

# INNOVA JUNIOR COLLEGE JC 2 PRELIM EXAMINATIONS

in preparation for General Certificate of Education Advanced Level **Higher 1** 

GEOGRAPHY 8813/01

Paper 1 27 Aug 2018

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 an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

#### 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.

At the end of the examination, fasten Section A and B with a cover, and fasten Section C together with another cover page.

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 18 year old students from a junior college in Singapore wanted to examine liveability in different parts of the city. They have selected two housing estates, Punggol and Ang Mo Kio for their investigation.

The students wanted to gather information on recreational facilities, and the availability of amenities and services to gain a fuller picture of liveability in both neighbourhoods. They were given two weeks to complete their investigation in June.

The students carried out research on the two housing estates and gained knowledge about the plans to transform Ang Mo Kio into a walking and cycling town. They also managed to obtain data on the train stations located in the area. The students then decided to divide themselves into four teams of 5, with two teams carrying out the investigation in Ang Mo Kio, and another two teams carrying out their investigation in Punggol. They have decided to carry out surveys at the respective train stations on weekdays from 8am to 9am. The questions asked in the survey were:

- "How long have you lived in Ang Mo Kio/Punggol?"
- "Do you think that Ang Mo Kio/Punggol is a good estate to live in?"
- "Are there enough recreational facilities for the residents of Ang Mo Kio/Punggol?"

They planned to ask every 10<sup>th</sup> person who walked past them to do the survey. They planned to obtain 50 responses per housing estate.

Resource 1 shows a map of the towns and estates in Singapore. Resource 2 shows the population and housing characteristics in Punggol and Ang Mo Kio. Resource 3 shows a map of the plan for Ang Mo Kio Walking and Cycling town.

- (a) With reference to Resources 1 and 2, explain **two** reasons why there might be contrasts in liveability between Ang Mo Kio and Punggol. [4]
- **(b)** With reference to Resource 3 and the context provided, explain how your group would minimize potential risk and address ethical concerns in your investigation. [4]
- **(c)** Your group concluded that the method of data collection through the survey may not be completely reliable and accurate.
  - Explain how the process of data collection could be improved. [6]
- (d) Sketch a pie chart to represent the housing type in Punggol using the information in Resource 2. [3]
- (e) Evaluate the usefulness of the data shown in Resources 1, 2 and 3 in helping students understand liveability in Ang Mo Kio and Punggol. [8]

#### **Section B**

#### Theme 1: Climate Change and Flooding

#### Climate Change in developing countries

- 2 Resource 4 shows the changes in greenhouse gas emissions from 1990-2010. Resource 5 shows the Climate Change Vulnerability Index for 2017. Resource 6 shows various statements on climate change from leaders of Small Island Developing States (SIDS).
  - (a) Describe the trend in greenhouse gas emissions from 1990-2010 as shown in Resource 4. [3]
  - (b) Explain how the trend in greenhouse gas emissions shown in Resource 4 can have a long-term impact on the climate. [4]
  - (c) Describe the pattern of vulnerability to climate change shown in Resource 5. [4]
  - (d) With reference to Resources 5 and 6, explain the factors that can affect a country's vulnerability to climate change. [6]
  - (e) With reference to Resource 6 and your own knowledge, suggest strategies to minimise the impact of climate change in developing countries. [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 how the shifting of the Inter Tropical Convergence Zone can affect the climate of countries in the humid tropics.	[9]
	(b)	To what extent is climate the main factor influencing hydrological processes of drainage basins in the humid tropics?	[16]
4	(a)	Explain the factors that can influence the shape of hydrographs in the tropics.	[9]
	(b)	To what extent are hard engineering strategies more effective than soft engineering strategies in managing fluvial floods?	[16]
		Theme 2: Urban Change	
5	(a)	Explain the variations in urbanisation trends across urban areas at different levels of economic development.	[9]
	(b)	Evaluate the effectiveness of strategies to cater to the needs of different social groups in cities.	
		groups in cities.	[16]
6	(a)	With the use of examples, explain the sources of fear OR extent of crowding in cities of highly urbanised cities.	[9]
	(b)	Evaluate the strategies undertaken by governments and communities to cope with fear in the cities OR lessen crowding.	[16]



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**GEOGRAPHY** 

8813/01

Paper 1

27th Aug 2018

**INSERT** 

3 hours

#### **READ THESE INSTRUCTIONS FIRST**

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



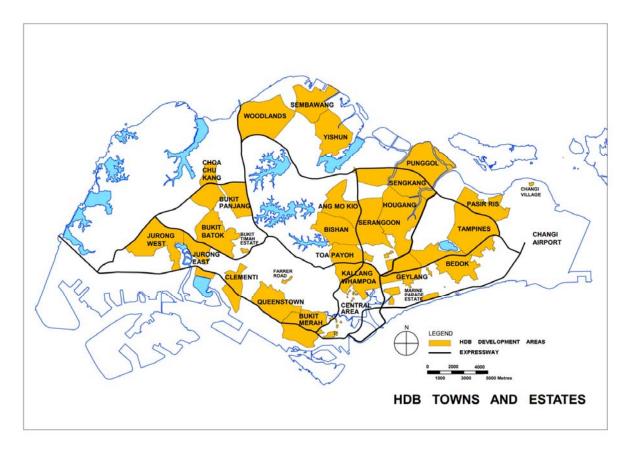
This document consists of 7 printed pages and 1 blank page.



[Turn over

Resource 1 for Question 1

Housing Development Board (HDB) Towns and Estates in Singapore



Source: Housing Development Board, 2014

Resource 2 for Question 1

Population and housing characteristics of Punggol and Ang Mo Kio

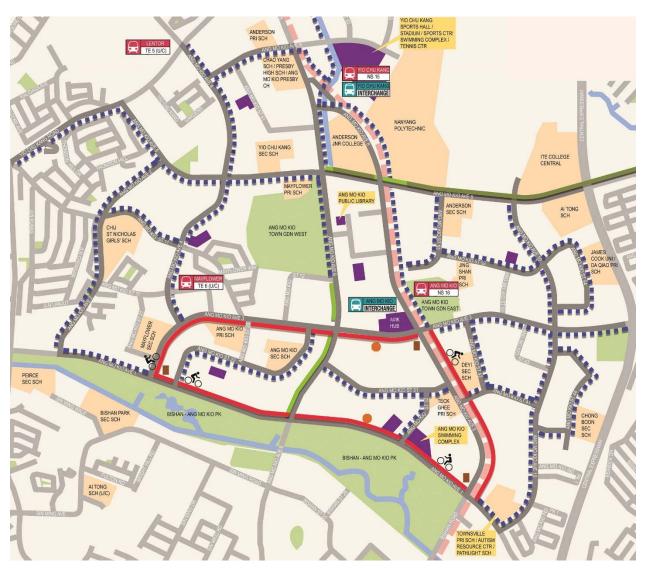
	Punggol	Ang Mo Kio
Age of Town*	Young Town	Mature Town
Population	94,829	144,329
Elderly Population	4,517	24,314
Resident Population by A	ge Group	
Below 15	25%	17.3%
15-44	50%	42.7%
45-64	20.2%	32%
65 and above	4.8%	8%
Housing Type		
1 and 2-room flats	4.5%	10%
3 and 4-room flats	50.4%	77.3%
5-room and executive flats	45.1%	12.7%

<sup>\*</sup> Mature Towns/Estates refer to towns and estates that were developed before the 1980s. Most flats in these towns were built before the 1980s. Young Towns refer to towns that were developed in the 1990s, where development is ongoing.

Source: Housing Development Board, 2014

[Turn over

# Resource 3 for Question 1 Map of plan for Ang Mo Kio Walking & Cycling Town

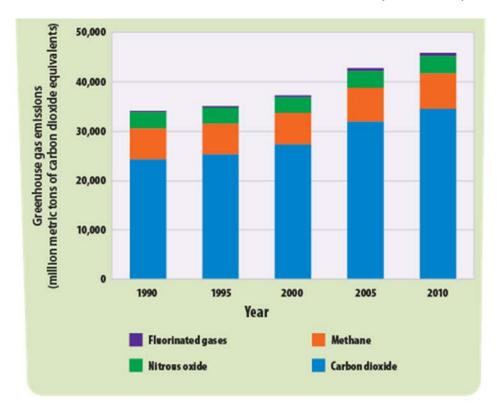




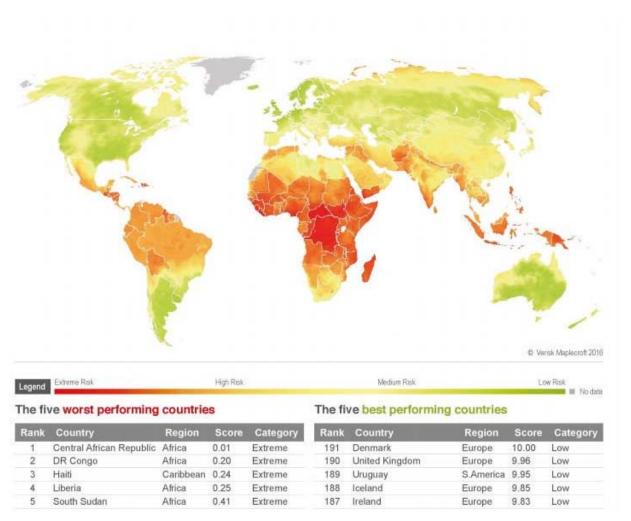
Source: Land Transport Authority website, 2017

Resource 4 for Question 2

Emissions of Green House Gases Worldwide (1990-2010)



# Resource 5 for Question 2 Climate Change Vulnerability Index 2017



#### Resource 6 for Question 2

#### Statements on climate change by leaders of Small Island Developing States

"The Maldives is an archipelago consisting of tiny islands scattered in a vast expanse of the Indian Ocean. Over 80% of the land area have less than one meter above mean sea level, climate change and its associated sea level rise would undoubtedly be a catastrophe and threaten the livelihood of the islanders in the Maldives alike many thousands of others in low-lying island states. Sixteen years ago in April 1987, Maldives experienced unusual high waves causing extensive damage to the islands. Two thirds of the whole Maldives, including the capital island, Malé, was inundated for two days causing extensive damage to the infrastructure. Male International Airport, the only gateway to the Maldives, was closed for two days, causing delays in receiving the relief assistance from the international community, cancellation of tourist arrivals and lot more."

Statement by Mr. Abdullahi Majeed (Maldives) December 2003

"Our Pacific island nations, including my own country, know from bitter experience of cyclones that regularly batter our region, of the disheartening effect of disasters in setting back in a matter of hours hardearned development achievements of many years. SIDS concerns and the vulnerability of our nations are therefore quite real. While we accept the primary responsibility for achieving the goals of the [Barbados] Programme of Action, the reality is that the support of the international community is indispensable to success."

Statement by Tuila'Epa Sailele Malielegaoi, Prime Minister of Samoa, 2004

"As an island nation, Sao Tome and Principe continues to see our very existence threatened by global warming. Our shorelines erode, our national territory shrinks as the seas rise. Is my small country to end up nothing but a tiny volcanic peak sticking up above the waves with the last of our people clinging to the land left unclaimed by the rising sea? The Kyoto Protocol must be implemented by all for the benefit of all."

Fradique Bandeira de Melo de Menezes President, Sao Tome and Principe

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## **IJC H1 GEOG PRELIMS 2018 ANSWER KEY**

#### **Section A**

#### Theme 3: Geographical Investigation

1 A group of 20 18-year old students from a junior college in Singapore wanted to examine liveability in different parts of the city. They have selected two housing estates, Punggol and Ang Mo Kio for their investigation.

The students wanted to gather information on recreational facilities, and the availability of amenities and services to gain a fuller picture of liveability in both neighbourhoods. They were given two weeks to complete their investigation in June.

The students carried out research on the two housing estates and gained knowledge about the plans to transform Ang Mo Kio into a walking and cycling town. They also managed to obtain data on the train stations located in the area. The students then decided to divide themselves into four teams of 5, with two teams carrying out the investigation in Ang Mo Kio, and another two teams carrying out their investigation in Punggol. They have decided to carry out surveys at the respective train stations on weekdays from 8am to 9am. The questions asked in the survey were:

- "How long have you lived in Ang Mo Kio/Punggol?"
- "Do you think that Ang Mo Kio/Punggol is a good estate to live in?"
- "Are there enough recreational facilities for the residents of Ang Mo Kio/Punggol?"

They planned to ask every 10<sup>th</sup> person who walked past them to do the survey. They planned to obtain 50 responses per housing estate.

Resource 1 shows a map of the towns and estates in Singapore. Resource 2 shows the population and housing characteristics in Punggol and Ang Mo Kio. Resource 3 shows a map of the plan for Ang Mo Kio Walking and Cycling town.

(a) With reference to Resources 1 and 2, explain **two** reasons why there might be contrasts in liveability between Ang Mo Kio and Punggol. [4]

#### Possible points:

Resource 1 – Ang Mo Kio is more centralized and nearer to connections in transport routes, Punggol is further at the edges of the island and is not as well-connected to transportation.

Resource 2 – Ang Mo Kio is a mature town whereas Punggol is a young town, which can lead to differences in access to amenities and services for its people.

**(b)** With reference to Resource 3 and the context provided, explain how your group would minimize potential risk and address ethical concerns in your investigation.

[4]

Context - Ethics - ensure the privacy of information of respondents - explain to respondents how their data will be used

Context – Ethics – survey is carried out during rush hour, not to disturb their daily activities and flow of human traffic, make sure to not stand in the path of human traffic and to not pester people to complete the survey

Resource 3 – Risk – many roads and cycling paths – to be wary of dangers from cars and bicycles while carrying out survey in the area around train station

Answer must include at least one risk and one ethical concern.

**(c)** Your group concluded that the method of data collection through the survey may not be completely reliable and accurate.

Explain how the process of data collection could be improved.

[6]

#### Accuracy:

- Timing of survey at peak hour: respondents may mostly be working population and not representative of the demographics of the area.
- Questions that are being asked may not accurately provide the perception of liveability amongst residents in the area.

#### Reliability:

 Sample size may not be large enough (eg: 50 out of 94,829 is only 0.05% of population in Punggol) to provide a representative understanding of liveability

Level	Marks	Descriptors					
3	5-6	Response demonstrates accurate knowledge of survey collection methods, issues with both accuracy and/or reliability of these and relevant improvements. Reflects a good understanding of the context of the investigation and of data collection techniques.					
2	3-4	Response demonstrates good knowledge of survey collection methods. Provides an explanation of issues relating to reliability and/or accuracy with some reference to possible improvements. Some of the responses may focus on generic fieldwork issues and improvements may not be relevant to the context of the investigation.					
1	1-2	Response shows some knowledge of survey collection methods. Some reference is made to issues with reliability and/or accuracy but may recommend irrelevant or inappropriate improvements or provide inaccurate					

		explanation relevance to		•	may	be	of	limited
0	0	No creditwor	<u> </u>					

(d) Sketch a pie chart to represent the housing type in Punggol using the information in [3] Resource 2.

For sketching of line graph, 1 mark awarded for each of the following:

- Title
- Relative accuracy of the pie chart
- Appropriate labels for the different segments
- (e) Evaluate the usefulness of the data shown in Resources 1, 2 and 3 in helping students understand liveability in Ang Mo Kio and Punggol.

Resource 1: Useful in understanding about geographical location of area and transport routes by roads, which can affect liveability.

[8]

Resource 2: Useful in showing housing in the different areas, and the types of housing, which can affect liveability.

Resource 3: Useful in showing the access to amenities in the areas such as schools, parks, library and other recreational areas, and walking and cycling routes to enhance mobility for AMK.

#### However,

- Does not show information on access to amenities for Punggol, which is necessary for understanding of liveability in both areas
- Does not take into account other aspects of liveability, such as income levels or cost of living (economic) or pollution levels such as air pollution or even noise pollution (environment).

Level	Marks	Descriptors
3	7–8	Response demonstrates accurate knowledge and understanding of geographical investigation skills and methods relevant to the given context. 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 relevant to the given context. Provides an evaluation, which may be limited in depth and detail. Response reflects critical thinking skills in general but may not always be relevant to the question.
1	1–3	Response shows inadequate knowledge and understanding of geographical investigation skills and methods relevant to the given context. Provides little or no evaluation. May include material that is irrelevant to the question.
0	0	No creditworthy response.

#### **Section B**

#### Theme 1: Climate Change and Flooding

#### Climate Change in developing countries

- 2 Resource 4 shows the changes in greenhouse gas emissions from 1990-2010. Resource 5 shows the Climate Change Vulnerability Index for 2017. Resource 6 shows various statements on climate change from leaders of Small Island Developing States (SIDS).
  - (a) Describe the trend in greenhouse gas emissions from 1990-2010 as shown in Resource 4. [3]
    - Generally, there has been an increase in greenhouse gas emissions from 1990-2010, from 34,000 to 45,000 million metric tons.
    - The largest increase in greenhouse gas emission is in the emission of carbon dioxide, which increased from 24,000 to 34,000 million metric tons. There is a smaller increase in fluorinated gases, of about 1,000 million metric tons.
    - There is little change in the emission of nitrous oxide and methane from 1990-2010.
  - (b) Explain how the trend in greenhouse gas emissions shown in Resource 4 can have a long-term impact on the climate. [4]
    - As incoming solar radiation reaches the Earth's surface, the heat is absorbed by the land and oceans, with some heat being re-radiated back to space.
    - Some of this outgoing heat is absorbed by the greenhouse gases, and the rest is released back to space. This is known as the greenhouse effect.
    - Resource 4 shows that there has been a rapid increase in greenhouse gas
      emissions. With the increase in greenhouse gases, this would lead to greater
      entrapment of outgoing terrestrial radiation within the Earth's atmosphere.
    - This is also known as the enhanced greenhouse effect. As a result, this will lead to greater heat retention, increased temperatures and a long term effect on global temperature.
  - (c) Describe the pattern of vulnerability to climate change shown in Resource 5. [4]
    - Generally, the countries with the highest vulnerability to climate change are less developed regions within the Tropics.
    - The areas which are most vulnerable are in Central Africa, with countries such as the Central African Republic and DR Congo having the highest scores for vulnerability to climate change at 0.01 and 0.20 respectively.

- Areas which are more vulnerable also include regions such as Southeast Asia, and the Northern section of the South American continent. This includes countries like Haiti, which is also a Small Island Developing State, which has the third highest score for vulnerability at 0.24.
- The areas which are least vulnerable are found in regions such as North America, Europe, Australia and the southern section of the South American continent. These areas tend to be developed and further from the Tropics. This includes countries such as Denmark and the United Kingdom who have the lowest scores for vulnerability.
- (d) With reference to Resources 5 and 6, explain the factors that can affect a country's vulnerability to climate change.

[6]

- [Resource 5] Geographical location located in the Tropics shows a greater vulnerability to climate change. This could be due to impact faced by sea level rise, and greater incidences of extreme weather conditions such as typhoons.
- [Resource 5] Level of development Less developed countries show greater vulnerability. Eg: Haiti. Mix of Geographical location (low lying small island vulnerable to sea level rise, and lack of financial resources to mitigate and adapt effectively to risks). [Resource 6] Relies a lot on international community for aid.
- [Resource 6] Other geographical characteristics low lying area: vulnerable to sea level rise.

Level	Marks	Descriptors				
3	5-6	Response demonstrates detailed knowledge of factors that can affect a country's vulnerability to climate change, with accurate and clear explanations, making close reference to the information found in Resources 5 and 6.				
2	3-4	Response demonstrates knowledge of factors that can affect a country's vulnerability to climate change, with clear explanation, making some reference to the information found in Resources 5 and 6. Answers may not be very detailed.				
1	1-2	Response demonstrates some knowledge of factors that can affect a country's vulnerability to climate change, with some explanation, making little reference to the information found in Resources 5 and 6. Answers may not be very detailed or relevant to the context given in resources.				
0	0	No creditworthy response.				

- **(e)** With reference to Resource 6 and your own knowledge, suggest strategies to minimise the impact of climate change in developing countries.
- [8]

- [Resource 6] Kyoto Protocol
- [Resource 6] Major impact is sea level rise and cyclones so [Own Knowledge] suggest adaptation strategies.
- [Own Knowledge] Any other strategies must be linked to developing countries

Level	Marks	Descriptors
3	7–8	Response demonstrates clear knowledge and understanding of the context in the question. Uses relevant, detailed and accurate factual information and conceptual understanding. Reflects strong critical thinking skills. Source(s) is well used to support the response.  • Provides a logical and well-developed evaluation well founded on evidence and/or different viewpoints  OR  • Makes a decision which clearly addresses different elements of the issue and/or interests of different stakeholders
2	4–6	A satisfactory response which is generally sound and contains relevant points, but may not always focus on the context in the question. Uses factual information and conceptual understanding that is generally relevant to the given context but lacks detail and may contain some inaccuracies. Displays general critical thinking skills. Source(s) is used to support parts of the response.  • Provides an evaluation, which may be limited in depth and insufficient evidence and support used  OR  • Shows some attempt to address different elements of the issue and/or views of different stakeholders when making a decision but is not well-developed or exemplified.
1	1–3	Response shows a poor understanding of the context in the question. Uses basic factual information and conceptual understanding which has some, but limited relevance to the question. Source(s) is not used or not accurately used to support the response  Provides little or no evaluation  OR  Evidence of decision-making, if present, are simple and may be flawed and contains no reference to views of stakeholders
0	0	No creditworthy response.

#### **Section C**

#### **Theme 1: Climate Change and Flooding**

**3 (a)** Explain how the shifting of the Inter Tropical Convergence Zone can affect the climate of countries in the humid tropics.

[9]

#### <u>Indicative content</u>

Candidates should explain the shifting of the ITCZ and how it affects the climatic characteristics (i.e. precipitation and temperature) of various climatic types in the humid tropics (A climates).

A higher level response should clearly explain the shifting of the ITCZ and make very close links to how it affects temperature and precipitation in terms of annual precipitation and seasonality of precipitation for all A climates.

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

**(b)** To what extent is climate the main factor influencing hydrological processes of drainage basins in the humid tropics?

[16]

#### Indicative content

Responses should make clear links to the different hydrological processes in the drainage basin such as inputs, pathways, storages and output, when explaining the influence of different factors. The factors discussed should include both natural factors which must include climate and other natural factors such as soil texture, vegetation; and human factors such as urbanization.

A higher level response would be able to provide a detailed explanation of how the different factors would affect the different hydrological processes with specific links to inputs, pathways, storages and/or output where relevant. There is an understanding of how the processes are linked as part of a larger system. There is a strong argument to explain the relative influence of climate versus other factors.

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

4 (a) Explain the factors that can influence the shape of hydrographs in the tropics.

[9]

#### Indicative content

Responses should explain various factors such as natural factors (eg: climate, vegetation, geology, soil type, relief, other basin characeristics) and anthropogenic factors (eg: urbanization, afforestation). Responses should also make clear links to characteristics of hydrographs, such as peak discharge and lag time, when explaining the influence of these factors. Diagrams should be drawn where relevant to illustrate the various shapes of hydrographs.

A higher level response should clearly explain the influence of both natural and anthropogenic factors, making links to the characteristics of hydrographs, and makes close reference to the context of the tropics.

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

(b) To what extent are hard engineering strategies more effective than soft engineering strategies in managing fluvial floods?

[16]

#### Indicative content

Responses should be able to describe and compare hard engineering strategies with soft engineering strategies, highlighting the strengths and limitations of both. Hard engineering strategies can include levees, channelization and flood control dams; and soft engineering strategies can include flood warning systems, afforestation, floodplain landuse zoning and designation of flood shelters. Examples should be included to support the discussion of the effectiveness of the different strategies.

A higher level response an understanding that a variety of strategies need to be employed by countries in order to manage the impact of flooding, and that both hard and soft engineering strategies have its own purpose, strengths and limitations. There is an understanding that its effectiveness can vary across space, in which different countries will have different vulnerabilities to fluvial floods and have different capacities to cope with flooding. There is an appreciation that the implementation of effective strategies can be hampered by various factors.

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

#### **Theme 2: Urban Change**

5 (a) Explain the variations in urbanisation trends across urban areas at different levels of economic development.

[9]

#### **Indicative content**

Responses should include a description of the variation in level of urbanization and rate of urbanization across the world in countries at different levels of economic development. There can be a comparison generally across regions, with a clear explanation for the variation in these regions over space and time.

A higher level response would be able to provide clear explanations with the use of specific examples to highlight the variations in urbanization trends, clearly showing the contrast across areas at different levels of economic development.

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

**(b)** Evaluate the effectiveness of strategies to cater to the needs of different social groups in cities.

[16]

#### **Indicative content**

Responses should elaborate on the various strategies to cater the needs of at least two different social groups and evaluate its effectiveness in meeting the needs of different social groups. The strategies discussed should take various approaches (eg: government policies, community efforts) and there should be clear criterion on the assessment of the effectiveness of these strategies (i.e. whether it meets the physical, emotional and economic well-being needs). There should be mention of specific examples and evidence to support the assessment.

A higher level response an understanding that a variety of strategies need to be employed by countries at different levels in order to meet the needs of different social groups in cities. There is a close link to the concept of liveability. There is an appreciation of the various needs of the different social groups, and also an understanding that there are varying needs even within the social groups identified.

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

**6 (a)** With the use of examples, explain the sources of fear OR extent of crowding in cities of highly urbanised cities.

[9]

[16]

#### **Indicative content**

Candidates should explain the concept of fear, and explain are crime and terrorism as the sources of fear in cities. There should be links made to the concept of liveability.

A higher level response should be able to clearly explain how crime and terrorism can lead to fear, and further explain how it can vary for different groups of people in a city. The response would have been supported with clear examples.

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

**(b)** Evaluate the strategies undertaken by governments and communities to cope with fear in the cities OR lessen crowding.

#### Indicative content

Responses should elaborate on the strategies that have been implemented at the level of the government and communities and clearly explain the strengths and limitations of these strategies in reducing fear. There should be clear criterion on the assessment of the effectiveness of these strategies. There should be mention of specific examples and evidence to support the assessment.

A higher level response shows an understanding that a variety of strategies need to be employed by countries at different levels in order to cope with fear in the cities. There is an understanding of the complexity of fear and an understanding that there are various factors that can affect the effectiveness of the strategies (eg: media, sheer large scale of problems of crime).

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