected has shown that landuse has a significant impact on infiltration rate as depicted in Resource 2. For nature park, infiltration took place for a longer time before reaching capacity whilst for the residential area, it took a much shorter time. (105 mins vs 90mins). Infiltration rate was also higher for nature park (max of 125mm/hr) compared to residential area (max of 65mm/hr)
 - Collecting soil samples as shown in Resource 3, has shown that soil type can also play a significant role in affecting infiltration at different landuses. Sandy soil collected in the nature park allows more water to pass through as it has larger pore spaces, allowing more infiltration to take place. On the other hand, clay has small pore spaces and swells up when it absorbs water, slowing down the entry of water into the soil attributing to the low infiltration rate as well as reaching of infiltration capacity.
- However, there are limitations....
 - Other factors may also have affected the infiltration rate (compaction, slope, previous rainfall events)

3

- In terms of data collection scale (too few locations), location (choice of landuses), frequency
- Sum up, reiterate stand.

Level	Marks	Descriptors
3	6-7	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	3-5	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	1-2	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.

Section B

Theme 2: Urban Change

Urban Issues in Brazil

- 2 (a) Describe the location of favelas in Brazil as depicted in Resource 4. [3]

Possible responses:

- Cities with the most favelas are concentrated in the eastern coast of Brazil.
- Largest concentration of favelas are in Sao Paulo and Rio de Janeiro which have about 1200 and 1000 favelas respectively
- Most of the favelas are located in a cluster in SE Brazil with 6 of them in close proximity to each other

Point marked. 1 mark for each valid point.

- (b) Explain the characteristics of favelas as seen in Resource 5. [5]

Indicative content:

- Overcrowded with houses located at very close proximity to each other due to large population sizes
- Located on steep hillside (hazardous/unfavourable land) as favela dwellers are probably unable to afford proper housing
- Haphazard structure of houses with lack of proper roofing due to lack of finances of slum dwellers

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of characteristics of favelas. 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 characteristics of favelas. 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 characteristics of favelas. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.

(c) **With reference to Resource 5, explain the potential hazards faced by slum dwellers. [4]**

Possible responses can include:

- Destruction to property and loss of lives due to landslides as steeper hillslopes are more susceptible
- Overcrowded conditions can lead to easy transmission of diseases (health hazards)
- Exposed cabling wires can pose fire/electrocution hazard

Point marked. Any 2 well explained hazards for 2 marks each.

(d) **Account for the changes in service provision in favelas as shown in Resource 6. [5]**

Indicative content:

- In 10 years, there has been significant improvement in service provision where households with electricity has more than doubled from 32% to 80%, households with sewers have increased by more than 4x from 11% to 51%
- However, though households with piped water was the highest in 2000 at 71%, there was only a minimal increase of 4%
- The significant improvement to service provision could be due to government efforts to upgrade slums (due to increase in funds available from rapid economic development), NGO/international organizations efforts in recent decades to embark on bottom up initiatives to improve the quality of slums.
- However, with increasing demands of water as well as water scarcity, piped water provision could have seen the least improvement though the % are relatively high for a favela.

Level	Marks	Descriptors
3	5	Response demonstrates accurate knowledge of service provision in favelas. 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 service provision in favelas. 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 service provision in favelas. Explanation lacks detail. Overall the response does not address the context of the question. No reference made to resource.

(e) **With reference to Resource 7, evaluate the Brazilian government's strategy of relocating slum dwellers. [8]**

Indicative content:

- Opinion/stand?
- Benefits of relocation: improves the image of the city, modernises the city to attract more tourists/investments in events such as the World Cup and Olympics. Relocates residents from hazardous areas which are exposed to floods and landslides which can improve their living environment and quality of living.
- Drawbacks: However, residents are forcibly evicted from these areas and economic concerns are prioritised over social needs. Relocation may affect their way of lives as new housing may be located at the outskirts/unfamiliar areas.
- Sum up and weigh points, reiterate stand.

Level	Marks	Descriptors
3	7-8	<p>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.</p> <ul style="list-style-type: none"> Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders.
2	4-6	<p>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.</p> <ul style="list-style-type: none"> Provides and evaluation, which may be limited in depth and insufficient evidence and support used. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> 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	<p>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.</p> <ul style="list-style-type: none"> Provides little or no evaluation. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> 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.

Section C
H1 generic level descriptors for 9m SEQ sub-part (a)

Level	Marks	Descriptors
3	7-9	Response is consistently analytical and explanatory rather than descriptive. There is a clear focus on the question. Depth of relevant knowledge and understanding exemplified throughout. The response is coherent and the use of terminology is accurate.
2	4-6	Response includes analysis and explanation but is generally dominated by description for weaker responses. Response reflects relevant knowledge and understanding of the question. Response is structured and organised satisfactorily but may be unclear in parts. Use of terminology is generally accurate.
1	1-3	Response does not address the requirements of the question fully. Depth of knowledge and understanding shown is limited. 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

H1 generic level descriptors for 16m SEQ sub-part (b)

Level	Marks	Descriptors
4	13 – 16	Response shows strong evaluative elements. Evaluation is relevant and comprehensive. Response fully addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and well support by relevant material. Use of terminology is accurate.
3	9 – 12	Response displays a sound evaluative element. Response addresses the question and features accurate knowledge, reflecting depth of understanding. The argument or discussion is coherent and supported by relevant material. Use of terminology is relevant and mostly accurate.
2	5 – 8	Response has some elements of evaluation but is broadly descriptive. Response exemplifies knowledge and understanding of the question and is generally relevant. The weakest responses may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Use of terminology is inconsistent though generally accurate.
1	1 – 4	Response shows little or no evaluation. Response lacks focus on the question and may 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 terminology.
0	0	No creditworthy response.

Theme 1: Climate Change and Flooding

3 (a) Explain the possible effects of climate change on human activity. [9]

Indicative content:

Candidates should demonstrate an understanding of impacts of climate change on human activities in terms of economic, social and environmental aspects. Economic aspects can include effects on livelihoods such as agriculture and fishing. Social aspects can include damages to property, loss of lives, increased prevalence of diseases like malaria etc. Environmental aspects can include quality of living environment which may be affected by heatwaves/droughts/floods etc

A higher level response will acknowledge spatial variations in these effects, where people living in lower income countries are likely to be more susceptible to the effects of climate change due to increased vulnerability and risk.

Levels marked using H1 generic level descriptors for 9m SEQ sub-part (a).

(b) 'Utilizing alternative energy sources is the most promising measure to combat against climate change.' To what extent do you agree with this statement? [16]

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.

Levels marked using H1 generic level descriptors for 16m SEQ sub-part (b).

4 (a) Explain the atmospheric and surface conditions necessary for the development of tropical cyclones. [9]

Indicative content:

- In explaining the development of tropical cyclone, atmospheric conditions need to be explained clearly and should be clearly delineated from surface conditions.
- A well-annotated diagram of tropical cyclone showing the structure and various atmospheric and surface conditions for its development is a must for this question.
- A higher level response will analyse how these conditions lead to spatial differences in where cyclones develop or how these conditions are exacerbated due to climate change and greater warming of ocean bodies.

Levels marked using H1 generic level descriptors for 9m SEQ sub-part (a)

(b) 'Soft-engineering strategies are the most effective protection against flooding.' To what extent do you agree with this statement? [16]

Indicative content:

- Soft engineering strategies include flood abatement (the afforestation of watersheds, contour ploughing in the river basin, etc.) and flood diversion (diversion spillways into floodplains and wetlands).
- Besides evaluating the effectiveness of such strategies, other strategies can be expected (choose) to develop the evaluation. Other strategies (both in the urban area and its catchment) include prediction e.g. using past events to indicate scale of threat, preventative planning - e.g. avoid building on flood plains, adaption (e.g. build settlements on stilts), early warnings (improved communications) and evacuation drills, hard engineering strategies which include the construction of embankments (levees), channel deepening and straightening, use of gabions, overflow or relief channels, storage areas, dam construction.
- A higher level response should consider a diverse range of strategies. Candidates could agree with the statement and provide justification where soft engineering strategies were successful and highlight instances where other strategies failed. Alternatively, candidates could explain how hard engineering strategies work and in instances where they don't, these are often exceptions than the norm. Candidates could also disagree with the statement and emphasise how successful

examples of flood management always include both hard and soft engineering strategies.

Levels marked using H1 generic level descriptors for 16m SEQ sub-part (b).

Theme 2: Urban Change

5 (a) Explain why the ecological footprint of cities vary at different levels of development. [9]

Indicative content:

- Candidates should be able to explain the concept of ecological footprint which is a quantitative assessment of all the biophysical resources needed to support the consumption of particular groups of people, a country, or city, for example, in terms of the raw materials and energy used to extract, produce and transport manufactured goods and for their disposal. It is typically expressed in terms of hectares of biologically productive area (of world average productivity) that are required to support that activity.
- Ecological footprint of cities show variations at different levels of development. London's ecological footprint for instance is estimated to be 125 times its actual size and in Calgary, Canada estimated footprint is a high of 9.8 hectares. City-based consumers and industries based in wealthy nations have the capacity to draw resources from far beyond their immediate regions and have increasingly appropriated the carrying capacity of rural regions in other nations, with little apparent regard for the environmental impact of their actions.
- Among developing countries, the urban imprint is generally less far-reaching, but nevertheless exerts a fundamental influence on ecosystems within the city region e.g Jakarta overabstracting water
- Therefore due to increased waste generation as well as resource consumption, cities in developed countries tend to have a larger ecological footprint.
- A higher level response could draw on examples of cities at different levels of development and analyse/weigh the causal factors behind these variations and include spatial variations

Levels marked using H1 generic level descriptors for 9m SEQ sub-part (a)

(b) 'The key to managing waste in cities sustainably is to reduce waste generation.' To what extent do you agree with this view? [16]

Indicative content:

- Candidates should be able to discuss strategies of waste management and consider the benefits and drawbacks as well as limitations posed in reducing waste generation.
- Answers should draw on cities at different levels of development to analyse the effectiveness of strategies.
- Besides, reducing waste generation through recycling/takeback programmes, answers can also include landfills and incineration as a complementary strategy to waste management.
- Link must be made to concepts of sustainability (is it sustainable in the long run?, is it environmentally pollutive?, is it feasible? etc)
- A higher level response could look at the spatial variations when managing waste sustainably as countries at different levels of development are likely to face differing issues/concerns

Commented [CKL1]: Same comment as above

6 (a) Explain how the issue of either crowding or fear is produced in cities in countries at high levels of development. [9]

Indicative content:

For fear in the city:

- Answers may consider how cities at high levels of development (e.g. economic, social, environmental) may host factors which contribute to fear. There are several sources of fear in the city (e.g. crime and terrorism).
- Fear may be derived from known or actual risk, for example in relation to the experience of crime or the interpretation of published crime statistics, or in terms of the perception of crime. Perception depends on the interplay of elements including the characteristics of the individual, the physical environment, past experience, the representation of crime in the media, etc.
- Fear of terrorism may be associated with particular strategic locations, such as government buildings or airports; with certain religious or cultural activities; or be identified with certain groups of city residents or city visitors.
- Fear in the city may also be defined in part in relation to gender, such as for a woman travelling around or living in the city on her own, and age, where the young and the elderly may be less secure and more vulnerable to fear.
- A higher level response will identify traits or characteristics associated with cities at high levels of development and make explicit links to how these contribute to fear in cities. For instance, a city with a high level of economic development may raise the international profile of the city and makes it a possible target for terrorists and hence increased fear amongst residents in the city.

Levels marked using H1 generic level descriptors for 9m SEQ sub-part (a)

(b) Assess the success of strategies used to mitigate the issue of either crowding or fear in the city. [16]

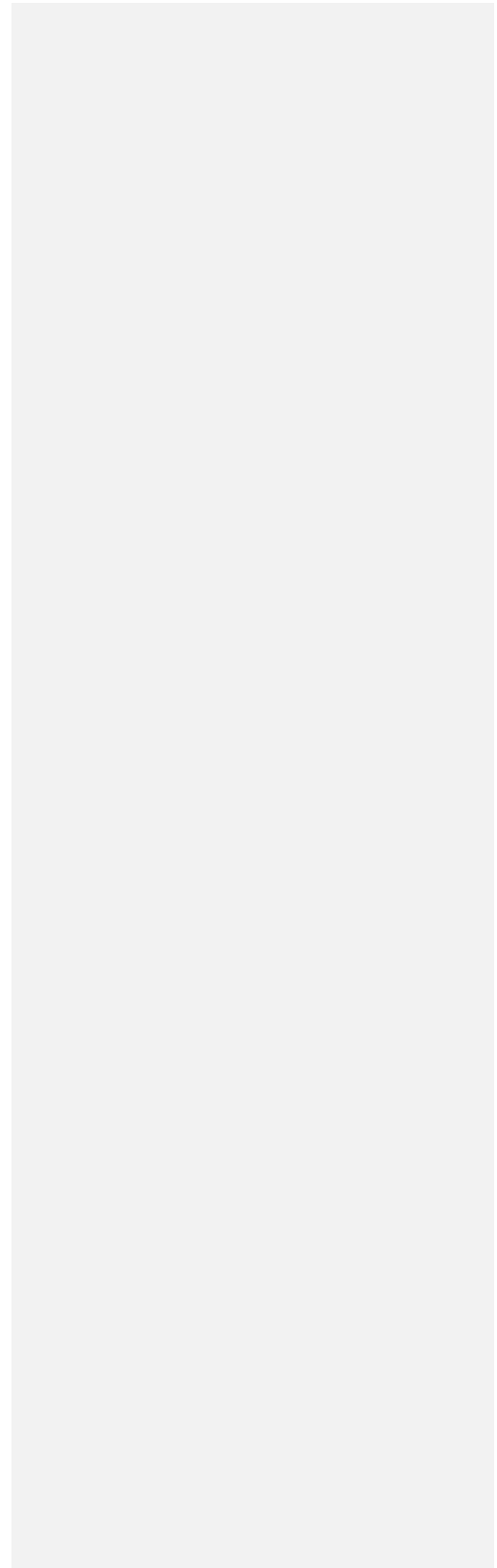
Indicative content:

Having established the factors which contribute to fear in the city in part (a), candidates would now explain how to better cope with fear.

- For fear in the city, strategies to cope with fear include public information services, and control of the media; enhanced legal powers and law enforcement; and public safety strategies, from a visible presence of armed police on city streets and at airports and seaports, to investment in 'safe' living environments such as the provision of street lighting/street cameras to reduce crime or strengthened border controls to seek to reduce the threat of terrorism.
- Answers should include a discussion of both successes and failures in mitigating the chosen issue (crowding or fear).
- A higher level response could look at the effectiveness of strategies with reference to 1-2 specific case studies. Another possible approach could be to analyse the application of selected strategies in different cities and account for their success(es) and failure(s).

Levels marked using H1 generic level descriptors for 16m SEQ sub part (b)

Commented [CKL2]: Following from the previous question, would it mean that the student need to evaluate the strategies undertaken by a city in countries of high development?





SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2017
Higher 1

GEOGRAPHY

8813/01

Paper 1

Wednesday
13 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 **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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.
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 3 : Geographical Investigation

- 1 A group of university students wanted to examine living conditions of slums in Lagos (Nigeria). For their investigation, they chose two slum neighbourhoods, Makoko and Ijora Oloye. They carried out their fieldwork investigations between June and October 2010.

The study population consisted of individuals above 15 years and living permanently in Makoko and Ijora Oloye. Sampling techniques were used to select households across different socio-economic background in the two study locations. A questionnaire survey was used to interview the respondents of the sample households to seek information on both quantifiable and non-quantifiable factors, which included migration, household annual income, and living and health conditions. The questionnaire surveys were administered via face-to-face interviews.

Resource 1 shows the location of the two slum neighbourhoods, Makoko and Ijora Oloye. Resource 2 features selected demographic characteristics. Resource 3 shows the perceptions of living conditions in the two slum neighbourhoods.

- (a) With reference to Resources 1 and 2, outline the challenges associated with selecting these two slum neighbourhoods for the investigation. [4]
- (b) Using Resource 2 and your own knowledge, suggest **three** reasons why the questionnaire surveys were administered via face-to-face interviews. [6]
- (c) Explain why Resource 2 **may not** be an accurate representation of the demographic characteristics in both slum neighbourhoods. [4]
- (d) Suggest **one** limitation of the data representation method shown in Resource 3. [5]
Propose and sketch an alternative data representation method to represent the different perceptions of challenges of living in the two slums.
- (e) Beyond questionnaire surveys, suggest other ways to collect data to investigate the living conditions in the two slums. [6]

Section B**Theme 1 : Climate Change and Flooding****Flooding in Cagayan de Oro city (Philippines)**

- 2** Resource 4 shows the flooded area and affected population of Cagayan de Oro city in the Philippines in December 2011. The city of Cagayan de Oro is located in the Mindanao Region of the Philippines. The Cagayan River flows into the Macajalar Bay passing through the city. On 16 December 2011, Tropical Storm Sendong passed through the region, an area seldom frequented by typhoons, causing massive flooding. Resource 5 shows land use along the Cagayan River. Resource 6 shows before and after the flooding satellite pictures of a stretch of the Cagayan River. Resource 7 shows a flood control project along a stretch of the Cagayan River.
- (a)** Using Resource 5, describe the locations worst affected by flooding. [3]
 - (b)** With the help of Resources 5 and 6, show how river flooding has been promoted. [5]
 - (c)** Suggest reasons, using Resource 5 and your own knowledge, why river flooding in the region will become more frequent and intense in future. [4]
 - (d)** With reference to Resource 6, examine the effects of floods within the Cagayan River floodplain. [6]
 - (e)** Assess the effectiveness of the flood alleviation measure depicted in Resource 7. [7]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1 : Climate Change and Flooding

- 3 (a) Explain why the ITCZ (inter tropical convergence zone) is important in the understanding of tropical climates. [9]
- (b) To what extent are the climatic effects of tropical monsoons different from that of tropical cyclones? [16]
- 4 (a) Explain **three** different types of evidence for past climate change. [9]
- (b) To what extent do you agree that it is easier to adapt to climate change than to mitigate against it? [16]

Theme 2 : Urban Change

- 5 (a) Explain how the issue of crowding **or** fear is produced in cities in countries at high levels of development. [9]
- (b) Assess the success of strategies used to try to mitigate the issue of either crowding **or** fear in the city. [16]
- 6 (a) Explain the urban issues affecting the aged community in countries at different levels of development. [9]
- (b) "Improving mobility in the city is the first step towards creating an age-friendly city." [16]
To what extent do you agree with the statement?

End of paper



SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2017
Higher 1

GEOGRAPHY

8813/01

Paper 1
INSERT

Wednesday
13 Sept 2017
3 hours

READ THESE INSTRUCTIONS FIRST

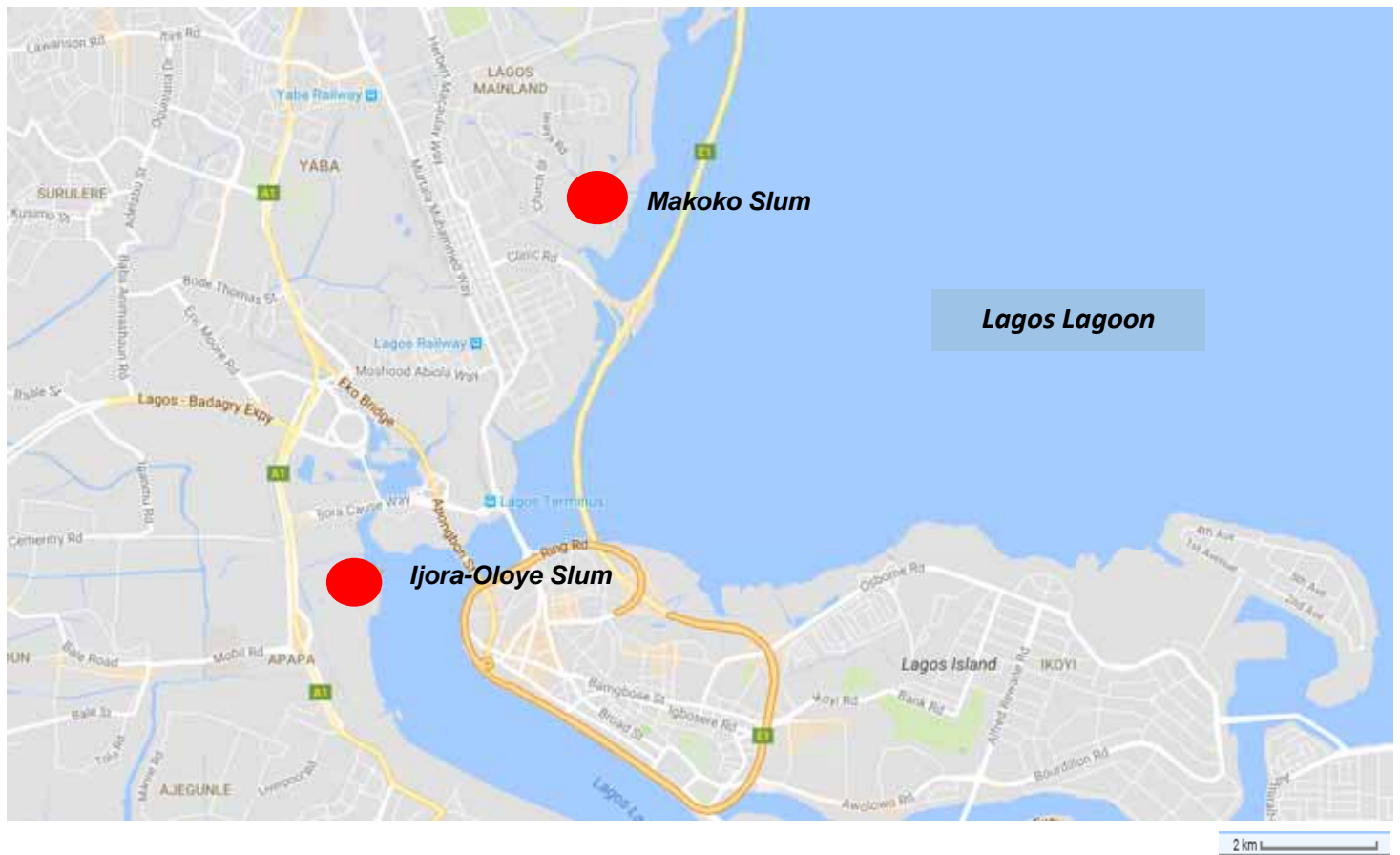
This insert contains all the Resources referred to in the questions.

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Resource 1 for Question 1

Location of two slums in Lagos (Nigeria)



Resource 2 for Question 1

Selected Demographic characteristics of the respondents

Characteristics	Ijora-Oloye (n* = 805)	Makoko (n * =815)
Migrants (ie : not born in the slum neighbourhood)	45%	49%
Sex		
Male	43.2%	51.2%
Female	56.8%	48.8%
Ethnic Group		
Yoruba	92.7%	77.8%
Igbo	2.1%	15.3%
Hausa	2.4%	0.5%
Others	2.8%	6.4%
Annual household Income		
Less than USD 320	56.9%	3.4%
USD320 ≤USD 640	6.0%	2.3%
USD 640 ≤ USD 1,280	0.7%	0.9%
USD 1,280≤ USD 2,560	0.4%	0.5%
USD 2,560 ≤ USD 5,120	0.1%	0.2%
Don't know	1.1%	2%
No response	34.8%	90.7%
Education		
No formal schooling	22.2%	13.1%
Less than Primary school	4.1%	4%
Primary school completed	27.8%	24.7%
Secondary school completed	34.3%	46.3%
Post secondary school completed	6.3%	8.7%
Postgraduate degree	0.7%	1.3%
Quranic	3.5%	1%
No response	1.0%	1%

**n denotes sample size*

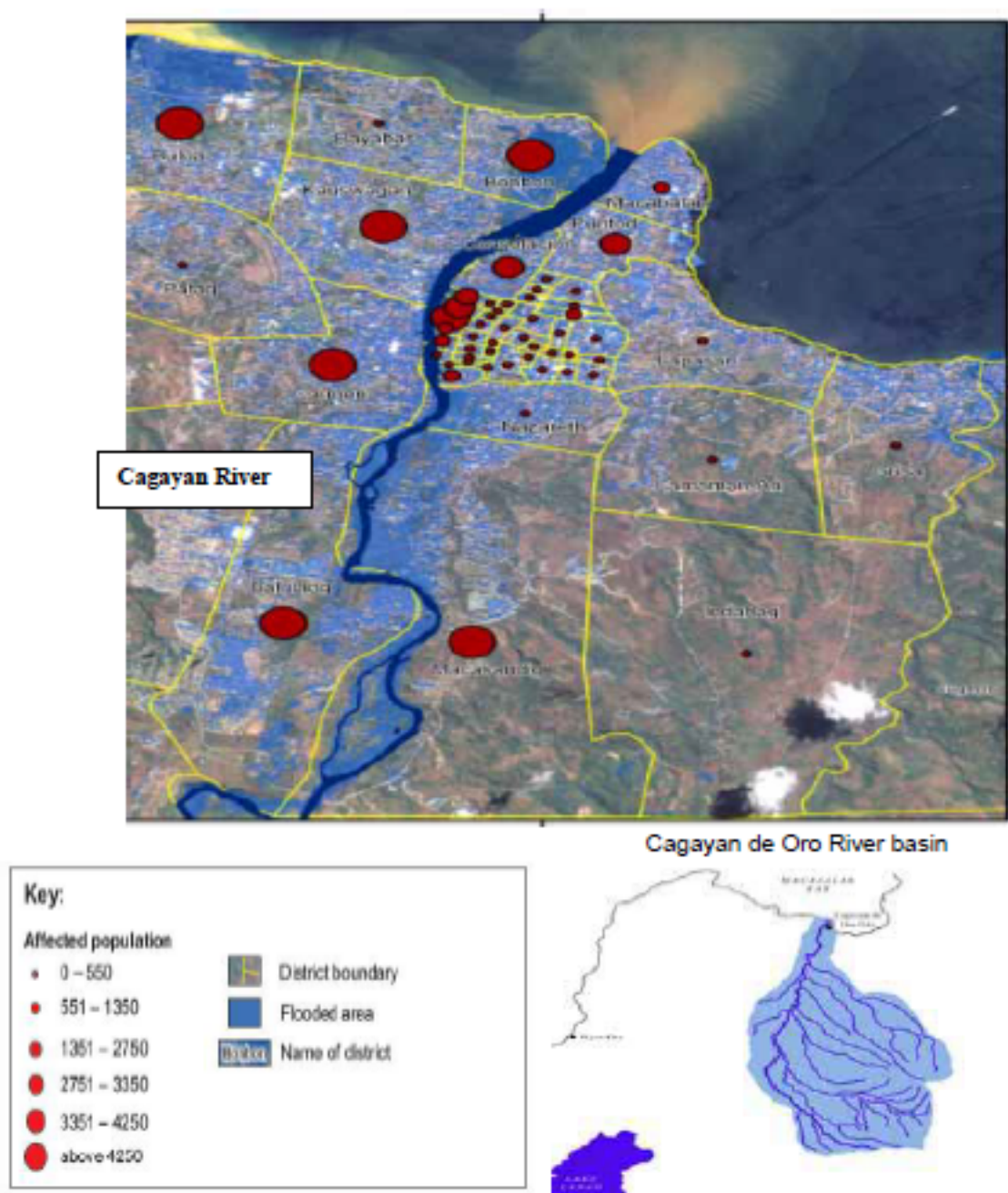
Resource 3 for Question 1

Challenges of living in a slum in Makoko and Ijora-Oloye

Challenges of living in a slum	Percentage of slum population
Unclean latrine facilities	54.4%
Perennial flood	30.1%
Unemployment	22.6%
Mosquitos	89.3%
Lack of electrical supply	63.2%
Extreme heat	55.7%

Resource 4 for Question 2

Flooded area and affected population in Cagayan de Oro city (Philippines), December 2011



Resource 5 for Question 2

Land use along the Cagayan River



Resource 6 for Question 2
Before and after the flooding satellite pictures of a stretch of the Cagayan River



Resource 7 for Question 2
Flood control project along a stretch of the Cagayan River



End of Insert



ST ANDREW'S JUNIOR COLLEGE
J2 Prelims
Higher 1

GEOGRAPHY

8813/01

Paper 1

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.

Answer **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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 or part question.

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Section A

Theme 3: 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 2: Urban Change****Traffic Congestion in Paris**

- 2 Resource 4 shows the level of car dependence in the Paris region of France, a developed country in Europe, in 2001. Resource 5 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 6 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 4. [6]
- (b) With reference to Resources 4 and 5, explain when and why traffic congestion occurs in Paris. [5]
- (c) With the help of Resource 5, suggest and explain some possible **social** and **economic** impacts of traffic congestion in Paris. [6]
- (d) With the help of Resources 5 and 6, 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. [8]

Section C

Answer **two** questions from this section.

Either Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3 (a) With the help of examples, explain why the arid tropics are arid. [9]
- (b) To what extent is it possible to identify a tropical climate? [16]
- 4 (a) Explain how the inputs and outputs of a drainage basin system influence the flows within the system. [9]
- (b) To what extent can the effects of floods be managed? [16]

Theme 2: Urban Change

- 5 (a) With the help of examples, explain what is meant by *urban metabolism*. [9]
- (b) Assess the success of the strategies used to manage non-hazardous solid waste in one or more cities you have studied. [16]
- 6 With reference to **one** social group you have studied:
- (a) Explain the issues that affect the urban liveability for this social group. [9]
- (b) Assess the extent to which strategies to help improve urban liveability for this social group can be considered effective. [16]



ST ANDREW'S JUNIOR COLLEGE
J2 Prelims
Higher 1

Geography

Paper 1 Data Response Questions
INSERT

8813/01

13 September 2017

3 hours

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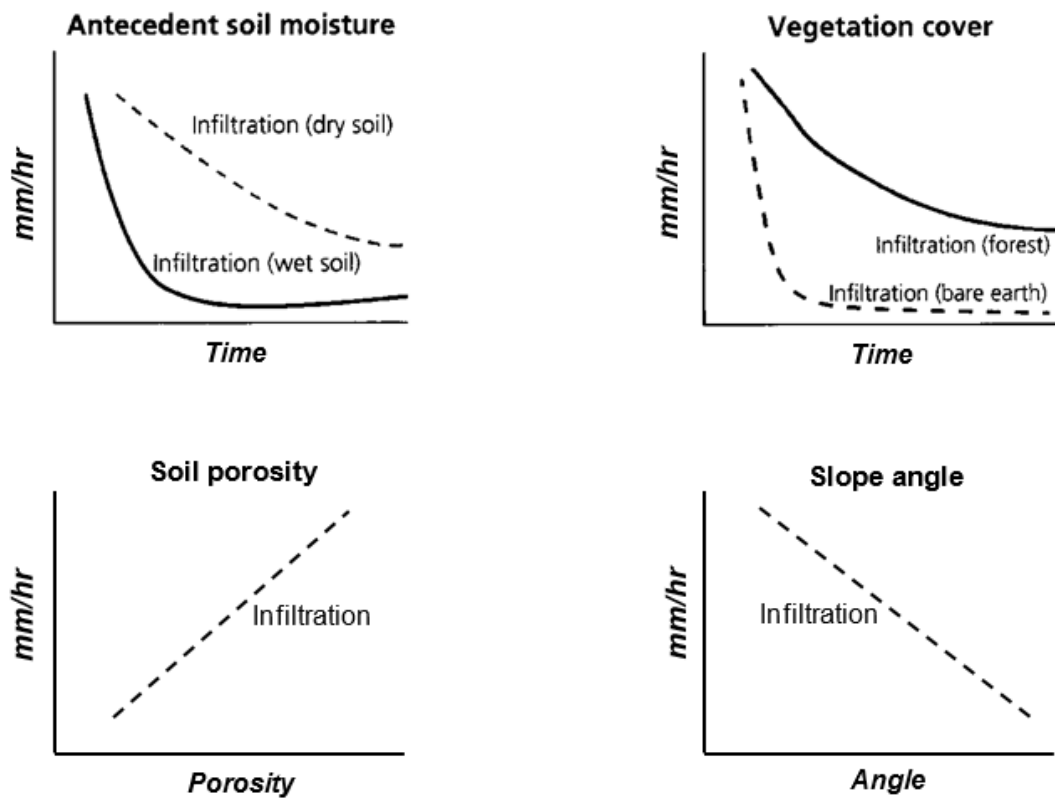
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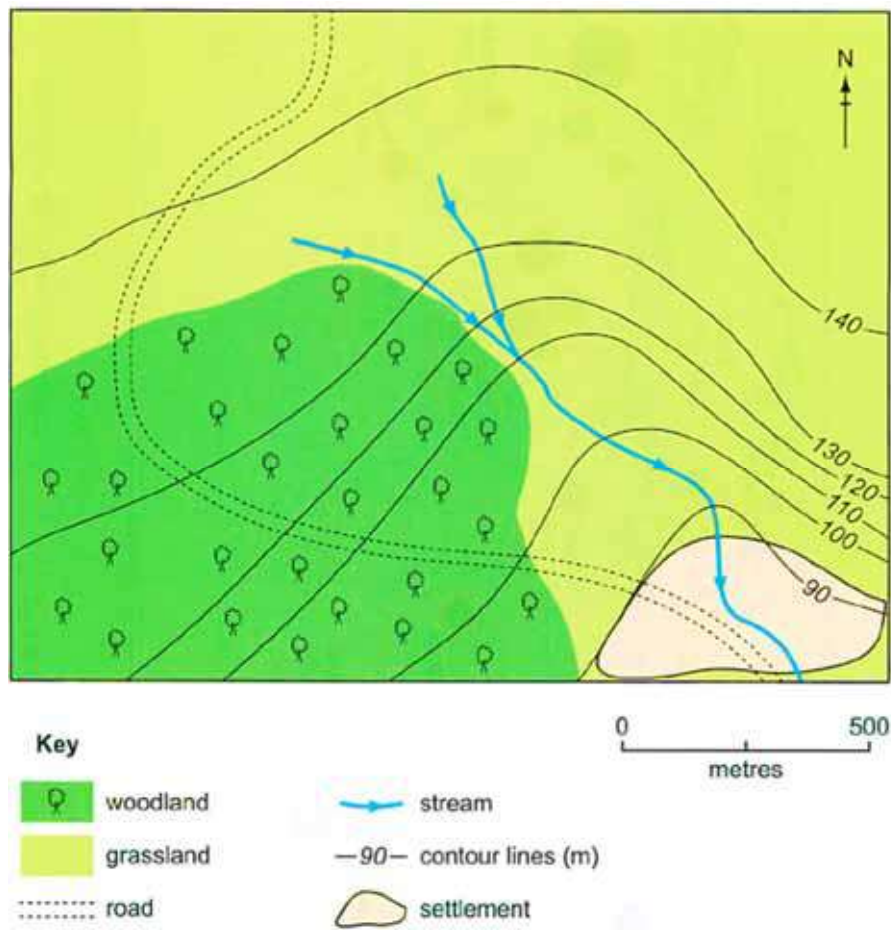
Resource 1 for Question 1

Factors that influence infiltration



Resource 2 for Question 1

A small drainage basin in the UK



Resource 3 for Question 1

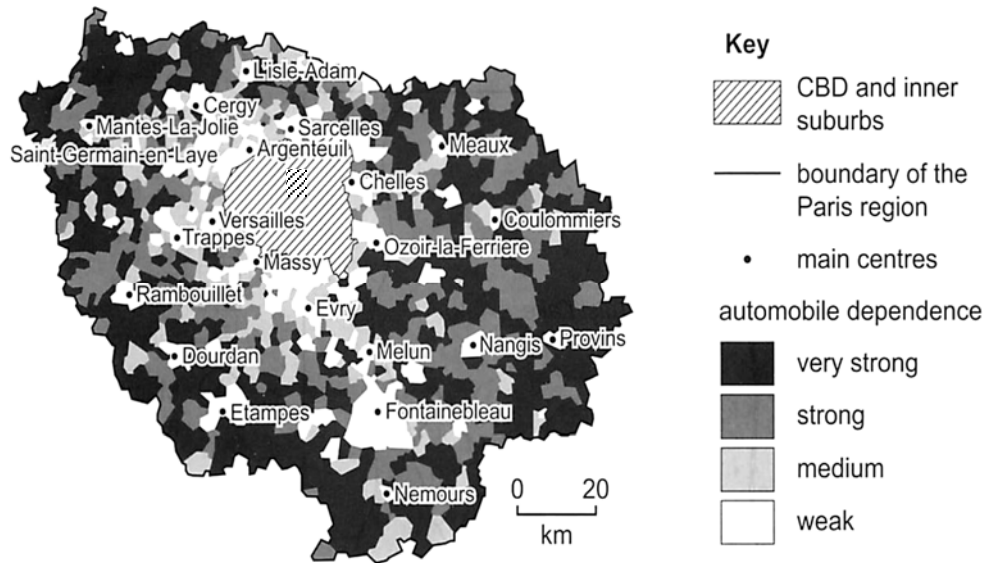
Recording sheet for the measurement of infiltration rates

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

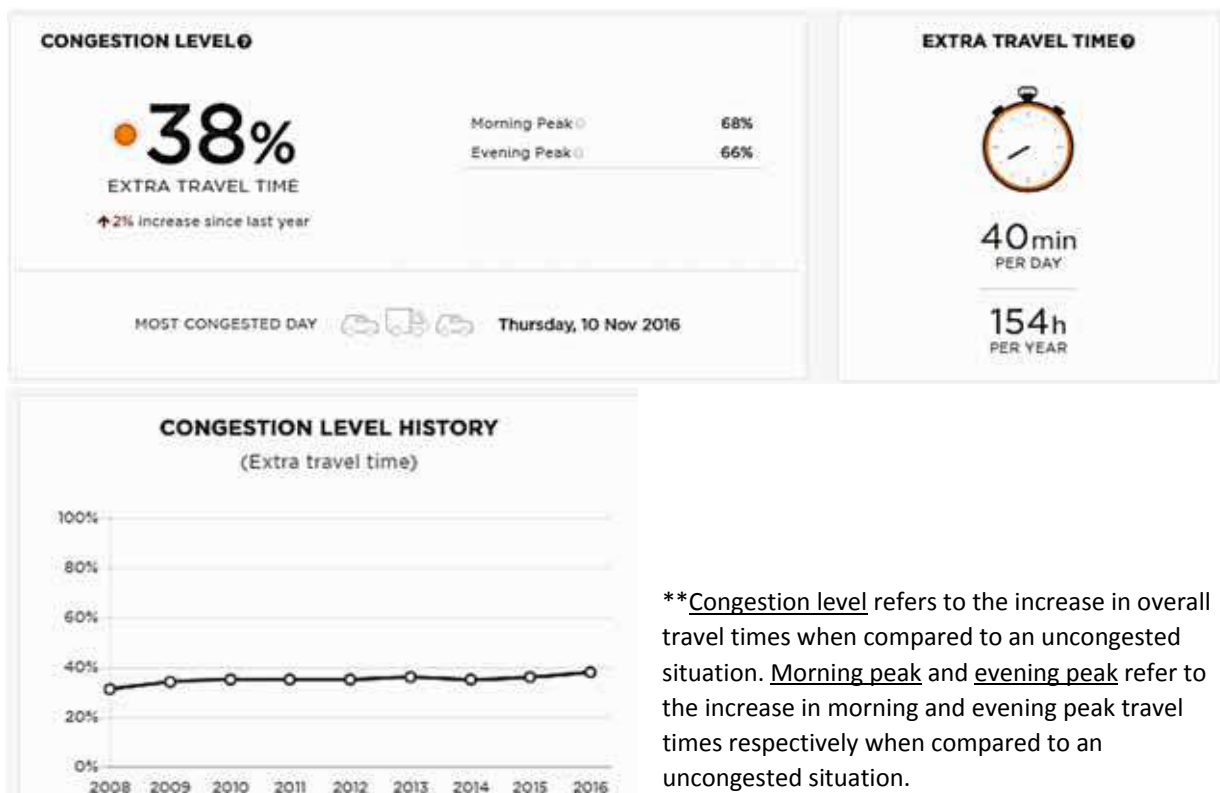
Car dependence* in the Paris region of France, 2001



*Car dependence is defined as the need for the use of a car to travel to work, shop and see friends and family.

Resource 5 for Question 2

Statistics** related to traffic congestion in Paris



Resource 6 for Question 2**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.



VICTORIA JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H1 GEOGRAPHY

8813/01

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 **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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**Theme 3: Geographical Investigation**

- 1** Officials from the Detroit City Authority has engaged 25 university students to conduct a survey to investigate the perception of safety in Downtown Detroit (the Central Business District) to understand liveability in the area. For two weeks, they worked in groups of five and stationed themselves near the office buildings within Downtown Detroit at different times of the day. The respondents were approached through random sampling.

Resource 1 shows the map of Downtown Detroit and the survey locations. Resource 2 shows the distribution of the survey respondents according to where they live. Resource 3 shows a section taken from the questionnaire which was distributed to the respondents. Resource 4 shows the percentage of respondents who indicated 'Agree' or 'Strongly Agree' to questions asked in the survey.

- (a) Explain how the students could improve the accuracy of the data collected. [4]
- (b) Describe the ethical issues the students may have faced while carrying out the investigation. [4]
- (c) Describe how the students can minimise the risks they may have faced while carrying out the investigation. [4]
- (d) Explain the strengths and limitations of the data presentation technique shown in Resource 4. [5]
- (e) Evaluate whether the data they collected for the survey is adequate for the investigation. [8]

Section B**Theme 1: Climate Change and Flooding****Blue Nile River discharge in Khartoum city, Sudan**

- 2** Khartoum is a city in Sudan where two rivers, the Blue Nile River and the White Nile River, meet to form the River Nile. Resource 5 shows the climate of Khartoum. Resource 6 shows the monthly discharge of the Blue Nile as measured at Gauging Station X located along its course. Resource 7 shows the landuse map of Khartoum.
- (a) With reference to Resource 5, describe the climate characteristics of Khartoum. [4]
- (b) Account for the climate of Khartoum as shown in Resource 5. [6]
- (c) With reference to Resource 6, describe the changes in discharge of the Blue Nile River at Khartoum. [3]
- (d) With reference to Resources 5 and 7, account for the changes in discharge of the Blue Nile River at Khartoum as shown in Resource 6. [6]
- (e) With reference to Resource 7, explain how the change in discharge of the Blue Nile River from July to September may impact the population in Khartoum. [6]

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3 (a) Explain how El Niño may have varying impacts on precipitation in different parts of the tropics. [9]
- (b) Discuss the extent to which precipitation vary between the different climate zones in the humid tropics. [16]
- 4 (a) Explain the factors that influence the development of tropical cyclones between June and September. [9]
- (b) To what extent are hard engineering strategies more effective than soft engineering strategies in managing floods? [16]

Theme 2: Urban Change

- 5 (a) Explain the reasons for urban reimagining in cities in countries at high levels of development. [9]
- (b) To what extent have urban reimagining benefitted everyone? [16]
- 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. [9]
- (b) Discuss the effectiveness of strategies to manage non-hazardous solid waste in urban areas. [16]



VICTORIA JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H1 GEOGRAPHY

8813/01

Paper 1 INSERT

3 hours

READ THESE INSTRUCTIONS FIRST.

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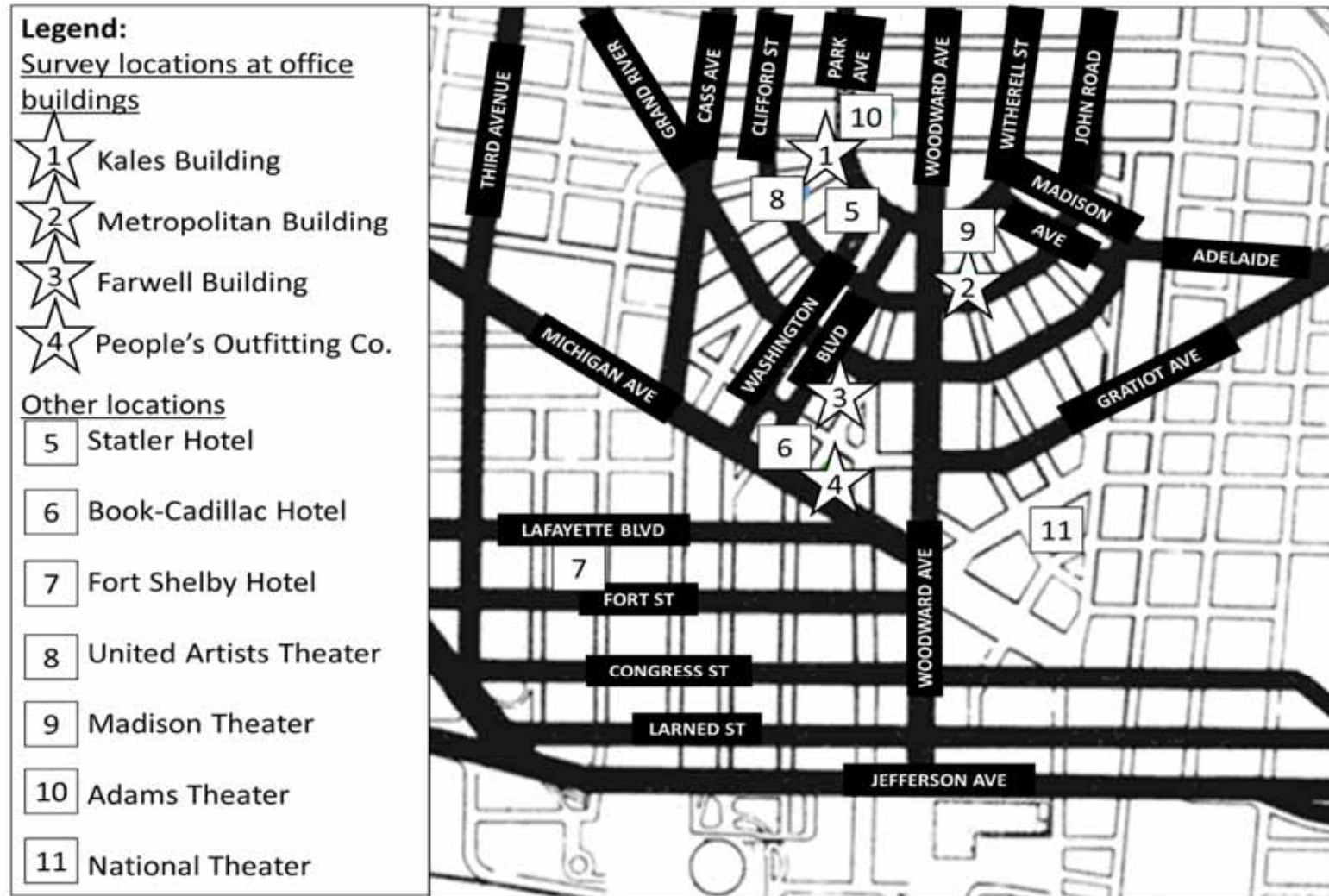
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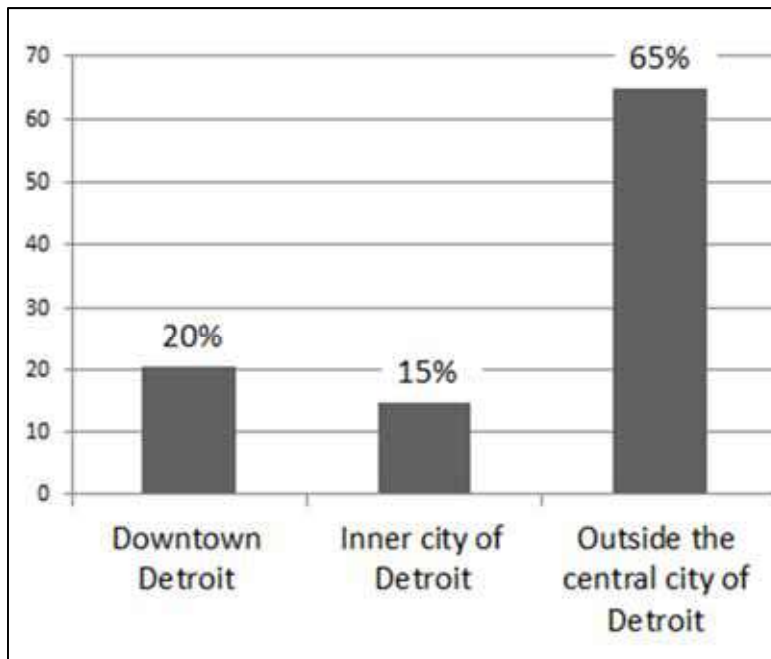
Resource 1 for Question 1

Map of Downtown Detroit and survey locations



Resource 2 for Question 1

Distribution of survey respondents according to where they live (in %)



Resource 3 for Question 1

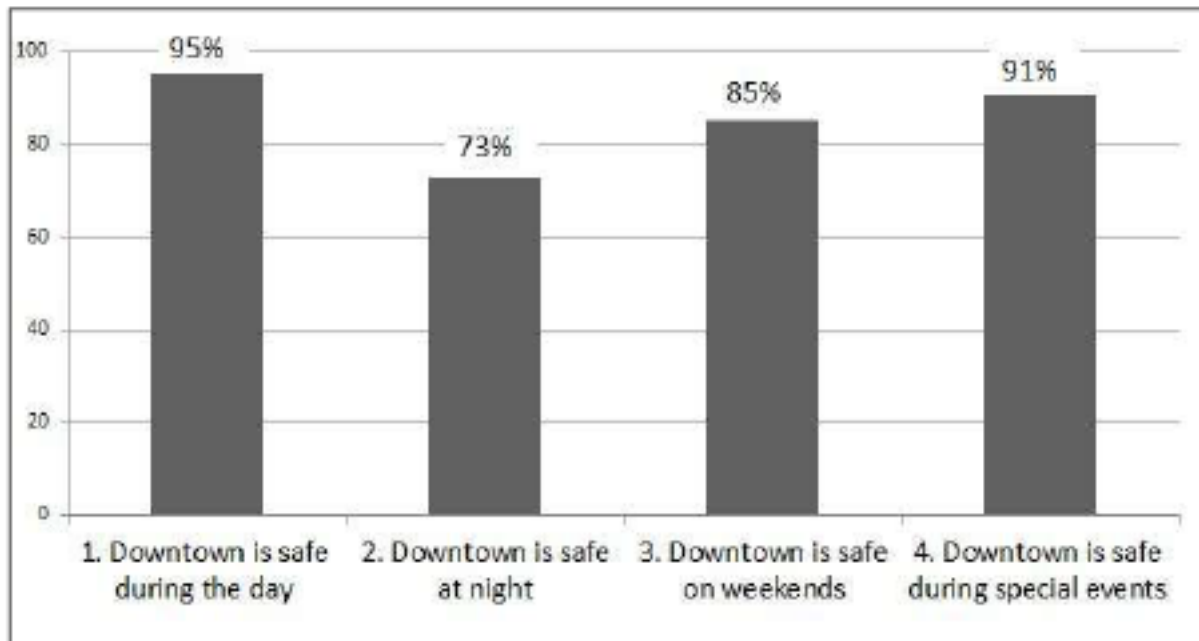
A section taken from the questionnaire

No.		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Downtown is safe during the day					
2	Downtown is safe at night					
3	Downtown is safe on weekends					
4	Downtown is safe during special events					
5	Police presence is sufficient during the day					
6	Police presence is sufficient during evenings and weekends					
7	Police presence is sufficient during special events					

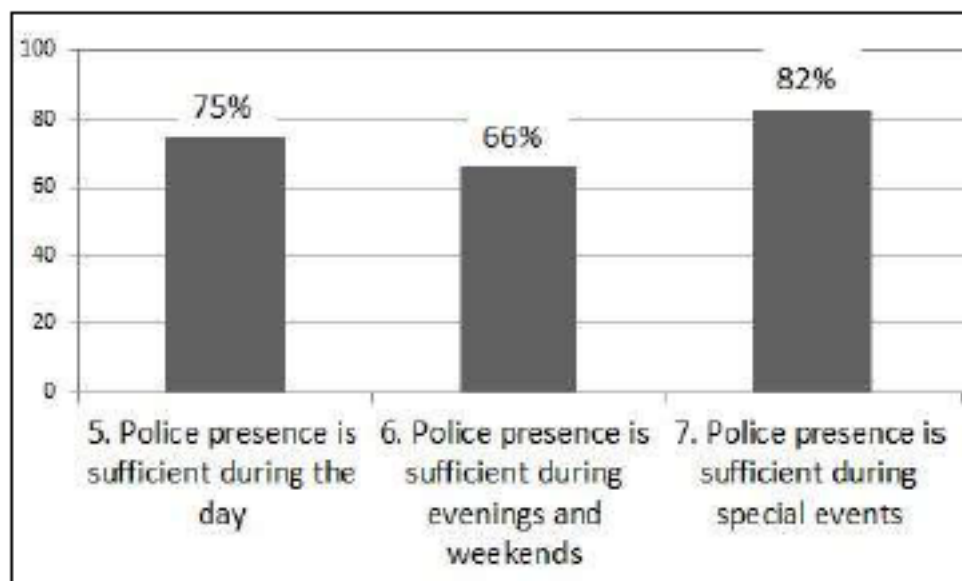
Resource 4 for Question 1

Percentage of respondents who indicated 'Agree' or 'Strongly Agree' to questions asked in the survey

Resource 4A



Resource 4B



Resource 5 for Question 2

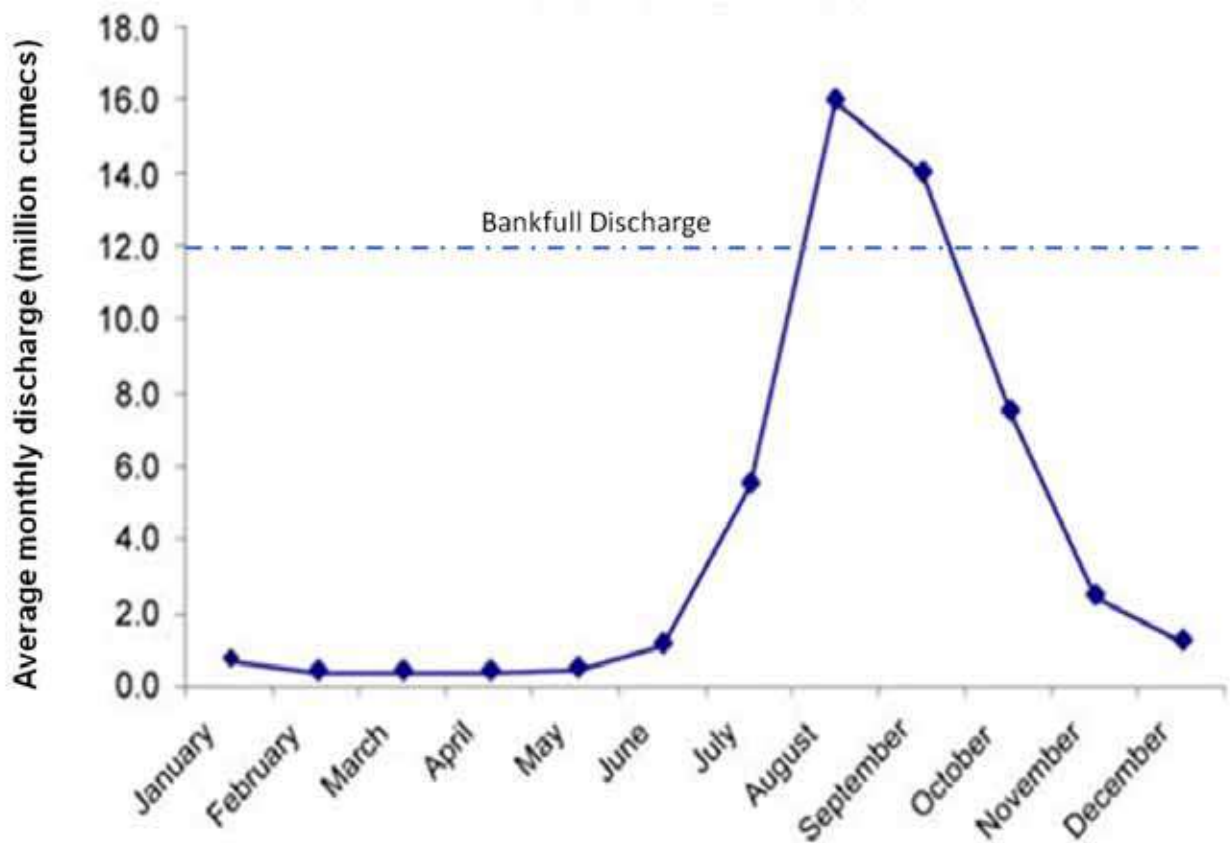
The climate of Khartoum, Sudan

Khartoum, Sudan (15.5°N, 32.6°E)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Temp (°C)	23.3	24.8	28.3	31.5	34.1	34.1	32	30.7	32	32.1	28	24.2
Precipitation/ Rainfall (mm)	0	0	0	0	3	5	41	62	20	4	0	0

Resource 6 for Question 2

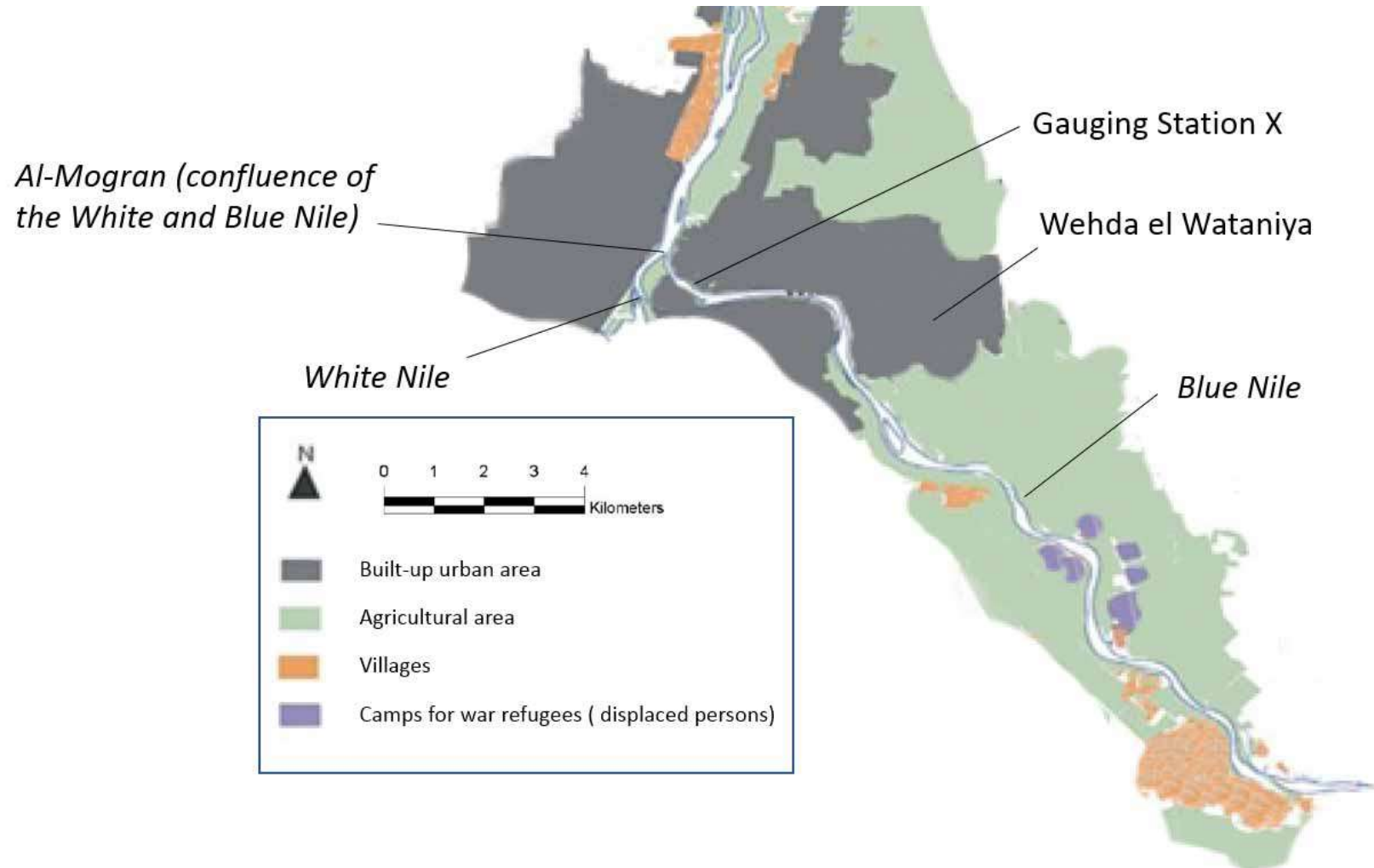
Blue Nile River monthly discharge as measured at Gauging Station X



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Resource 7 for Question 2

Landuse map of Khartoum



YISHUN JUNIOR COLLEGE

JC 2 PRELIMINARY EXAMINATION 2017

H1 GEOGRAPHY

Paper 1

8813/01

25 August 2017
3 Hours

QUESTION PAPER

Additional materials: Answer Paper
1 Insert
World outline map



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 **four** questions in total.

Section A

Answer Question 1.

Section B

Answer Question 2.

Section C

Answer **two** questions, each from a different theme.

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 **4** printed pages

Section A

Theme 3: Geographical Investigation

- 1 A group of 24 18 year-old students from Sutherland, in the southern part of Sydney, Australia wanted to examine liveability in different parts of Sydney. They selected the neighbourhoods of Cabramatta and Penrith for their investigation. They had access to census information about the birthplace of the residents, the houses they stay in, their level of education and the 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 the railway network of Sydney. Resource 2 shows residential density in the Greater Sydney area in 2005 and the birthplace and dwelling type of residents in Cabramatta and Penrith in 2011. Resource 3 shows levels of education and income of residents in Cabramatta and Penrith in 2011.

- (a) With reference to Resource 1, outline why there might be contrasts in liveability between Penrith and Cabramatta.
[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 understand liveability in Penrith and Cabramatta.
[6]
- (d) Suggest a plan for the students to investigate the quality of public transport.
[7]
- (e) For Penrith, sketch one pie chart to represent education levels and one histogram to represent income levels using the information in Resource 3.
[6]

[Turn over

Section B

Theme 1: Climate Change and Flooding

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 2030 and 2100. Resource 7 shows the relationship between carbon dioxide in the atmosphere and human emissions of carbon dioxide from 1880 and 2010.
- (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.
[5]
 - (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 7, and your own knowledge, evaluate the extent to which climate change is caused by anthropogenic activities.
[8]

[Turn over

Section C

Answer **two** questions from this section. **Either** Question 3 **or** Question 4 and **Either** Question 5 **or** Question 6.

Theme 1: Climate Change and Flooding

- 3 (a) Explain the strategies used to manage floods in countries at varying levels of development. [9]
- (b) To what extent do human activities influence the occurrence of floods? [16]
- 4 (a) Account for the rainfall patterns associated with the humid tropical climates. [9]
- (b) To what extent is the weakening of the Walker Circulation the most significant factor in affecting climates in the tropics? [16]

Theme 2: Urban Change

- 5 (a) Explain how sustainable urban development may be measured and monitored in countries of varying levels of development. [9]
- (b) 'Slums are the greatest impediment confronting cities in achieving sustainable urban development'.
- How far do you agree with this statement? [16]
- 6 (a) Explain the various strategies that cities can employ to reimagine itself. [9]

- (b)** Evaluate the effectiveness of strategies in catering to the needs of the disabled in the city.
[16]

- END OF PAPER -

**YISHUN JUNIOR COLLEGE
JC 2 PRELIMINARY EXAMINATION 2017**

H1 GEOGRAPHY

Paper 1

8813/01

**25 August 2017
3 hours**

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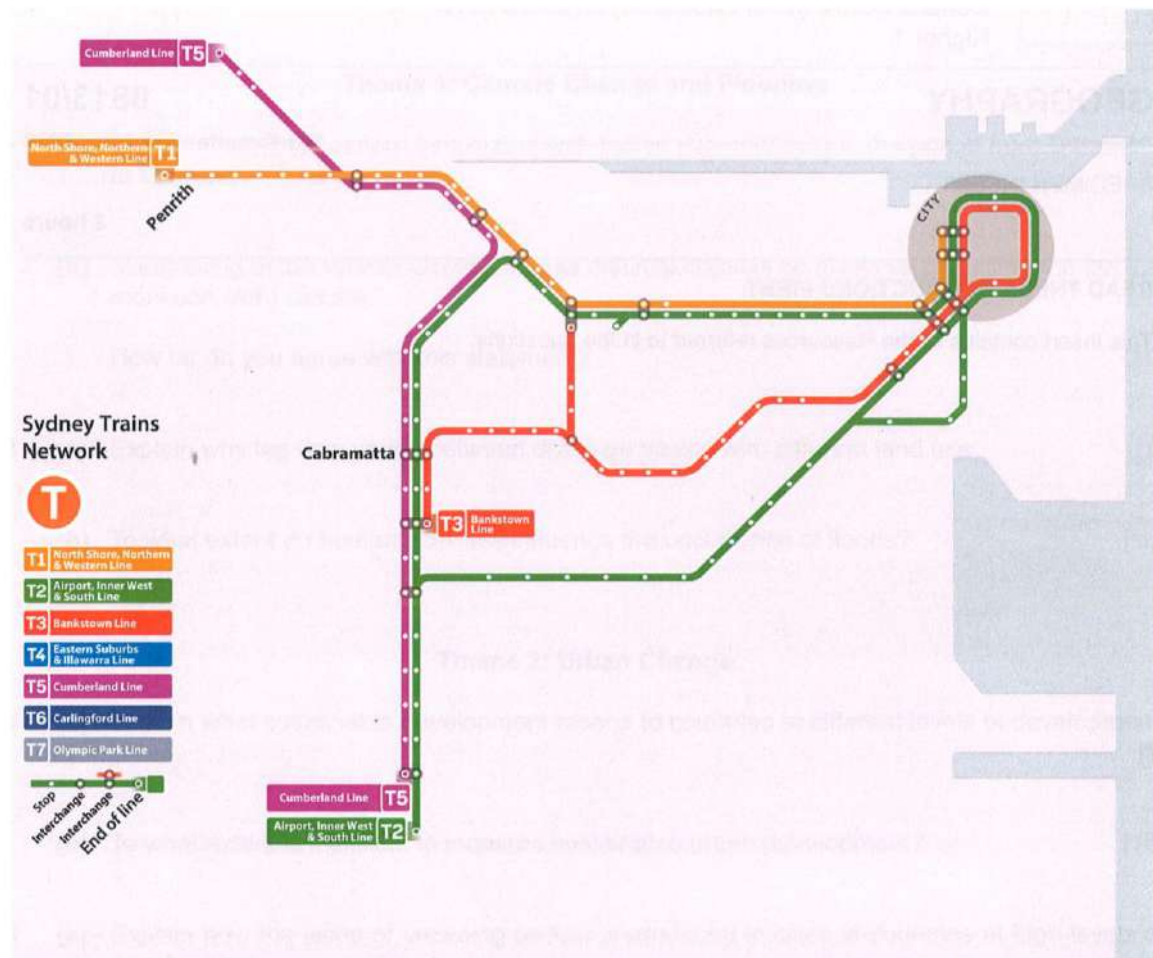
READ THESE INSTRUCTIONS FIRST

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

This question paper consists of **6** printed pages.

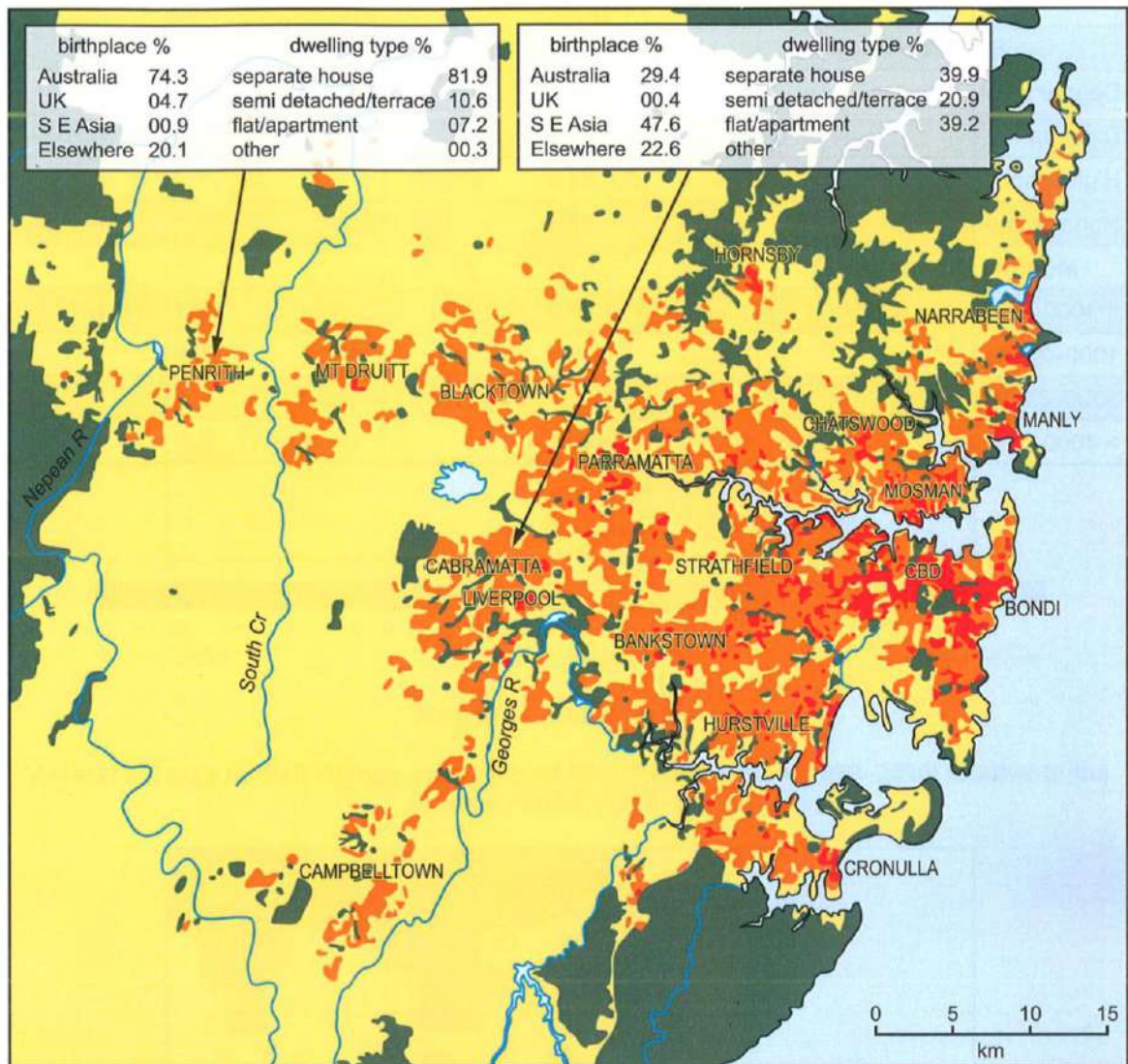
Resource 1 for Question 1

The railway network of Sydney



Resource 2 for Question 1

Residential density in the Greater Sydney area in 2005 and the birthplace and dwelling type of residents in Cabramatta and Penrith in 2011



Key

residential density
(dwellings per hectare)

- > 25
- 9.01-25
- < 9
- national parks and open spaces

[Turn over

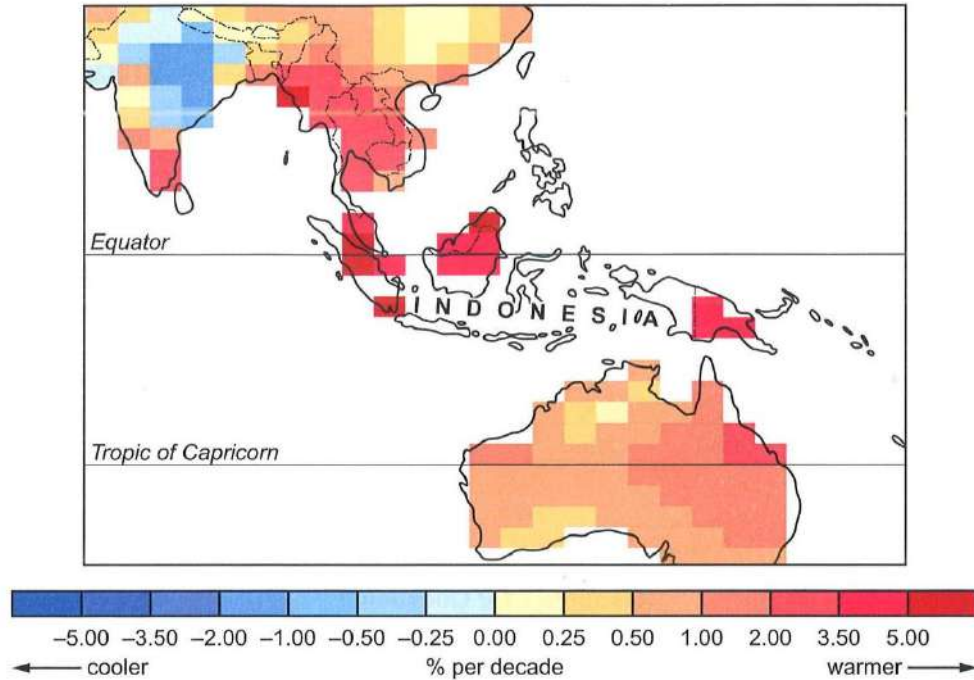
Resource 3 for Question 1

Education and income level of residents in Cabramatta and Penrith in 2011

	Cabramatta %	Penrith %
Education		
Degree level	17.1	24.2
Diploma	11.4	16.2
High school	33.2	26.2
None or low	38.3	33.4
Monthly income (AU\$)		
< 1000	60.9	28.1
1000–2999	36.5	59.9
3000–3999	1.9	8.8
> 4000	0.7	3.2

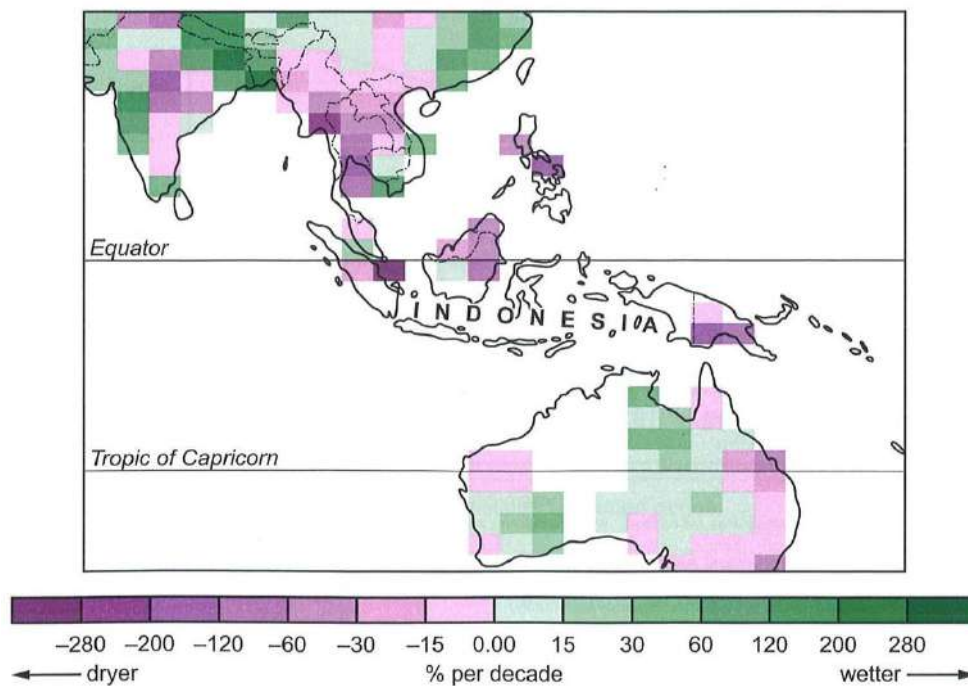
Resource 4 for Question 2

Annual average temperature change over parts of Asia-Pacific region (1968-2006)
relative to the average temperature (1960-1990)



Resource 5 for Question 2

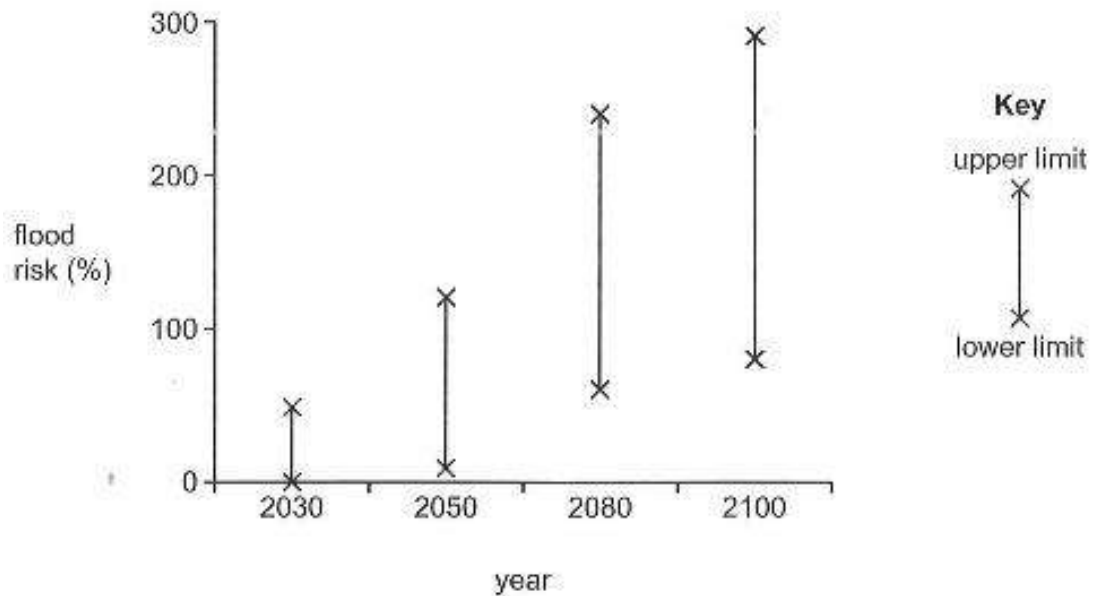
Annual average rainfall change over parts of Asia-Pacific region (1968-2006) relative
to the average rainfall (1960-1990)



[Turn over

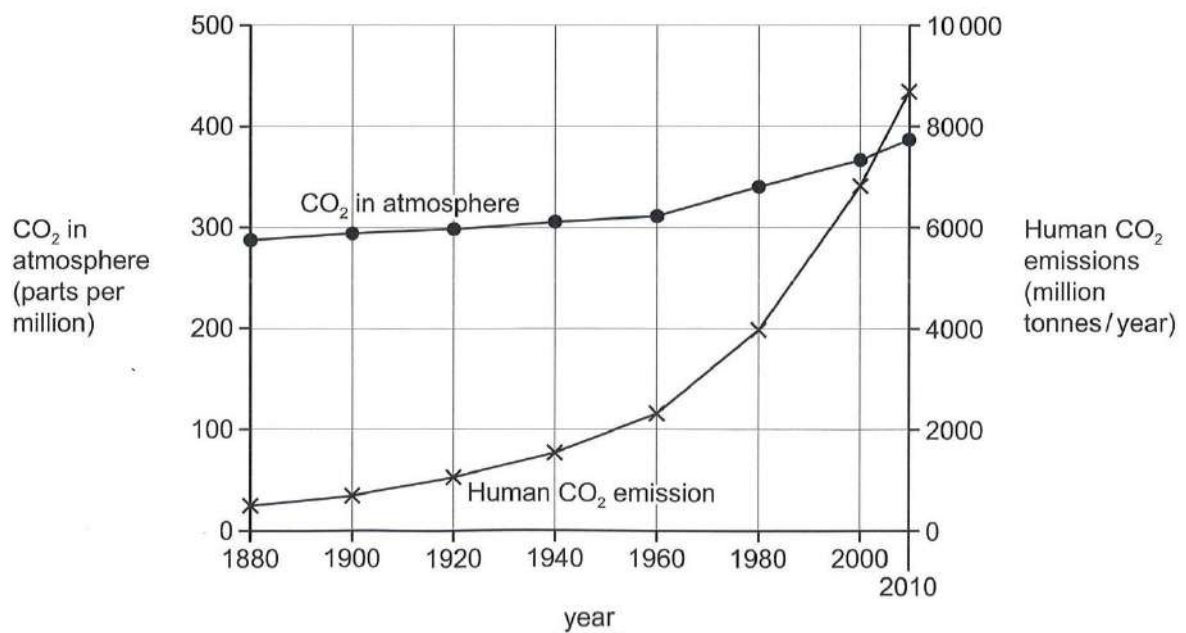
Resource 6 for Question 2

Predicted percentage change in flood risk in Indonesia 2030-2100 if current rainfall change trends continue



Resource 7 for Question 2

The relationship between carbon dioxide in the atmosphere and human emissions of carbon dioxide from 1880-2010



- END -