ANG MO KIO SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2022
SECONDARY 4 EXPRESS / 5 NORMAL ACADEMIC

HUMANITIES

Paper 2 Geography **2272/02**

Tuesday **30th August 2022** **1 hr 40 min**
Setter: Mrs Clara Tan

Candidates answer on the Question Paper.
Additional Materials: Insert

Section A

Answer **one** question from this section.

1. A group of students were investigating the Great Barrier Reef as a popular honeypot tourism site in Australia.

Figure 1A (Insert) shows the number of tourist arrivals to the Great Barrier Reef, Australia.

(a) One student though that there may be a link between the distance from the tourist's country of origin and the number of tourists who visit the Great Barrier Reef in Australia.

State a guiding question that the students could investigate and suggest how far the information from Figure 1A support the guiding question. [4]

Is the guiding question/hypothesis supported/valid/proven?
- Yes/No, the guiding question is supported/valid/proven

- Does the shorter the distance from the tourist's country of origin result in a larger number of tourists visiting the Great Barrier Reef?
- Does the distance of tourist's country of origin from the Great Barrier affect the number of tourists visiting the Great Barrier Reef?
- GQ-[1m]

- The largest number of tourists (more than 8 million) came from the nearest region of SE and East Asia + Oceania.

- The smallest number of tourists (less than 3 million) came from Africa, which is further away from Australia.
- Hence guiding question is supported.

OR
- However, there were as many as 6 to 8 million tourists who came from America although America is the furthest from Australia.
- Hence guiding question is unsupported.

		Credit 1m for a suitable guiding question *Credit for some qualifications (use of the tourist arrival values) that (un)supports the guiding question at 1m each* *Credit 1m for stating that the conclusion (un)supports the guiding question*	

	(b)	Other than a map, suggest how else the data in Figure 1A can be represented. • Bar Graph where x-axis (country of origin) and y-axis (number of tourists) • Title: Number of tourists from different country of origin • Draw bars of equal width to represent the data in each category / there should be a gap between each bar to distinguish between the different categories. *Credit 1m for labelled axis / scale* *Credit 1m for providing a contextualized title* *Credit 1m for describing how the bars should be drawn*	[3]
	(c)	Another group of students wanted to study how tourism may have an economic impact at the Great Barrier Reef. They surveyed 100 respondents that included both tourists as well as retail operators at the Great Barrier Reef. The survey took place between 7:00am to 8:00am on a weekday in June. Figure 1B (Insert) is the questionnaire that the students crafted.	
		With reference to Figure 1B only, what are some of strengths and limitations of the questionnaire crafted by the students. Strengths • Use of close-ended questions (Question 1 and 2) for ease of completion by respondents. • Length of questionnaire survey allows respondents to complete the survey without suffering from survey fatigue. • Provision of an 'others' option allows for more accurate capture of other possible avenues in which tourists spend their money. Limitations • There should be a separate questionnaire for tourists and retail operators with some variation in the questions asked. • The expenditure range for Question 2 is not uniform. *Credit marks for showing strengths and limitations at 1m each* *Accept other plausible answers*	[3]
	(d)	Suggest a sampling method that the students can use and outline some improvements that the students can make to the data collection process. • Sampling method: Stratified sampling method that requires the population to be divided into smaller groups (tourists and retail operators), called '**strata**'. This is followed by using random / systematic sampling to select the respondents from each stratum or group. • **Sample Size**: To ensure that there is an equal number of respondents from each stratum (50 tourists and 50 retail operators) • **Time:** A longer time duration (more than one hour) / over more than one day to allow for a greater coverage of data collected. • **Data collection method**: To conduct interviews with the retail operators instead of questionnaires as interviews allow for more in-depth qualitative responses from the retail operators.	[3]

Credit marks at 1m each or 2m for more detailed description and elaboration of the sampling method
Credit marks at 1m each for description of each of the improvements made (linking the improvements to the context of the question)

2. A group of students were interested in studying about local winds. They looked at secondary data on sea and land surface temperature.

Figure 2A shows the data collected from Site X and Site Y and Figure 2B (Insert) shows the locations of Site X and Site Y.

Time	**0000**	**0400**	**0800**	**1200**	**1600**	**2000**
Wind Speed (km/h)	20	20	16	26	24	18
Sea Surface Temperature (ºC) at Site X	18	18	17	17	17	18
Land Surface Temperature (ºC) at Site Y	12	10	18	30	25	15

Figure 2A

(a) Describe some strengths and limitations of using secondary data. [3]

Strengths
- Readily available from a number of reliable sources and ~~may already have been used in previous research, making it easier to carry out further research~~
- Time-saving as it has been collection for used in previous research and
- cost-efficient as little to no expenses is needed when it is available online : the data was collected by someone other than the researcher
- Data may cover larger samples of the population in detail

Limitations
- Secondary data may be outdated as it is likely to be collected at least one year ago. Inaccuracy may be presented in the data collection.
- If using data collected for different research purposes, it may not meet the objective of the investigation as needed by the students as each research will be uniquely different.
- cover those samples of the population researchers want to examine, or not in sufficient detail
- Data may be difficult to get access to due to confidentiality

Credit marks for showing strengths and limitations at 1m each
Accept other plausible answers

	(b)	The group of students came up with the following hypothesis: 'Sea breeze takes place in the day and land breeze takes place at night.' With reference to Figure 2A and Figure 2B, is the hypothesis valid? Support your answer with evidence from Figure 2A and Figure 2B. • From 0800 hrs to1600 hrs, the sea surface temperature at Site X is lower (17°C) than the land surface temperature at Site Y (ranging from 18°C to 30°C). This is due to the fact that land surface heats up faster in the day (low pressure) than the sea surface (high pressure). • From 2000 hrs to 0400 hrs, the sea surface temperature is higher at Site X (18°C) than the land surface temperature at Site Y (ranging from 10°C to 15°C). This is due to the fact that the land surface loses heat faster (high pressure) as compared to the sea surface (low pressure) at night / in the absence of the sun. • Since wind blows from a high pressure area to a low pressure area, the wind blows from the sea (sea breeze) to the land in the day and blows from the land to the sea at night (land breeze). • Hence hypothesis is valid.[1] *Credit marks for some qualifications (use of temperature values and time) that (un)supports the hypothesis at 1m each* *Credit 1m for stating that the conclusion (un)supports the hypothesis*	[4]
	(c)	Another group of students thought that the wind speed could be related to the differences in temperature at Site X and Site Y. They decided to collect their own primary data. Describe the steps the students should take to ensure that their measurements of wind speed are as accurate as possible. • Place the anemometer in an open area away from buildings so as not to let the wind be obstructed by the surroundings and own body. • Use instrument preferably in a high place, above your head. • Take a few readings each time and then calculate the average to get a more reliable data. • Repeat the data collection a few more times and take the average reading. *Credit 1m for each description*	[3]
	(d)	Describe a suitable data representation method to show how wind speed could be related to the differences in temperature at Site X and Site Y. • Using a Scattergraph, plot x-axis to represent the difference in temperature between Site X and Site Y, and y-axis representing the wind speed • Title: Relationship between temperature difference and wind speed • Draw a best-fit line to show the relationship between the two variables. • If the best fit line has a positive gradient, ~~is drawn from bottom left to top right~~, this shows there is a positive correlation between both variables. OR if the best fit line has a negative gradient, ~~is drawn from top left to bottom right~~, this shows there is a negative correlation. *Credit 1m for labelled axis / scale* *Credit 1m for providing a contextualized title* *Credit 1m for describing how the best fit line should be drawn and interpreted*	[3]

Section B

Answer **one** question from this section.

3.	(a)	Explain how destination factors result in a growth in tourism.
		
		• Presence of attractions
		  ○ The presence of a wide varieties of attractions such as man-made attraction e.g. Jewel Changi Airport in Singapore makes the place interesting and attract more tourists. ~~For example, Dubai in the UAE in the Middle East, is a major destination and stopver location between Europe and Asia because of their well-known built attractions like The Buri Al Arab and the Palm Islands.~~
		  ○ Such attractions can offer something spectacular, unique and interesting for both domestic and international tourists.
		• Greater investment in infrastructure and services
		  ○ Investment in infrastructure and services means having good infrastructures to accommodate large number of tourists. For example, Changi is going to open a new airport called Terminal 5 (T5). *T5 is going to be completed by 2030. It would increase to 150 million passengers a year, compared with the current capacity of 82 million. It will also contribute 3% to Singapore's economy*
		  ○ Having wider roads and convenient transport to allow people to get from one place to another easily. Providing good services to tourist like providing a variety of food choices, giving good entertainment, proving fast-speed wifi and have trained personnel to serve the tourists.
		• Improved access to information
		  ○ Tourist are more likely to visit a destination when travel-related information is easy to obtain within a destination. Such information include weather conditions and available accommodation. For example, most signs in Phuket, Thailand are written in both English and Thai to cater to both tourists and locals.
		  ○ Travelling to a foreign land is made easier when there is improved access to information in a language that is understood by tourists. In this way, tourists will feel safe as they will not face any communication barriers. Their travelling experience is also enhanced if the local tour guides are trained in English and have knowledge of the local geography, history and culture to enhance the tourists' experience.
		
		Credit marks at 1m each or 2m for more detailed explanations / use of appropriate and accurate example to aid in explanation
			[4]

	(b)	'Recessions are the main reason for regional fluctuations in tourist numbers.' How far do you agree? Give evidence to support your answer. Level 1 (0-3 marks) At this level answers will be generalized or with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basis answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer. Level 2 (4-6 marks) Disagreement or agreement will be supported by appropriate detail. Or, both agreement and disagreement are considered, but support is patchy so that the answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 (7-8 marks)	[8]

		At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.	

4.	(a)	Explain the socio-cultural impacts of tourism.
		
		• Preservation of local customs and heritage
		  ○ Revenue generated from tourism can fund the preservation and restoration of cultural heritage. For example, the entry fees to the Angkor Wat in Siem Reap, Cambodia help fund conservation efforts. During the first half of 2018, Angkor Wat has raised $61.8 million in revenue through the sale of entry tickets, which will be used for the conservation of the historical site.
		  ○ When preserved and restored, historical and cultural sites make a place more attractive to tourists. In addition, the restored sites benefit the local community by enhancing their sense of history and by building a sense of belonging to their community. Hence, bringing about a positive socio-cultural impact of tourism.
		• Dilution of local customs and heritage
		  ○ Commercial activities that cater mostly to tourism, such as food outlets, travel agencies, souvenir shops and hotels can become the commercial activities of an area, replacing other activities that do not cater to tourists. For example in Bali, Indonesia, which has become a major tourist destination in Indonesia after 1970, with more than 5 million tourists visiting a year. Mass tourism in Bali negatively impacted its culture as their religions and practices are disrupted. Tour guides offer flower garlands to tourists even though it is not a Balinese custom.
		  ○ Locals may also modify rituals and/or festivals, such as shortening the event or including certain performances to attract attention.
		• Increased crime
		  ○ Increased crime is where tourists are at greater risk of having their valuables stolen from them during their travel. Tourist carries valuable item such as watches, camera and clothes and hence is vulnerable to mugging near hotels or transport terminal or ATMs. For example, according to an article published in The Telegraph (2013), it is reported that there is increased cases of pickpocketing at the Louvre Museum in Paris.
		  ○ When a tourist is not guaranteed safety in an unknown location, the less likely a tourist will be willing to travel to that country. This also hurts the country economically as less tourists will be travelling over.
		
		Credit marks at 1m each or 2m for more detailed explanations / use of appropriate and accurate example to aid in explanation
			[4]

	(b)	‘Singapore has been successful in managing climate change.’ How far do you agree? Give evidence to support your answer. Level 1 (0-3 marks) At this level answers will be generalized or with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basis answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer. Level 2 (4-6 marks) Disagreement or agreement will be supported by appropriate detail. Or, both agreement and disagreement are considered, but support is patchy so that the answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 (7-8 marks) At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.	[8]

Section C

Answer **one** question from this section.

5. (a) Explain **two** impacts of excessive food consumption on individuals and countries. [4]

- One impact of excessive food consumption is obesity which has a negative impact on health of **individuals**
  - As a result of a high rate of obesity, a large portion of the population in DCs suffer from related illnesses like diabetes and coronary heart diseases**.**
  - For example, DCs such as USA Canada and Australia have obese people due to higher consumption of potato chips, sweetened drinks and fast foods. In USA, from 1979 to 2000, obesity rates increased from a small percentage of 14.5% to a large percentage of 30.9% of the population.
- Negative impact on health of **individuals will lead to l**ower productivity due to their inability to work.
- Resulting in n**egative economic impact on the individuals** as they are constantly absent from work and taking more days of leave.
- This will in turn have a **negative economic impact on countries** as economic productivity of the country goes down due to a less efficient workforce.
  - For example, amongst the employees of Duke University, USA, those with a Body Mass Index (BMI) of over 40 were twice as likely to fall sick or be injured while doing work, resulting in higher compensation claims paid by the university.
- Higher spending on health expenditure
  - Due to excess food consumption, there are more obesity-related health conditions among people. Hence, this is a **negative economic impact on countries,** as the government would have to channel more funds to the health care system, increasing the public health expenditure.
  - For example, according to the Food and Agriculture Organization (2003), an obese person visits a doctor 88% more than a healthy person during a six-year period in the United States (US), which is why it cost the US US$147 billion in 2008.

Credit marks at 1m each or 2m for more detailed explanations / use of appropriate and accurate example to aid in explanation

(b) Figure 5A (Insert) shows per capita food waste in production and consumption around the world.

With reference to Figure 5A, compare the pattern of per capita food waste in production and consumption around the world. [4]

- For all the regions, food waste in food production account for a much higher amount of 124-185kg/year whereas food waste in food consumption account for a lower amount of 6-115kg/year – 1st Diff
- Total per capita food waste in higher in developed regions as compared to less developed regions.
- From Figure 5A, developed regions like Europe and America have a higher total per capital food wastage of between 280-300 kg/year and less developed regions like Asia and Africa have a lower total per capita food wastage of between 130-160 kg/year – 2nd Diff
- Both USA and Europe have the same amount of per capita food waste in production (185 kg/year). – 1st Simi

Credit 1m for each comparative point with some qualifications (use of values for food wastage)

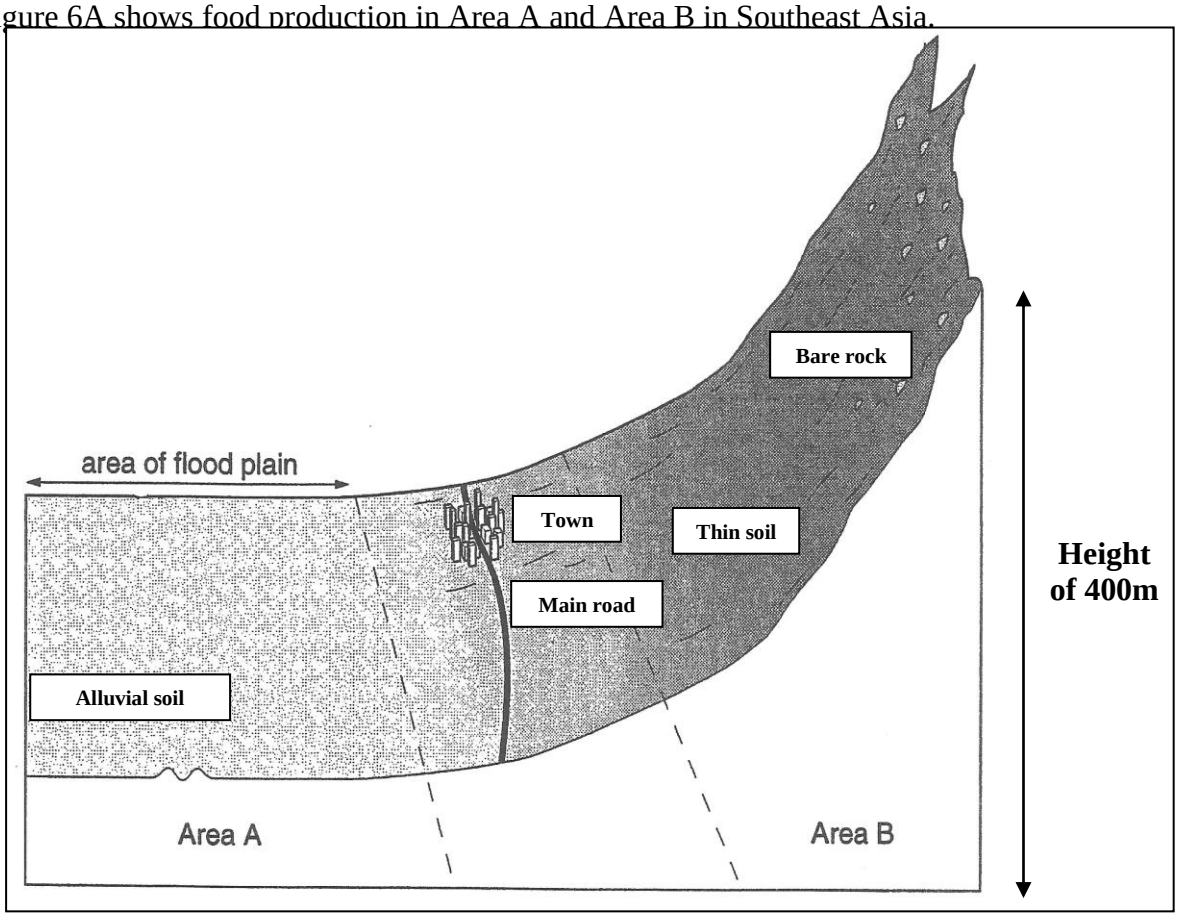
(c) Figure 5B (Insert) shows parts of Africa which experience food shortage in 2022.

		(i)	With reference to Figure 5B, describe the pattern of food shortages. [4] • Eastern Africa experiences food shortage in the form of catastrophic famine with the highest number of people in Eastern Africa coming from Ethiopia and Yemen (16.8 million to 19 million). • The people in Congo, Central Africa are in the emergency food shortage phrase and they account for the highest number of people in the whole of Africa (25.9 million). • The people in Western (Mauritania) and Southern (Angola, Mozambique and Madagascar) Africa account for the smallest number of people in the emergency food shortage phrase of around 0.9 million to 1.9 million. • With the exception of Nigeria in Western Africa accounting for a large number of people in the emergency food shortage phrase experiencing food shortage (19.5 million). *Credit 1m each for describing the pattern with some qualifications (use of values for food shortage with mention of named areas)* *Description of areas experiencing 'emergency' food shortage phrase and 'catastrophic' famine phrase capped at 2m each* *Credit 1m for anomaly*	

		(ii)	With the help of Figure 5B, explain the physical and political factors that resulted in the food shortages experienced in parts of Africa.
			
			• Climate Change (Physical factor)
			  o Changes in climate may cause existing farmland to become unsuitable for farming.
			  o As a result, crops may no longer be able to grow in some areas which were previously suitable for farming.
			• Extreme Weather Events (Physical factor)
			  o Extreme weather events like droughts would reduce the water supply available for crops to grow.
			  o This causes drop damage or make it difficult to grow crops, thus resulting in significant food shortage.
			• Civil Strife (Political factor)
			  o When the country experiences major internal conflicts, it can lead to disputes over the control of resources that affect food production.
			  o These resources may even be destroyed, which in turn hinder food production.
			• Poor Governance (Political factor)
			  o Poor governance such as corruption and inability to implement policy may cause food shortages.
			  o Governments may threaten food security when they prioritize other developmental needs of the country over ensuring food security, resulting in farmers having a smaller plot of land and therefore a smaller crop yield.
			
			Credit marks at 1m each or 2m for more detailed explanations
			Marks capped at 4m for explanation
			Credit 1m for use of Figure
				[5]

	(d)	'Political factors have a greater impact on inadequate food consumption than economic factors. How far do you agree? Give evidence to support your answer. Level 1 (0-3 marks) At this level answers will be generalized or with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basis answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer.		[8]

		Level 2 (4-6 marks) Disagreement or agreement will be supported by appropriate detail. Or, both agreement and disagreement are considered, but support is patchy so that the answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 (7-8 marks) At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.	

6.	(a)	Figure 6A shows food production in Area A and Area B in Southeast Asia.  **Figure 6A**	
		With the help of Figure 6A, compare and account for the food production of crops in Area A and Area B. • Crop yield in Area A is larger than crop yield in Area B. • Alluvial soil in Area A is rich in nutrients like potassium, nitrogen which is essential for growing of crops whereas Area B is filled with this soils, most likely nutrients have been washed off from the sloping land. • Area A has a ready water supply, located at the flood plain whereas Area B is limited in having water only during ice melts or morning dew. • Area A is suitable to grow staple food such as wet-rice with its rich alluvial soil whereas Area B is suitable for crops that require well-drained soils such as coffee, tea and palm oil. • Area A is on low lying and almost flat/undulating land, this encourages the use of machineries like combined harvester to quicken the process of cultivation whereas the sloping highland in Area B poses difficulties for the use of machineries. *Credit 1m for stating which area will have a higher food production*	[5]

		Credit 1m for each comparative point with some qualifications (use of information from the source) capped at 2m *Credit 1m for each accompanying reason to address food production capped at 2m*	

	(b)	Describe the possible effects of irrigation and chemicals on quality on farmland. • Salinization occurs in places where there is no proper way to drain off excess water after irrigation. Salt concentration in soil will increase. When exposed for many days, soil surface will harden and crack, rendering it unsuitable to grow crops. / Waterlogging occurs when too much water seeps into the soil and cause soil to be over-saturated. Roots are deprived of air and nutrients, causing the crops to die. • As land is used intensively to grow food, more chemical fertilizers and pesticides are used. This causes these chemicals to be concentrated in the soil. These chemicals will be washed into rivers, promoting the growth of algae on the surface of water. Eutrophication occurs when algae grows on water, blocking sunlight from reaching the aquatic plants. Causing these plants and fish to die. *Credit up to 2m for each description with elaboration*		[4]
	(c)	Figure 6B (Insert) shows the distribution of deep and shallow focus earthquakes as well as the tectonic plate movement at different plate boundaries around the world.		
		(i)	With reference to Figure 6B, describe the distribution of deep and shallow focus earthquakes. • Deep focus earthquakes tend to be found near convergent plate boundaries / shallow focus earthquakes tend to be found near divergent plate boundaries. • For example, shallow focus earthquakes of about 0-33km tend to be found at divergent plate boundaries between African Plate and Indian-Australian Plate. • For example, deep focus earthquakes of about 150-800km tend to be concentrated at convergent plate boundaries between Indian -Australian Plate and Eurasian Plate / Nazca Plate and South American Plate. *Credit 1m each for describing the pattern with some qualifications (use of values for depth of focus)*	[3]

		(ii)	Suggest possible impacts felt by the people residing near deep focus earthquakes as shown in Figure 6B.
			
			• Disruption of services
			  o An earthquake can disrupt services such as the supply of electricity, gas and water.
			  o Vibrations on the ground can snap pipes and break cables which can cause an outbreak of fires.
			  o Communication services may also be affected.
			• Fire
			  o Earthquakes may rupture gas pipes and this can provide fuel to start fires.
			  o Electrical cables may also be exposed which may ignite flammable items.
			  o Fires spread quickly over large areas and increase the number of fatalities.
			• Landslides
			  o Landslides are rapid downslope movements of soil, rock and vegetation.
			  o Mudflows may also occur when there is heavy rainfall.
			• Destruction of properties
			  o Earthquakes can cause destruction to many homes.
			  o People may be without homes after the disaster.
				[5]

			• Destruction of infrastructure
			  ○ Earthquakes may cause cracks to form in infrastructure such as roads and bridges.
			  ○ Transportation can be disrupted as it is unsafe to use the damaged roads.
			• Loss of lives
			  ○ Earthquakes and their associated hazards often threaten the lives of those living in earthquake zones.
			
			Credit 1m for recognizing that deep focus earthquakes will result in less damages than a shallow focus earthquake.
			Credit marks at 1m each or 2m for more detailed explanations / use of appropriate and accurate example to aid in explanation
			Marks capped at 4m for suggested reasons	

	(d)	‘Developed countries have been successful in mitigating earthquakes.’ How far do you agree? Give evidence to support your answer. Level 1 (0-3 marks) At this level answers will be generalized or with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basis answer that has little development. Answers lack examples or other evidence, or it is so sketchy that it adds little support to the answer. Level 2 (4-6 marks) Disagreement or agreement will be supported by appropriate detail. Or, both agreement and disagreement are considered, but support is patchy so that the answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 (7-8 marks) At this level answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive.		[8]