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Geylang Methodist School (Secondary) Preliminary Examination 2016

GEOGRAPHY

2236/01

Paper 1

4 Express

Additional materials : Writing paper

**1 hour 40 minutes
3 August 2016**

READ THESE INSTRUCTIONS FIRST

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.

Section A (25 marks)

Answer Question 1.

Section B (25 marks)

Answer **one** question.

Write all answers on the Answer paper provided.
You should support your answers with the use of relevant examples.
Sketch maps and diagram should be drawn whenever they serve to illustrate an answer.

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

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

[Turn over

Section A [25 marks]**This question is compulsory.**

- 1 A group of students carried out fieldwork along Chempedak beach, a popular tourist destination in Kuantan, West Malaysia. Fig. 1 (Insert) shows the location of Chempedak beach and Photograph 1 and Photograph 2 (Insert) show the landscape views of the location.

The students decided to work in pairs to investigate on the hypothesis '**The steeper the beach cross-sectional gradient, the smaller the beach particles.**'

A transect line along the sandy beach, 200m in length, locations 1 – 10 was chosen for their fieldwork. (See Photograph 1)

- (a) (i) What are some safety considerations that the students must make before they start on their field work at Teluk Chempedak? [2]
- (ii) Describe the sampling method that the students could use to select the locations for their investigation along the transect line. [3]
- (iii) Draw a field sketch of the view shown in Photograph 1. [4]
- (iv) Describe the steps taken to measure the cross-sectional gradient of the beach along the line transect. [4]

The results from the data collected at location 10 were presented and analyzed in Table 1.

Beach profile and particle size along cross section profile at location 10

Distance from coastline (m)	1	2	3	4	5	6	7	8	9	10
Largest size of sand grain at location 10 (mm)	3.7	3.0	2.6	3.0	3.2	4.2	3.5	2.8	1.8	2.0
Gradient at location 10 (degree from horizontal)	3.1	3.3	4.2	6.4	8.4	8.1	8.3	8.6	7.6	7.2

Table 1

- (v) Represent the data collected in Table 1 with a suitable well labelled graph in the graph paper provided. (Attach the graph at the back of your answer scripts) [4]
- (vi) Use the information in Table 1 to calculate the mean size of the beach particle at location 10. [2]
- (vii) What conclusions can be drawn from the information shown on Table 1 and the graph you have drawn with regard to the validity and reliability of the investigation 'The steeper the beach cross-sectional gradient, the smaller the beach particles'. [5]

[Turn over

- (viii)** Suggest another hypothesis that the students can use to carry out further investigation on the impacts that coastal processes will have on tourism.

[1]

Section B

Answer **one** question from this section.

- 2 (a) Study Fig. 2 which shows the global coral reef distribution.

Global Coral Reef Distribution

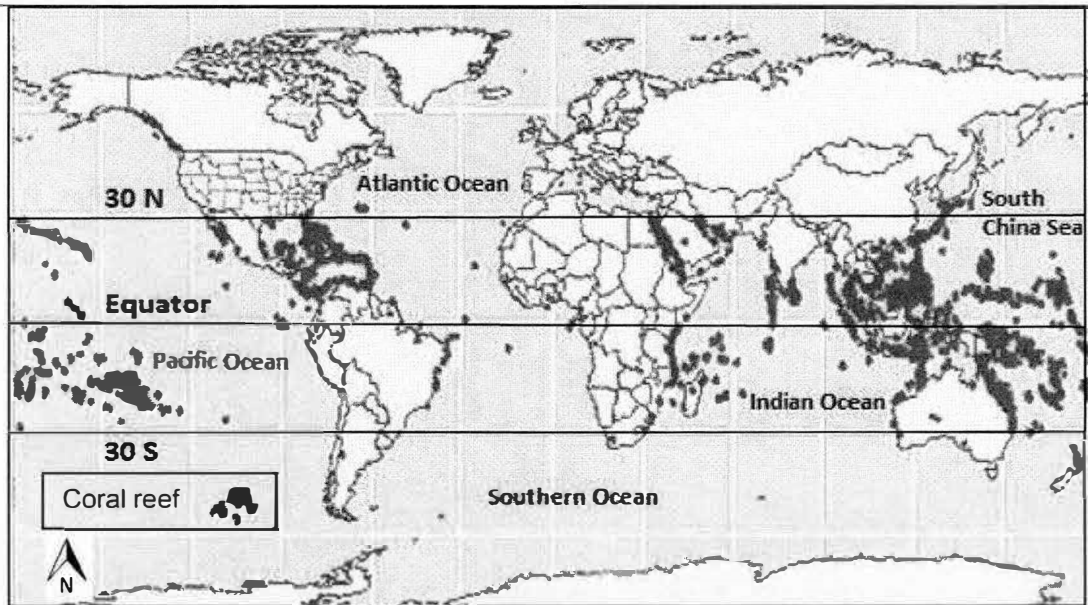
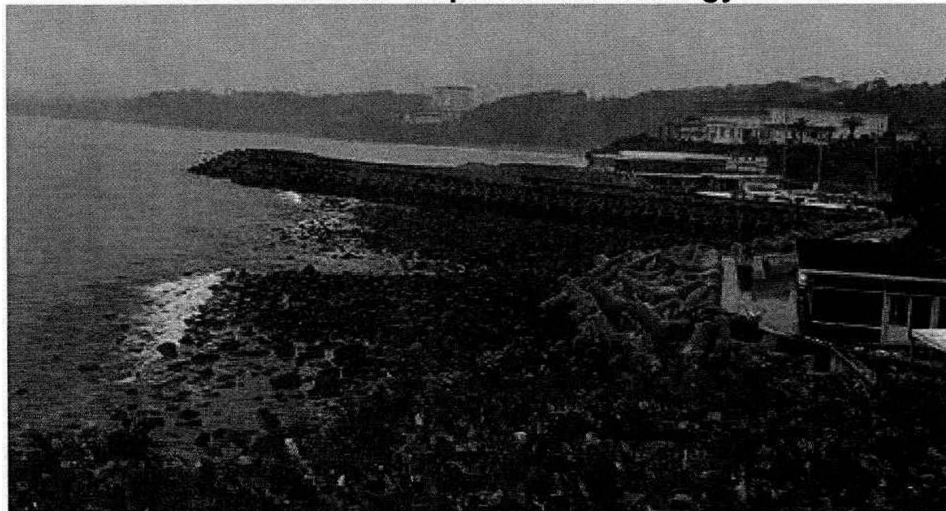


Fig. 2

- (i) Use Fig. 2 and describe how coral reefs are distributed. [4]
- (ii) Explain why coral reefs are distributed in this pattern. [5]
- (b) Study Photograph 3, which shows a coastal protection strategy.

A coastal protection strategy



Photograph 3

Use Photograph 3 to explain how the coastal protection strategy protects the coast.

[4]

[Turn over

- (c) Study Table 2 which shows the financial cost of beach nourishment in the eastern coast states of U.S.A. Photograph 4 shows beach nourishment taking place.

Financial cost of beach nourishment

STATE	COASTLINE MILES	RENOURISHMENT SPENDING (2011 ADJUSTED)	SPENDING PER MILE
1. New Jersey	130	\$1.116B	\$8.6M
2. Delaware	28	\$216M	\$7.7M
3. Maryland	31	\$165M	\$5.3M
4. New York	127	\$567M	\$4.5M
5. Virginia	112	\$239M	\$2.1M
6. North Carolina	301	\$610M	\$2.0M
7. South Carolina	187	\$353M	\$1.9M
8. Florida	1350	\$1.984B	\$1.5M
9. Alabama	53	\$71M	\$1.3M
10. Mississippi	44	\$56M	\$1.3M

SOURCE: PROGRAM FOR THE STUDY OF DEVELOPED SHORELINES, WESTERN CAROLINA UNIVERSITY

Table 2

Beach nourishment



Photograph 4

Use the information provided to assess the benefits of beach nourishment.

[4]

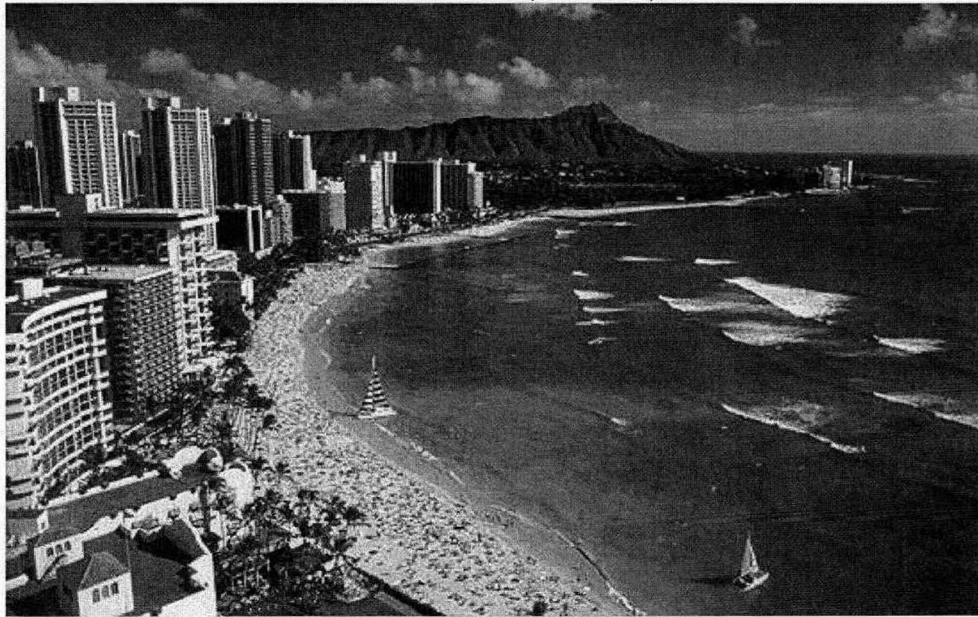
- (d) 'Coastal protection strategies will end in failure.' How far do you agree? Use examples to support your answer.

[8]

[Turn over

- 3 (a) Study Photograph 5, which shows the coastline of Waikiki Beach, a popular tourist destination in Hawaii, USA.

Waikiki Beach, Hawaii, USA



Photograph 5

- (i) With the help of Photograph 5, describe the coastal scene. [4]
- (ii) Using evidence from Photograph 5, explain how Waikiki Beach could be developed into a popular tourist destination. [5]
- (b) Study Photograph 6, which shows Korean women divers at a tourist destination in Jeju Island, South Korea.

Korean women divers



Photograph 6

Use the information provided to assess the impacts that tourism have on the local people of Jeju.

[4]

[Turn over

- (c) Study Fig. 3, which shows factors affecting ecotourism.



Fig. 3

With the help of Fig. 3, explain how a country like New Zealand develops its ecotourism sector.

[4]

- (d) 'Tourism causes more harm than benefits to a developing country.' How far do you agree? Use examples to support your answer.

[8]

End of Paper

[Turn over

Geography

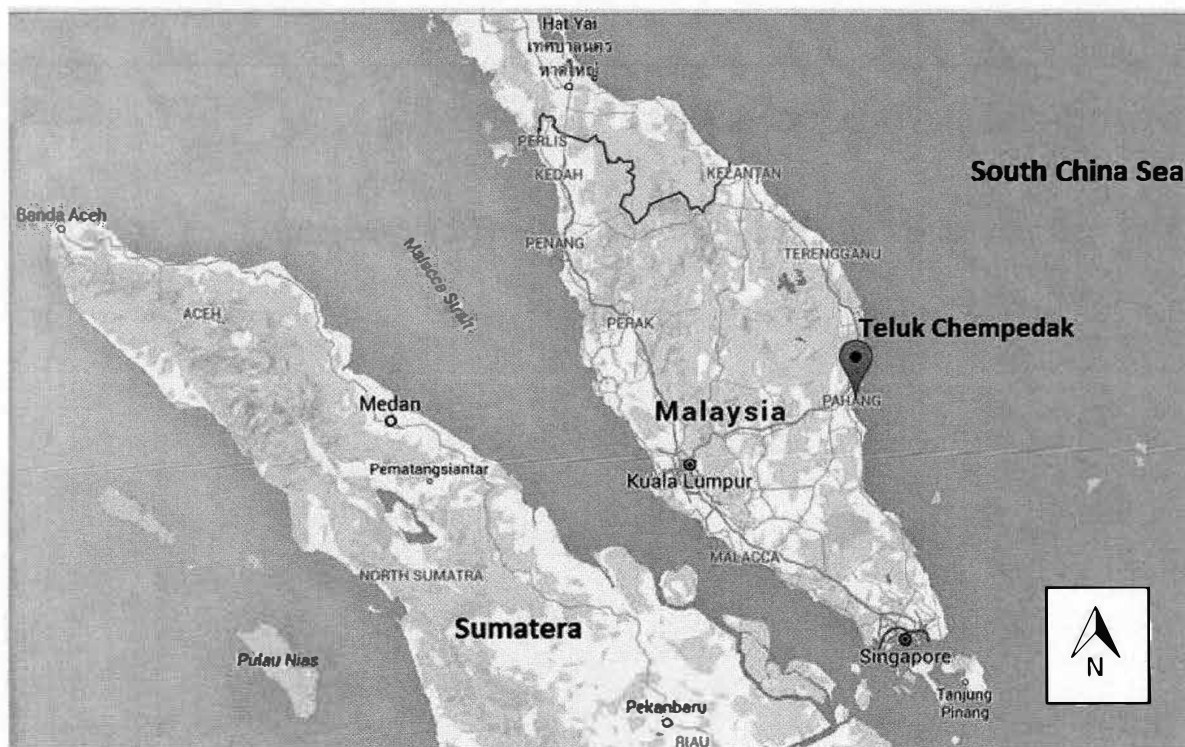
Paper 1

INSERT 1

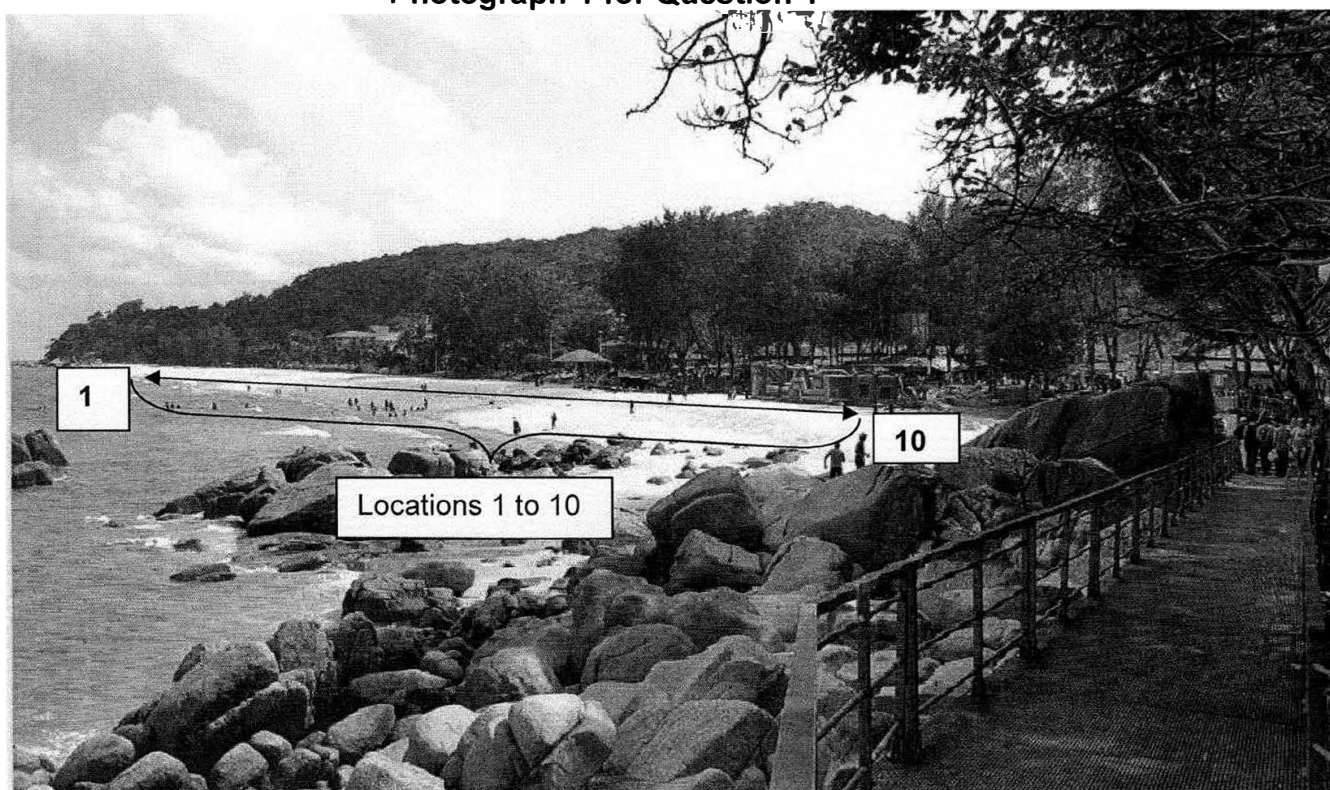
READ THESE INSTRUCTIONS FIRST

This Insert contains Fig. 1 and Photographs 1 and 2 for Question 1.

Fig.1 for Question 1
Location of Teluk Chempedak Beach, Kuantan, West Malaysia



Photograph 1 for Question 1



[Turn over

Photograph 2 for Question 1



Level & Course: Sec 4 Express CORE GEOGRAPHY
 Examination : Preliminary Exam
 Year : 2016

Section		PAPER (50 marks)		
Q	Topics	No. of Q	AO1+ AO2	AO1 + AO3
		Structured Questions		
			Marks	Marks
1	Geographical Inquiry	1a(i)	2	
		(ii)	3	
		(iii)	5	
		(iv)	4	
		(v)		3
		(vi)		1
		(vii)		6
		(viii)		1
2	Coast	(a)(i)	4	
		(a)(ii)		5
		(b)		4
		(c)		4
		(d)	8	
3	Tourism	(a)(i)	4	
		(a)(ii)		5
		(b)		4
		(c)		4
		(d)	8	
Total		18	38	37

4 Express Geography Paper 1 (2236)

Marking Scheme

1(a)(i) What are some safety considerations before the students start on their field work at Teluk Chempedak? [2]

- Check the tides time for low tide and high tide. Go only if the tide is low so that most of the foreshore can be seen and studied.
- Check the weather forecast and take along sun block lotion/umbrella/cap to shelter against solar radiation.
- Ensure that appropriate footwear are worn to prevent cuts and sting by sea animals.
- Ensure adequate supply of drinking water and that all participants are hydrated.
- Scan the environment for any visible and immediate danger to take note off and to avoid. Such as rip current and submerged rocks.

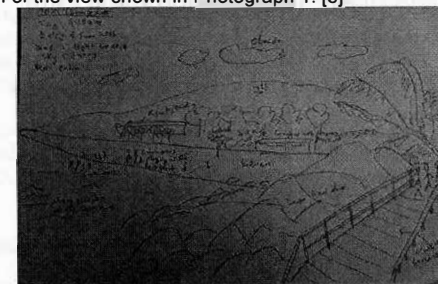
Award 1m for each elaborated answer.
 Accept any feasible answer

(ii) Describe the sampling method that the students could use to select the locations for their investigation along the transect line. [3]

- The students can select the systematic sampling method as the line transect is along a continuous stretch of the beach.
- Decide where the line transect along the beach that data will be collected. Ensure that the entire transect is free from obstacles such as large boulders or logs so that data can be collected safely.
- Choose the spot on the beach to start and mark it as Location 1 with a flag.
- Walking along the line transect at regular strides, mark the second location with another flag after 10 paces (1 pace is 2 strides) and so on until the end of the line transect.
- Ensure that the flags are impaled where it is above the swash line to prevent it being moved and that it is not taken away by people or animals.

Award 1m for each elaborated point and up to 3m if the answer is comprehensive

(iii) Draw a field sketch of the view shown in Photograph 1. [5]



Award 4m with well labelled sketch that closely resembles the scene
 Award 1m for 1 detail shown

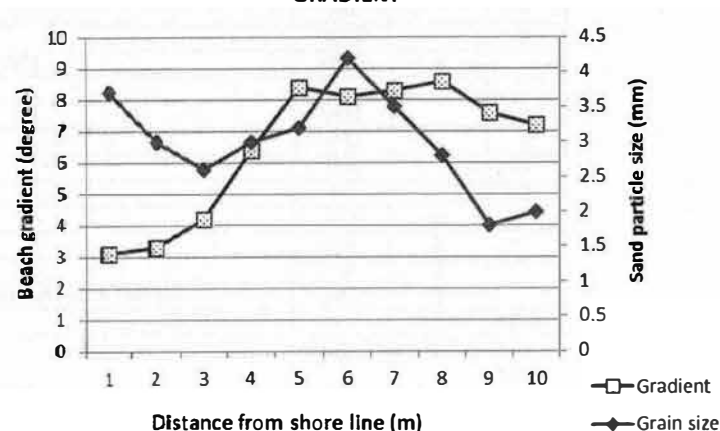
(iv) Describe the steps taken to measure the cross-sectional gradient of the beach along the line transect. [4]

- Before setting out, the students will need a protractor clinometer, 2 ranging poles, recording sheets and clip board and pencil.
- At each location from 1 to 10, identify the line of transect which is a straight line across the beach that is perpendicular to the shoreline.
- Mark out 4 points of equal intervals of 2 metres.
- Place a ranging pole each at 2 points from the shore line, ensuring that they are held straight and not stick into the sand to ensure accuracy.
- Choose 2 persons of same height. Secure the protractor clinometer on the ranging pole at eye level and align to the ranging pole on the other end.
- Ensure that the angle is taken on the ranging pole that coincides with the eye level of the person using the clinometer.
- Note the angle where the string crosses the scale on the curved edge of the protractor. This is the angle of elevation between the 2 points. Record the angle on the recording sheet.
- Repeat steps 4 to 6 to record the gradients of the slope and plot them on a graph paper.
- Different groups should measure the beach gradient at different locations simultaneously to overcome time constraint.

Award 1m for each elaborated step.
Award 4m if answer is comprehensive.

- (v) Represent the data collected in Table 1 with a suitable well labelled graph in the graph paper provided. (Attach the graph at the back of your answer scripts). [4]

RELATIONSHIP BETWEEN SIZE OF BEACH PARTICLES AND BEACH GRADIENT



Award 4m for all details shown and graph plotted corrected
1m deduction for missing data labels,
2m for 1 graph plotted correctly, 3m for both correct

- (vi) Use the information in Table 1 to calculate the mean size of the beach particle at location 10. [2]

- $3.7 + 3 + 2.6 + 3 + 3.2 + 4.2 + 3.5 + 2.8 + 1.8 + 2 = 29.8/10$
- Average size is 2.98mm

Award 2m for correct answer, 1m can be award for correct working not incorrect answer

- (vii) What conclusions can be drawn from the information shown on Table 1 and the graph you have drawn with regards to the validity and reliability of the investigation 'The steeper the beach cross-sectional gradient the smaller the beach particles'. [5]

- The hypothesis is generally true as there the relationship tends to fluctuate between the foreshore, middle shore and back shore.
- It is inverse nearer the foreshore (from 1m to 4m from the shoreline the sand particles increases in size from 1.5mm to 2.7mm when gradient became less steep from 8.1° to 6° but starting to increase all the way to the 6m mark where it was measured at 9.1° .
- From the 4m mark at the middle shore, both gradient and sand particle size are directly related, both increasing in size up to the 6m mark.
- From the middle shore to the back shore, gradient stayed relatively constant at 8° and dropping to 7.2° whereas sand particle decreases in size from 3.4mm to 1.5mm at the edge of the backshore.
- The data were reliably collected as there 10 different spots sports determined through regular intervals of 1m. This however could be better improved by taking measurements from more locations along the shoreline.
- To ensure greater accuracy, only the sand sample that is dug
- The investigation is also valid as data collected on the beach gradient and sizes of sand particles both serve to directly link the relationship between sand particle size and beach gradient.

Award up to 3m for explanation on conclusion made
Award 1m for explaining reliability and 1m for validity

- (viii) Suggest another hypothesis that the students can use to carry out further investigation on the relationship between tourism and the coast. [1]

- Tourist come to the coast to enjoy the scenery and not to swim.

Award 1m for any feasible hypothesis

Section B

Answer one question from this section.

- 2(a)(i) Use Fig. 2 and describe how coral reefs are distributed. [4]

- Coral reefs are located within the Tropic of Cancer and Tropic of Capricorn.
- There are also pockets of coral reefs located outside this boundary at the eastern coast of North America and eastern coast of Asia, south of the Japanese islands.
- The highest concentration of coral reefs are found in the waters of South East Asia and Northern Australia. There is an extensive presence in the South China Sea covering the entire region east of SE Asia and north and northeast of Australia into the Pacific Ocean.
- Clusters of coral reefs are also found east of Central America and also in isolation in the middle of the Atlantic Ocean.

[Turn over

[Turn over

- Coral reefs are also found east of Africa surround Madagascan in the Indian Ocean.
- Coral reefs are also found in shallow seas in northeast of Africa in the Red Sea.

Award 1m for each description of location well-elaborated and supported with map evidence.

(ii) Explain why corals are distributed in this pattern. [5]

- The main reason is due to the conditions in which corals grow and thrive.
- Corals require 5 conditions to grow well. They are water turbidity, that is how murky is its level of murkiness, has to be low enough to allow sufficient sunlight to penetrate;
- Relatively free of sedimentation as sediments may suffocate living corals;
- Amount of sunlight available as clear saline water between 10 and 60m deep allows sufficient sunlight to penetrate, triggering algae photosynthesis;
- Sea water temperature not lower than 17 to 18°C to allow photosynthesis to take place;
- Level of salinity and oxygen content, where average seawater salinity of 34 to 37 parts per thousand, and a moderate amount of water movement to ensure coral s receive sufficient levels of oxygen.
- Due to these reasons, coral reefs are found within the Tropic of Cancer and Tropic of Capricorn as it is at/near the Equator where the temperature is always higher.
- It is also found close to continental shelves as these are the shallower seas.
- The anomalies are at the center of the Atlantic Ocean, where there are shallow seas due to the mid-Atlantic Ridge where corals are found.

Award up to 3m for explaining the conditions necessary for coral growth.

Award 2m for linking to the global distribution.

(b) Use Photograph 3 to explain how it protects the coast. [4]

- The coastal scene shows a coastal management strategy using 2 methods, namely seawall and tetrapods.
- At the middle ground on the right, tetrapods are lined along the coast to absorb powerful wave energy by allowing it to be dissipated as it rushes through towards the coast. A house can be seen on top of the elevated ground protected from coastal erosion and undercutting.
- Towards the background an elongated seawall extends out to the near shore, protecting the settlement behind it especially during high tides where powerful waves can reach high levels.
- The sea wall also function as a groyne which prevents the transportation of sediments from seabed at the foreground to those higher up by stopping its movement due to the long shore drift.

Reserve 2m for explaining tetrapods and 2m for explaining seawall.

(c) Use the information provided to assess the benefits of beach nourishment. [4]

- Table 2 shows the cost of re-nourishing beaches in 10 states in USA. The financial cost ranges from a low of US\$71M in the state of Alabama to US\$1.984B in Florida, this translate to a spending per mile of US\$1.3M in Alabama and US\$1.5M in Florida. However, spending per mile is highest in Delaware at US\$7.7M and

- lowest at US\$1.3M in Alabama and Mississippi. These are huge sums of financial resources and investments spent which could have been spent elsewhere.
- The benefits of these heavy expenditure has to be seen in context with regards to how human settlements have evolved and built-up over the centuries in coastal areas.
- Gradual and prolonged coastal erosion would have eroded huge tracts of land which were formally a buffer between the sea and the houses, which over time due to erosion, the coastline is now precipitously close to the houses and a danger to collapse.
- With increase in human population, many coastal settlements would have appreciated in financial values and more peoples' lives are also connected to such coastal regions. As such, without beach protection through beach nourishment, coastal erosion would cause greater loss in terms of quality of lives in relocation, and loss of homes and further financial hardship in home relocation.
- The beach provides great comfortable, recreation and aesthetic beauty to many people. As the beach gets eroded, it becomes barren, ugly, deprive people of the beauty nature has given to us and diminishes the habitability of the area.
- Once beach nourishment is completed, it can last for several years before it has to be carried out again. But the benefits of it allow people to continue to live in the area and the benefits are long term, especially in the aspects of preservation of cultural history, natural history and heritage. As long as the community is doing financially well, it is money well spent.

Award 1m for interpreting the information from the source.

Award up to 3m for assessing the benefits of beach nourishment.

(d) 'Coastal protection strategies will end in failure'. How far do you agree? Use examples to support your answer. [8]

There are a range of soft and hard coastal engineering measures that can be used to protect the Holderness coast from marine attack. Soft engineering are natural processes while hard engineering involves physical structures. For soft engineering, examples are beach nourishment and planting vegetation while for hard engineering, examples are seawalls and gabions. However, the success of coastal strategies requires a combination of both hard and soft engineering methods in a coastal management strategy to ensure long term success.

For soft engineering, beach nourishment can help slow down erosion of beaches. It involves using sand from an external source to replenish the sand on a depleted beach. This can change a coast into a wide, sandy beach that offers protection to the immediate inland area. However, trucking or piping in sand can be expensive and time-consuming. Coral reefs could also be destroyed as sand used for beach nourishment is washed out to the sea and suffocate the corals. Re-nourished beaches such as those in East Coat Beach, Singapore can also be eroded again. For planting vegetation such as mangroves, it can stabilise coastlines. As mangroves absorb wave energy through their dense root system, it is useful. However, it may take years to establish. Sand dunes can also be stabilised by planting grasses. The roots anchor the sand and prevent erosion. It is not very successful as it is expensive due to the need to replace over time.

For hard engineering measures, constructing seawalls is a method. Seawalls are constructed to protect coastlines against wave attacks by absorbing wave energy and are built parallel to the coast. However, seawalls are costly to build and maintain. Seawalls also only absorb some wave energy and reflect incoming waves, most only achieve initial success. The powerful backwash of the reflected waves washes away the beach materials at the foot of and beneath the seawall causing undercutting. E.g. of seawalls can be seen

in Labrador Park, Singapore and at Changi coast areas, Singapore. This erosion by waves eventually undermines the base of the walls, leading to their collapse. For gabions, they are wired cages filled with crushed rocks. These cages are built along a shore or behind a beach to prevent or reduce coastal erosion by weakening wave energy. Gabions absorb wave energy better than seawalls as the gaps between the rocks allow water to filter through. So, gabions prove to be successful defence against high energy waves. However, they are unsightly and costly to maintain as they are easily corroded by seawater and damaged by excessive trampling or vandalising.

In conclusion, I feel that soft and hard engineering ways are only successful to a certain extent as they are costly and time-consuming if done in isolation. The best strategy is to combinations of both hard and soft strategies e.g. depositing gabions in front of seawalls to prevent undercutting to ensure longer term success. This strategy have proven successful in coastal areas experiencing high wave energy e.g. Jeju island, where tetrapods are placed in front of sea walls to dissipate storm waves coming in from the Pacific Ocean. I disagree with the statement.

Level 1 (1-3 marks)

One or two general statements about how coastal protection activities impacts the human and physical environment. No specific examples given.

Level 2 (4-6 marks)

1 – 2 successes and failures mentioned with specific examples.
No in depth elaboration on how true or not true the statement is.
Brief or limited assessment of factors.

Level 3 (7-8 marks)

2 or more factors elaborated with specific examples given to elaborate on how true and not true the statement is. An evaluated conclusion

3(a)(i) Use Photograph 5, and describe the scene. [4]

- Photograph 5 shows a coastal recreational settlement with strong waves breaking and surging from right to left from a very wide ocean.
- The coastline is crescent shape from left to right and it forms a bay with a mountain at the background to its right. Low lying settlements can be seen at the foothill of the mountain loosely distributed.
- At the end of the northern edge of the bay, there are some tall buildings. This is most probably at the head of the promontory.
- On the left side of the photograph, tall buildings are found closely clustered together from the foreground to the middle ground.
- Fronting the tall buildings is a wide stretch of sandy beach densely dotted with beach goers.
- At the lower left corner there is a hotel looking building with palm trees lined around it.
- 2 sail boats can be seen at the coast line and surfers can be seen on top of the 1st crest of the waves coming to shore.

Award 1m for each description well elaborated and supported with evidence

(a)(ii) Explain how Waikiki Beach could have developed into a popular tourist destination. [5]

- Waikiki Beach is seaside tourist destination with wide sandy beaches and long surging waves for surfing.
- To develop into a tourist destination, Waikiki Beach has to meet 4 criteria, presence of attractions, amenities, access to information and accessibility.
- The main attraction of Waikiki is the presence of the natural wide sandy beach at the bay that have surfing waves developing over a long stretch at the breaker zone and surging towards the shore and breaking gently at the foreshore.
- This accounts for the high concentration of beach goers in Photograph 5 who are there for swimming, surfing, sailing or just sunbathing.
- The presence of Diamond Head, the extinct volcano at the edge of the bay provides a stunning picturesque view of the entire landscape which by itself is an attraction that attracts people to this destination.
- Amenities must also be readily and adequately available in numbers large enough to accommodate holiday goers in peak season. In Photograph 5, we can see a whole stretch of tall buildings lining the coast behind the backshore. These are presumably hotels, resorts and venues for dining and services, amenities needed to make the lives of holiday goers comfortable and memorable.
- Being a key tourist destination in the United States, the level of economic development would be high and financial investments would have poured in to further develop information and communication infrastructure. It can be expected that the city of Oahu is well connected to the world and that its attributes are readily accessible to all who need it.
- Being a developed country, transportation would also be well developed. This makes it very easy for tourist to visit Hawaii and Waikiki Beach as it is very easy to get there with well-developed and connected air routes and internal land transport system.

Award 1m for each point well elaborated

To get 5m, students have to discuss the 4 As with reference to Photograph 5

(b) Use the information provided to assess the impacts that tourism have on the local people of Juju. [4]

- Tourism can bring both positive and negative impacts for the local people.
- From Photograph 6, at the foreground, we see 4 women divers in wet suit getting ready to get into the sea. Behind them, there is a group of tourists tightly pressed together, some with cameras standing hereby at the shoreline.
- (+) The cultural values and practices of these Juju islanders are preserved through such tourist activities as tourists will pay an admission fee to view such spectacle. Furthermore, the harvests from the sea will be sold to these tourists for profits further adding on to the income of these women divers.
- (+) Standing behind the women divers is a speed boat which presumably is used to provide paying tourists rides out into sea. Thus, the attractions of these women divers have further led to the creation of new business opportunities and jobs for the local people further improving their lives.
- (-) Due to the attraction like aspect of these women divers, they have become the object of intense interest which may encroach onto their personal space and self-esteem. Tourists could rudely demand to take photographs of them or with them, sometimes without concern for the feelings or esteem of these women. They are seen like objects of curiosity and interest like what one would see in a zoo.
- (-) Tourists visiting such natural coastal environment might not bring with them bad social behaviours like littering and talking very loudly thus spoiling and contaminating the natural environment.
- (-) Amenities and infrastructures will have to be built to accommodate these tourists further changing the natural landscape into a man-made environment.

Reserve 2m for explaining positive impacts and 2m for negative impacts
To get 4m, students must refer to the evidence in Photograph 6

- (c) With the help of Fig. 3, explain how a country like New Zealand develops its ecotourism sector. [4]
- New Zealand has many ecotourism attractions due to its many naturally occurring physical and natural landscapes. One of them is Waitomo Caves where there are naturally living glow worms.
 - Ecotourism requires the efforts of the entire community to make it successful and sustainable. Strategies to develop ecotourism have to involve the entire community so as to prevent the attractions from being destroyed due to human activities. Such attractions will have to be classified as Protected Natural Areas to minimize impacts from human activities.
 - Due to the often technical considerations in conserving a natural attraction, professional expertise have to be sourced and roped in to study the environment and how best to preserve it. Such help requires Financing to commission such studies and is best done in Partnering with green minded business organisations so that the venture is Sustainable over a long period through Partnership between business organisations, the community and local government. For Waitomo Cave, a scientific advisory committee was hired to help monitor the cave and recommend best tourism practice. In addition tour operations are closely monitored and are halted once the CO₂ level in the cave reaches 2400 parts per million. (above this level, the CO₂ becomes corrosive to the caves),
 - To improve the economic conditions of the local people, the Maori, Education and Training have to be provided to them so that they could be employed to work in these ecotourism attractions with minimal import of outside expertise. This further reinforce in the locals the need to preserve these natural attractions, as now their long term livelihood is tied to it.
 - Care Planning has to be carried out to ensure that the community benefits as much as it could with minimal impacts on the natural environment. These would include the building of infrastructures and amenities to accommodate the increase in tourism.

Award 1m for each well-elaborated point.

To get 4m, student must have reference to Fig. 3 and New Zealand

- (d) 'Tourism causes more harm than bring more benefits to a developing country'. How far do you agree? Use examples to support your answer. [8]

Tourism refers to activities of tourists. In developing countries, tourism can bring about both negative and positive impacts which include economic, socio-cultural and environment impacts.

Tourism affects developing countries economically. It caused an increase in employment opportunities and rise in income. However it also causes seasonal unemployment and shortage of services like water supplies and power in non-tourist areas. The growth of tourism has led to an increase in the number of tourism-related jobs. The tourism industry offers many employment opportunities which include workers in hotels, souvenir shops and tour guides. Jobs can also be indirectly linked to the tourist industry whenever tourists travel and consume goods. Examples of these jobs are taxi drivers. In 2011, the UNWTO estimated that the tourism industry employed over 235 million people worldwide. Tourism also caused a growth of

income. For example, fishermen on Pamilacan Island being paid between US\$80 and US\$100 per boat to take domestic and international tourists on their boats to look for and swim with whale sharks and dolphins. This is a significant amount for an average Filipino fisherman. However, the tourism industry in some countries experience seasonal unemployment. This is because certain tourists' activities depend on climate conditions. These countries may experience a rise in tourists' numbers for several months followed by a drop in tourists' numbers for the next few months. An example is the city of Sapporo, Japan receives a large number of visitors from December to February to engage in winter sports. This increases employment rate as more workers is needed to cater to the high tourist demand during the winter period. In other time of the year, these workers have to find other sources of income which decreases their income and this affect the economy of the country. Additionally, tourist infrastructure may require the use of large amounts of land, water and power. This could lead to a shortage of services like water supply, power in non-tourist areas. For example, large amount of water are required to water the grass on golf course and fill swimming pools. Drinking water for nearby residents could be diverted to meet the needs of tourist infrastructure. This will be a problem for these residents as they might face insufficient supply of water. Hence, tourism has its advantages and disadvantages economically.

Tourism also has socio-cultural impacts like preservation of culture and local customs or dilution of culture and local customs and even increases crime rate. Preservation of cultures is the protection of the way people live, including their economic activities, traditional beliefs and religious practises. For example, entry fees to the Angkor Wat complex in Cambodia are used directly to fund conservation efforts. On the other hand, the identity, culture and values of a place can be lost when tourism becomes the major activity of an area. For example, tourists pay a hefty fee to enter the village of Kayan Lahwi women in Thailand. Due to the entrance fee, some tourists treat the women as exhibits that they have paid for and sometimes, aggressively take photographs of the women without permission. Also, high crime rates may occur at popular tourist sites. For example, in Louvre, Paris are facing increasing problem of pickpockets working in the famous museum. This might deter other tourists to visit the museum. Hence, tourism brought about both benefits and problems.

Tourism can have both positive and negative impacts on the environment like conservation of natural environments, pollution, littering and increased carbon footprints. The funding tourism provides help to conserve environments such as coral reefs, rainforests and mountainous areas. For example, the Sepilok Orang-Utan Rehabilitation Centre in Sabah, Malaysia partly relies on visitor entry fees to pay its staff. Having tourists to visit these rehabilitation centres ensures that workers are paid to help protect orang-utans that have been orphaned or injured. Pollution and litter from tourists have become a major problem. For example, solid and liquid wastes are sometimes dumped into the Caribbean Sea by ships. Pollution in sea can cause serious harm to marine animals. Tourism also increased carbon footprint which is the amount of greenhouse gas emissions that would be produced by activities that involve the use of fossils fuels. For example, the carbon footprint of a one-way economy class flight from Singapore to KL is 30kg of carbon dioxide per passenger. This would lead to global warming which will affect the environment negatively.

In conclusion tourism has more benefits than problems in developing countries. Tourism helps to bring in revenue for a country and improve the economy of a country. When economy improved, people's lives will be easier and their income will increase. Also, these countries can spread their revenue to improve its infrastructure to attract even more tourists. This helps to keep a regular stream of tourists coming to the countries which help sustain the economy of these countries.

Level 1 (1-3 marks)

One or two general statements about how tourism activities impacts the human and physical environment. No specific examples given.

Level 2 (4-6 marks)

1 – 2 benefits and harm mentioned with specific examples.
No in depth elaboration on how true or not true the statement is.
Brief or limited assessment of factors.

Level 3 (7-8 marks)

2 or more factors elaborated with specific examples given to elaborate on how true and not true the statement is. An evaluated conclusion



Geylang Methodist School (Secondary) Preliminary Examination 2016

HUMANITIES

2236/02

Paper 2 Geography

4 Express

Additional materials :
Writing paper

1 hour 30 minutes
12 Aug 2016

READ THESE INSTRUCTIONS FIRST

Write in dark blue or black pen.

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

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

Section A (25 marks)

Answer **one** question.

Section B (25 marks)

Answer **one** question.

You are encouraged to support your answers with the use of relevant examples, sketch maps and diagrams.

Begin your answer on a new and separate sheet of paper for each question.

Write all answers on the writing paper provided.

At the end of the examination, fasten all your work securely together.

Section A

Answer **one** question from this section.

- 1 (a) Study Fig. 1 which shows the plates and the locations of significant earthquakes indicated by triangles.

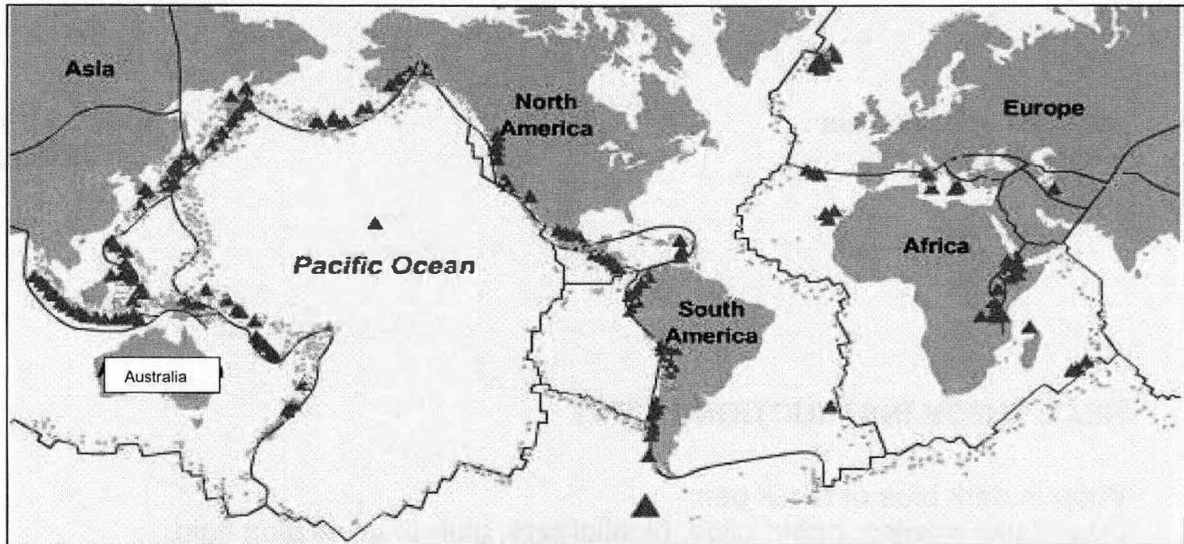


Fig. 1

- (i) With reference to Fig. 1, describe the distribution of earthquakes. [3]
- (ii) Account for the distribution shown in Fig. 1. [4]

- (b) Study Fig. 2 which shows the damage caused by earthquakes in Nepal.

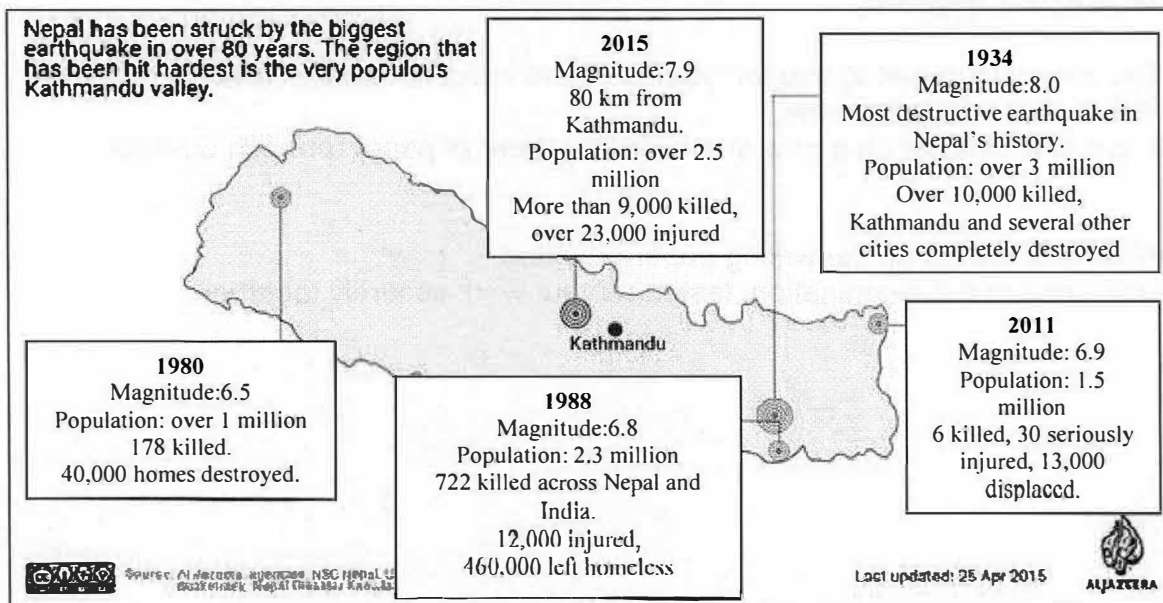


Fig. 2

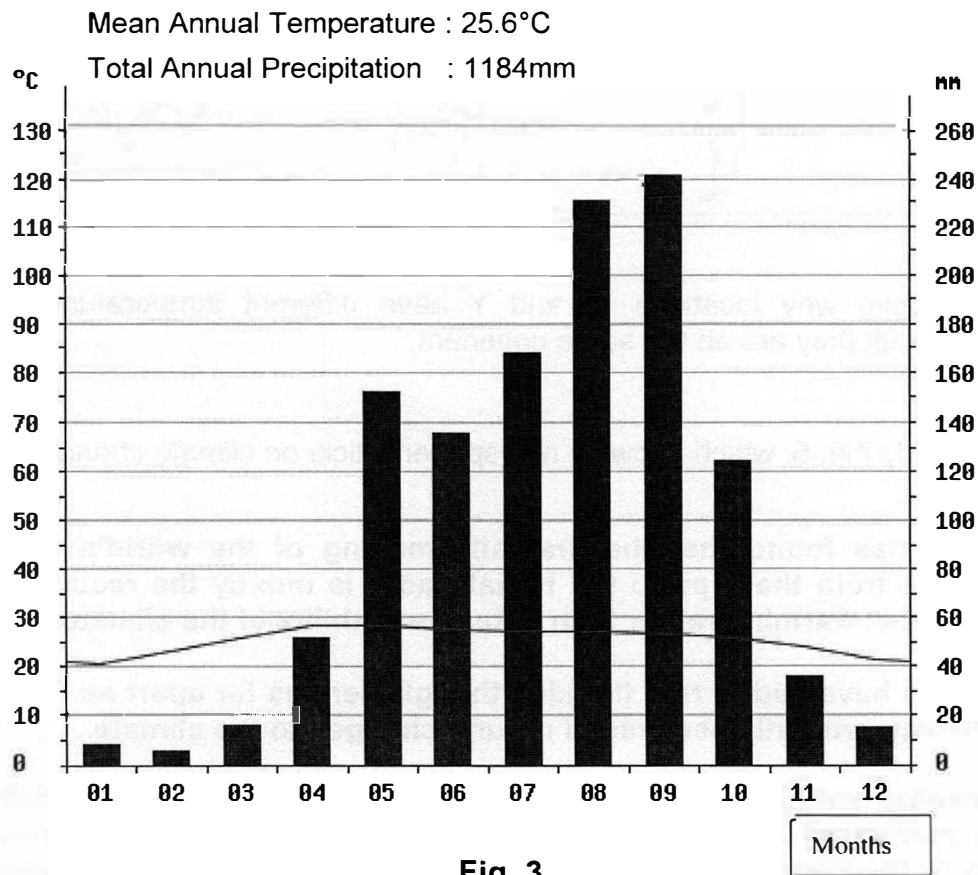
With reference to Fig. 2 and your own knowledge, suggest reasons for the difference in the damage shown. [4]

[Turn Over]

(c) With the aid of well-labelled diagrams, explain how rift valleys and block mountains are formed. [6]

(d) 'Tsunamis are the most devastating effect of earthquakes.'
How far do you agree with this statement? Support your answer using evidence. [8]

2 (a) Study Fig. 3, which shows a climograph for Chiang Mai in Thailand.



Describe and account for the precipitation shown in Fig. 3. [4]

- (b) Study Fig. 4, which shows the locations of two places, W and Y, with different temperatures at the same time of the year.

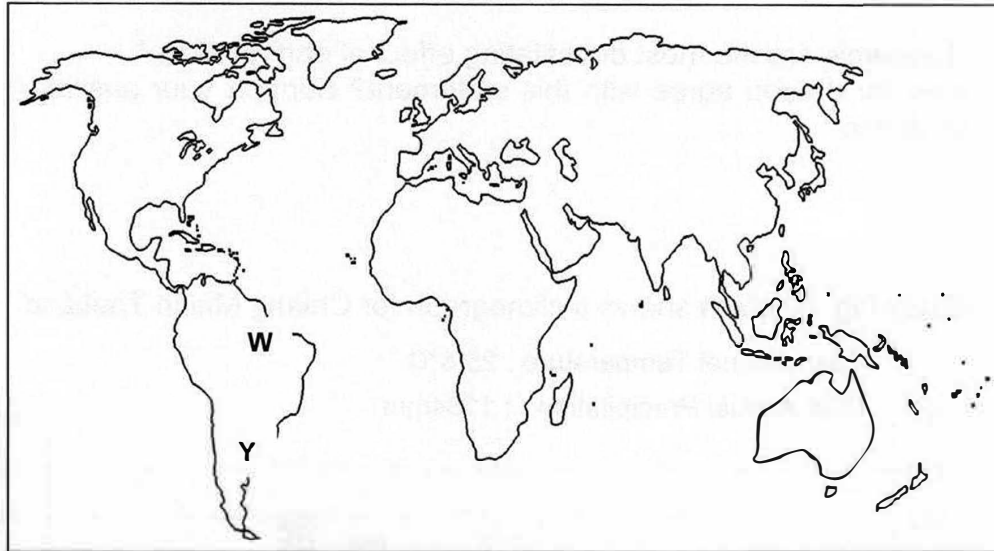


Fig. 4

Explain why locations W and Y have different temperatures even though they are on the same continent.

[4]

- (c) Study Fig. 5, which shows a newspaper article on climate change.

A study has found that the dramatic melting of the world's mountain glaciers – from the Alps to the Himalayas – is mostly the result of man-made global warming rather than natural variability of the climate.

Scientists have laid to rest the idea that glaciers as far apart as Patagonia are melting primarily because of natural changes to the climate.

An assessment of about 200 000 glaciers in the world, some of which have been monitored since the mid-19th century, has found that about two thirds of the current rate of glacial melting is due to human influences on the climate.

Fig. 5

- (i) Describe the human causes that have led to climate change. [4]
- (ii) Describe the positive and negative impact that people are facing due to the climate change shown in Fig. 5. [5]
- (d) 'The benefits of living near volcanoes far outweigh the risks.' To what extent do you agree with this statement? Support your answer with example(s). [8]

[Turn Over]

Section B

Answer **one** question from this section.

- 3 (a)** Study Fig. 6 which shows the food intake for Country A and Country B.

Food intake	Country A	Country B
Average daily food intake [calories per person]	2205	3770
Cereal, eg wheat and rice [thousand tonnes]	39 000	330 000
Roots, eg potatoes and tapioca [thousand tonnes]	1503	22 200
Pulses, eg beans and lentils [thousand tonnes]	480	1751
Meat [thousand tonnes]	450	38000

Fig. 6

- (i) Compare the food consumption patterns between Country A and Country B shown in Fig. 6. [4]
- (ii) Account for the variations in the food consumption patterns in Country A and Country B. [3]
- (iii) Suggest how the variations in food consumption may have different impacts across the world. [5]

- (b) Fig. 7 shows some ways of intensifying food production.

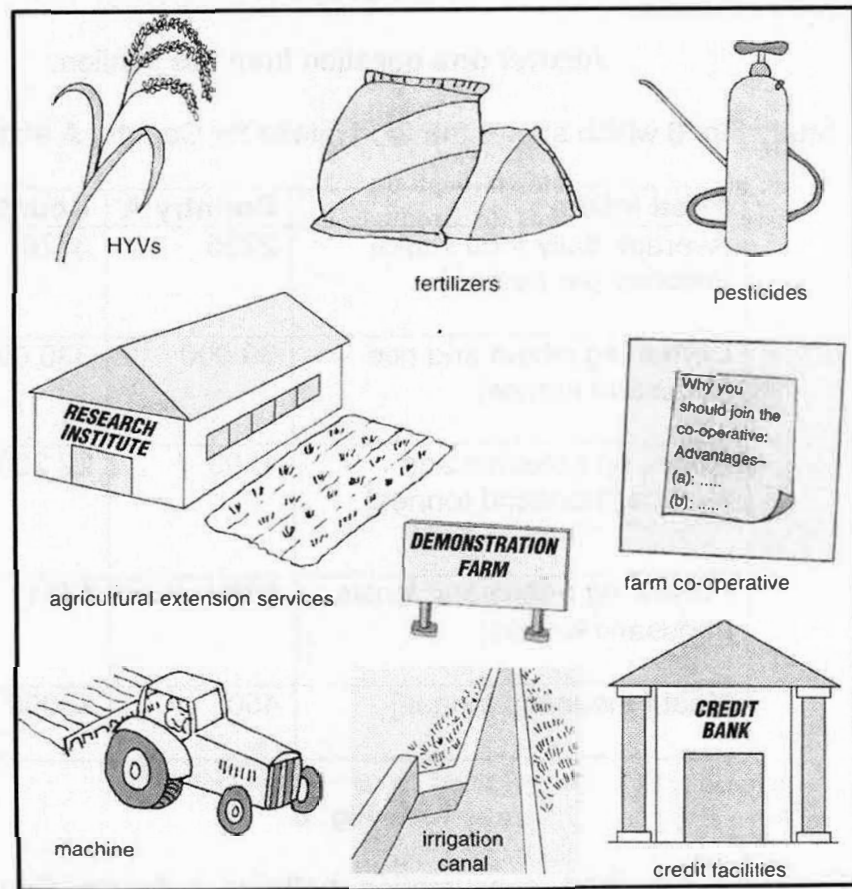


Fig. 7

With reference to Fig. 7, discuss how ways of intensifying food production can affect the water and soil quality. [5]

- (c) With reference to examples, assess the effectiveness of technological advances that people have used to increase food production. [8]

- 4 (a) Study Fig. 8, which shows the map extract of Shamva, Zimbabwe.

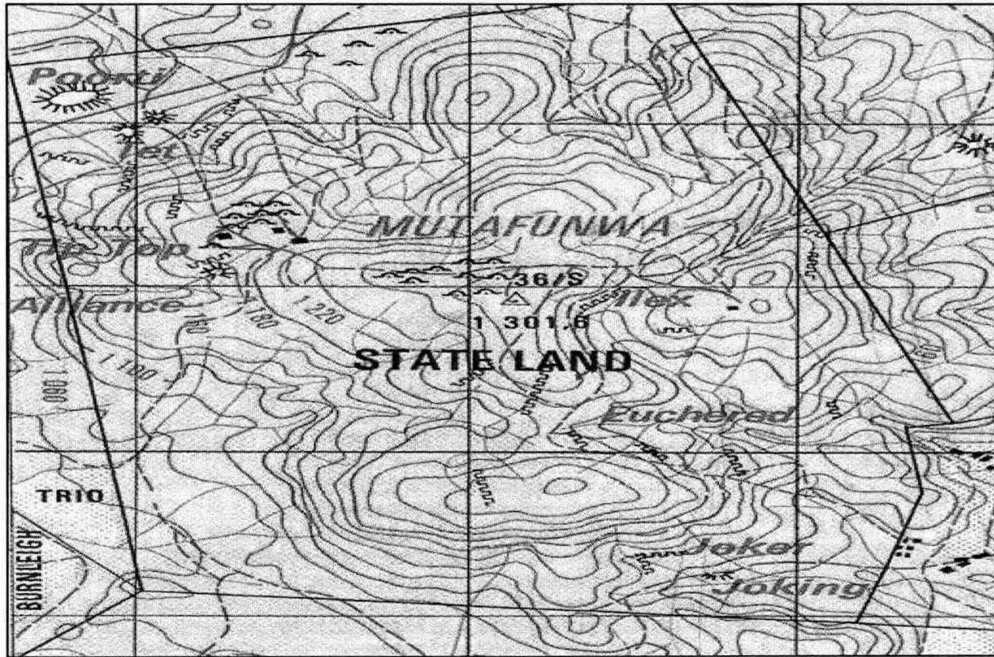


Fig. 8

Describe the methods that can be used to make the area suitable for cultivation.

[4]

- (b) Fig. 9 shows the different causes of death between the developed and developing regions in the world.

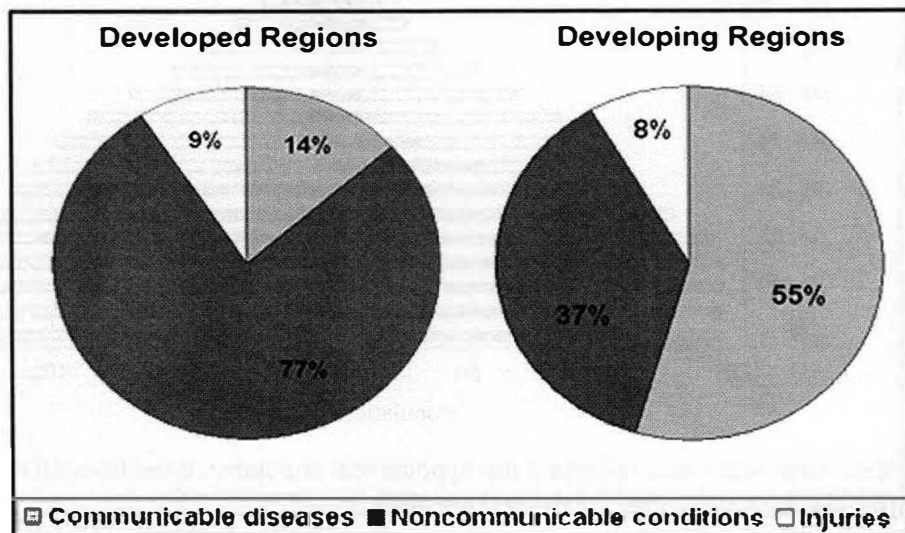


Fig. 9

With reference to Fig. 9, explain the main causes of death in the developed and developing regions in the world.

[4]

- (c) Fig. 10 shows the projected population size with and without AIDS, of Botswana in 2000 and 2025.

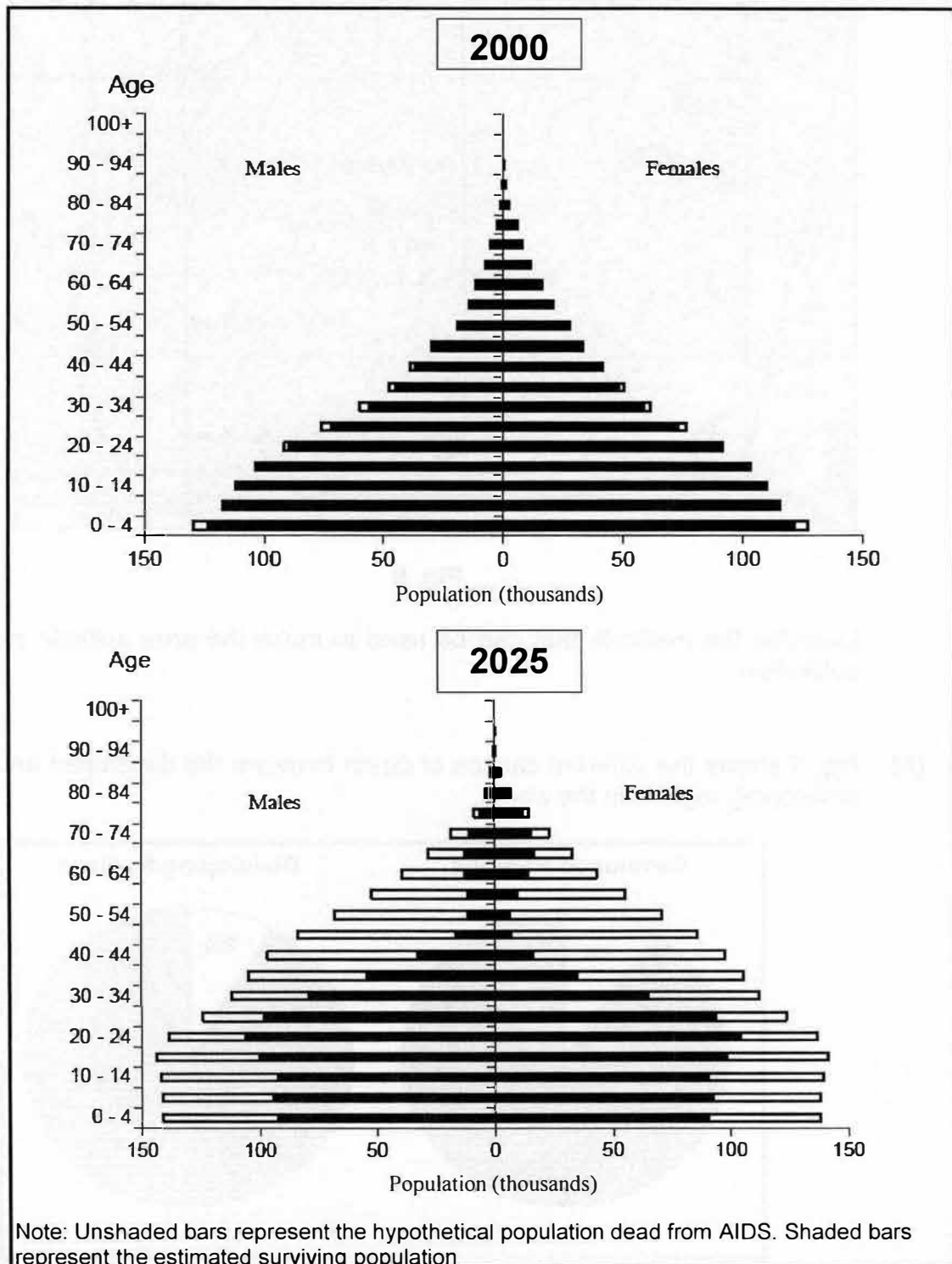


Fig. 10

With reference to Fig. 10 and studies you have made, discuss the impact of HIV/AIDS on Botswana's demography and economy in 2025. [6]

- (d) Fig. 11 shows the number of people who were infected with HIV/AIDS in 2012.

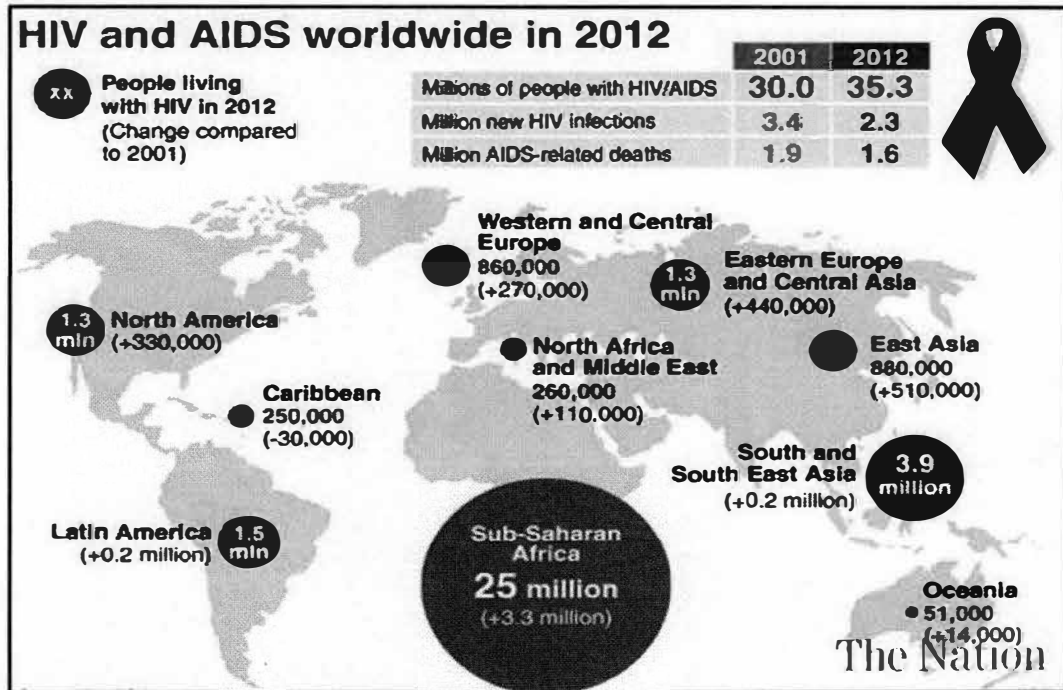


Fig. 11

- (i) Describe the spread of HIV/AIDS in the world. [3]
- (ii) Assess the success of the measures which have been adopted to manage HIV/AIDS in a country you have studied. [8]

Answer Scheme for Sec 4E Core GY Paper2 Prelims 2016

Section A

Answer one question from this section.

- 1 (a) Study Fig. 1 which shows the plates and the locations of significant earthquakes indicated by triangles.

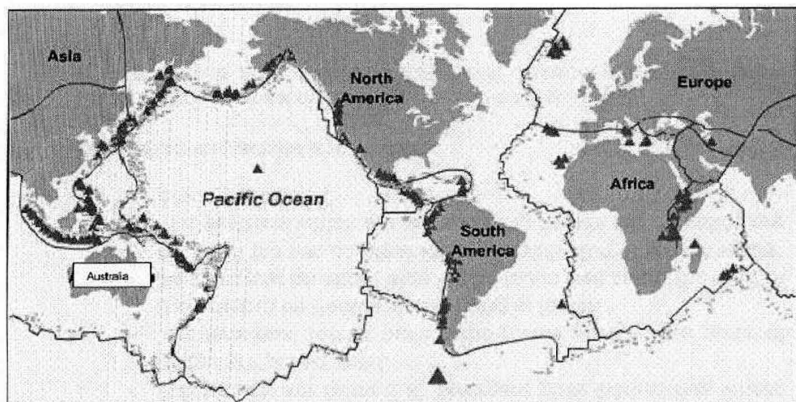


Fig. 1

- (i) With reference to Fig. 1, describe the distribution of earthquakes. [3]
- Along boundaries of tectonic plates
 - Higher number of earthquakes along boundaries of Pacific plate
 - Earthquake between North America and Pacific plate /any other examples from Fig. 1.
 - Other accepted answers: some found in the sea or not along the boundaries
- (ii) Account for the distribution shown in Fig. 1. [4]
- Convectional current within the mantle causes the plates to be dragged along and the slab pull force occurs when the dense, sinking oceanic plate at the subduction zones pull the rest of the plate behind it.
 - When plates move towards, away or slide pass each other, stress builds up in the rocks on either side of the plate.
 - When the rocks can no longer withstand the increasing stress, they can suddenly slip causing earthquakes.
 - The Pacific plate borders many other plates and thus there is a greater occurrence of earthquakes.

[Turn Over]

- (b) Study Fig. 2 which shows the damage caused by earthquakes in Nepal.

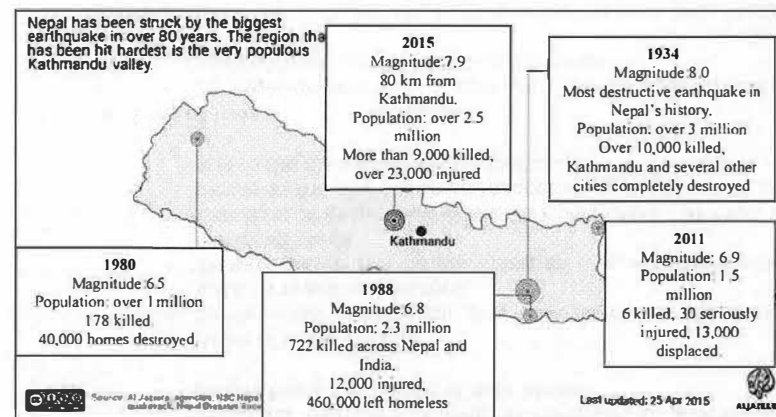


Fig. 2

With reference to Fig. 2 and your own knowledge, suggest reasons for the difference in the damage shown. [4]

*Reserve 1m for reference to the figure.

* Explanation of magnitude / population must be shown

- Magnitude of earthquake (Compulsory reason as shown in Fig. 2)
 - Greater the magnitude the greater the damage.
 - 1934 earthquake had a magnitude of 8 and death toll of over 10000, while the 1980 earthquake had a magnitude of 6.5 and only 178 killed.
- Population density (shown in fig)
 - More people in the area thus more damaged compared to an area with less people
 - 2011: population of 1.5 million, 6 killed. 1934: population over 3 million, over 10000 killed
- Level of preparedness
 - When people are more prepared, they know what to do in times of earthquake, thus the damage will be less
- Distance from the epicenter
 - When a place is nearer to the epicenter, the damage caused will be more severe.
- Time of occurrence
 - There is a higher chance of survival if the earthquake occurs in the day when people are awake and can escape from the earthquake, compared to when they are sleeping in the middle of the night.

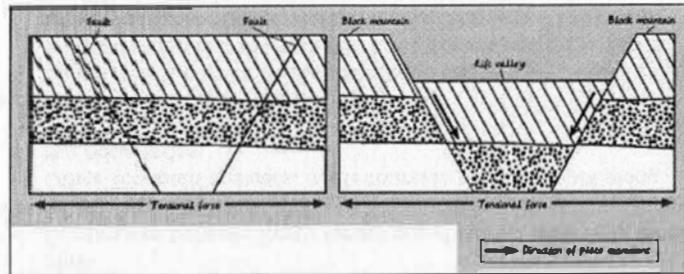
Type of soil

[Turn Over]

- In places where the sediments are loose and unconsolidated, the seismic waves are amplified and this results in greater damage when earthquake occur.

Accept any 4 factors

- (c) With the aid of well-labelled diagrams, explain how rift valleys and block mountains are formed. [6]



- Convectional current within the mantle causes the plates to be dragged along and the slab pull force occurs when the dense, sinking oceanic plate at the subduction zones pull the rest of the plate behind it.
- Rift valleys are formed at divergent plate boundaries where plates are pulled apart.
- The tensional forces pulling the plates apart cause parts of the crust to be fractured, resulting in faults.
- As the crust on either side of the faults pull apart, the land in between the two continental plates sinks forming a rift valley.
- The sections which are left standing beside the rift valley are block mountains.

2m for diagram, accept any 3 points

- (d) 'Tsunamis are the most devastating effect of earthquakes.' How far do you agree with this statement? Support your answer using evidence. [8]

- Threat of tsunamis
 - Tsunami refers to an usually large sea wave.
 - Tsunamis may be formed by:
 - The movement of the sea floor during a large earthquake at subduction zones;
 - An underwater volcanic eruption;
 - An underwater landslide; and
 - A landslide above sea level which causes materials to plunge into the water.
 - In 2004, a 9.2 magnitude triggered a tsunami with waves spreading throughout the Indian Ocean

- Disruption of services
 - An earthquake can disrupt services such as the supply of electricity, gas and water
 - The earthquake in Kobe, Japan, in 1995 disrupted electricity, gas and water supplies to about a million of Kobe city's 1.4 million residents
- Fires
 - Earthquakes may rupture gas pipes and this can provide fuel to start fires
 - For example, the earthquake in Kobe, Japan, in 1995 caused extensive fires
- Landslides
 - Landslides are rapid downslope movements of soil, rock and vegetation
 - Mudflows may also occur when there is heavy rainfall
 - Example: In 1970, an earthquake off the coast of Peru destabilized the slopes of Mount Huascaren and triggered a massive landslide. The landslide travelled at more than 160km/h and completely flattened the town of Ranrahirca within seconds. The death toll was more than 18,000 people and only 200 people survived the disaster.
- Destruction of properties
 - Earthquakes can cause destruction to many homes
 - People may be without homes after the disaster
 - Example: The earthquake in Tohoku, Japan, in 2011 caused a tsunami which travelled 10km inland and caused extensive structural damage resulting in hundreds of thousands of people being forced out of their homes.
- 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
 - Example: after the earthquake in Kobe, Japan, in 1995, many places in the city becomes inaccessible or difficult to reach due to the disruption to transportation
- Loss of lives
 - Earthquakes and their associated hazards often threaten the lives of those living in earthquake zones

In conclusion, tsunamis are devastating as can be seen from the 2004 boxing day tsunami and 2011 Tohoku earthquake whereby there is great loss of lives and destructions. But these Tsunami are rare and need to have a strong magnitude earthquake before they are created and usually only the coastal areas will be more affected. The other

effects like Fires and disruption by earthquakes are more devastating as they are more frequent and more impactful.

Level 1 (0-3m)	Simple discussion on impacts of Tsunami. No examples on impacts of Tsunami. No evaluation is given.
Level 2 (4-6m)	Explanation on impacts of Tsunami and other impacts due to earthquakes. One to two examples on impacts of Tsunami and other impacts due to earthquakes. No evaluation is given.
Level 3 (7-8m)	Explanation on impacts of Tsunami. Two to three examples on impacts of Tsunami and other impacts due to earthquakes. Evaluation is given on the impacts on impacts of Tsunami and other impacts due to earthquakes. Conclusion on whether tsunami are the most devastating effect of earthquakes.