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Geylang Methodist School (Secondary) Preliminary Examination 2017

HUMANITIES

2236/01

Paper 1 Geography

4 Express

Additional materials : Writing paper, Insert

1 hour 40 minutes
11 Aug 2017

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 the 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.

This document consists of 8 printed pages.

Section A

Question 1 is compulsory for all candidates.

- 1 A group of students wanted to study about tourism in Sentosa Island, Singapore. Fig. 1 (Insert) shows a map of Sentosa Island. The students wanted to find out which part of Sentosa is the more popular destination among tourists and wanted to test the following hypothesis.
- Hypothesis:** The beach is the most popular tourist attraction in Sentosa.
- (a) Using Fig. 1, suggest a location in which the students can conduct their questionnaire and give your justifications. [3]
- (b) The students designed a questionnaire as shown in Fig. 2 (Insert).
- (i) What are some of the considerations that the students need to take into account to ensure that the data collection is reliable? [4]
- (ii) Discuss the advantages of open-ended questions in the questionnaire. [2]
- (iii) The students decided to categorise the tourist sites as shown in Fig. 3. Fig. 4 shows the results of parts of the questionnaire.

Categories of sites in Sentosa

Category 1: Heritage Sites	Category 2: Animal Kingdom	Category 3: Adventure	Category 4: Relaxation	Category 5
- Fort Siloso - Sentosa Merlion - Images of Singapore Live	- Butterfly Park and Insect Kingdom - Underwater World Singapore and Dolphin Lagoon - S.E.A. Aquarium	- Adventure Cove Waterpark - Skyline Luge Sentosa - Universal Studios Singapore	Beaches	- Others: _____ _____ _____ _____

Fig. 3

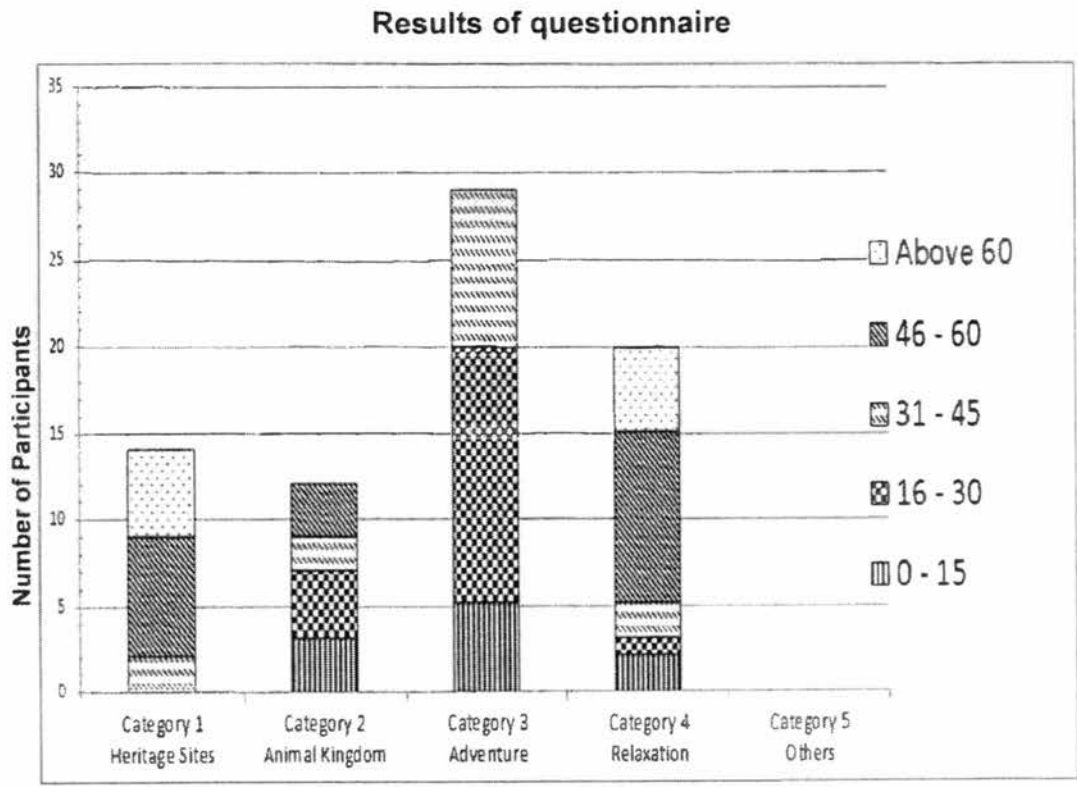


Fig. 4

Suggest another graph which can be used to represent the data shown in Fig. 4 and give reasons for your answer. [3]

(iv) Discuss the validity of the hypothesis as stated in 1(a). [3]

(c) Study Fig. 5A and Fig 5B, which show the results based on the last two questions of the questionnaire as shown in Fig. 2 (Insert).

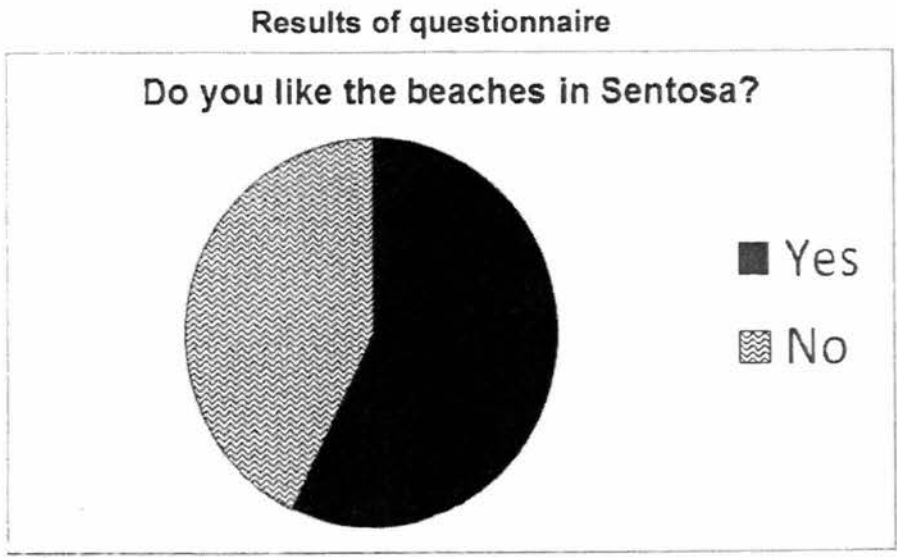


Fig. 5A**Reasons for whether the tourists like the beaches**

Yes	No
Clean, Not polluted	Artificial
Quite beautiful with its wide sandy beaches	Not a scenic view beyond the bay
Excellent facilities like nearby toilet, shower rooms, lifeguard	Too many no swimming zones and limited swimming areas
Not eroded like East Coast Park Beach	Too dirty

Fig. 5B

- (i) Design a perception survey to find out the tourists' impression of the beach. [3]
- (ii) Some of the students wanted to conduct another fieldwork to find out about the type of waves and the slope on a part of the beach in Sentosa as shown on Fig. 6 (Insert).
Draw an annotated field sketch of the beach as shown on Fig. 6 (Insert) [4]
- (iii) Describe how the students can go about collecting reliable data to determine the type of waves at the beach. [3]

Section B

Answer **one** question from this section.

- 2 (a) Study Fig. 7 which shows a coastal area.

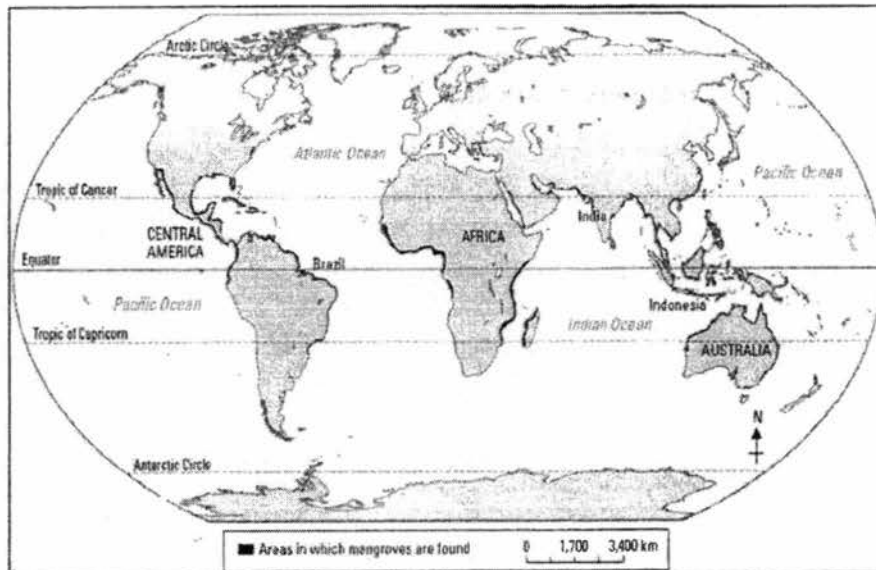


Source: Global Road Trippers

Fig. 7

- (i) Identify the coastal feature labelled X. [1]
- (ii) With the aid of a diagram, explain the formation of feature X. [6]
- (b) Describe the conditions that are needed for corals to grow. [4]

- (c) Fig. 8 shows the distribution of mangroves.

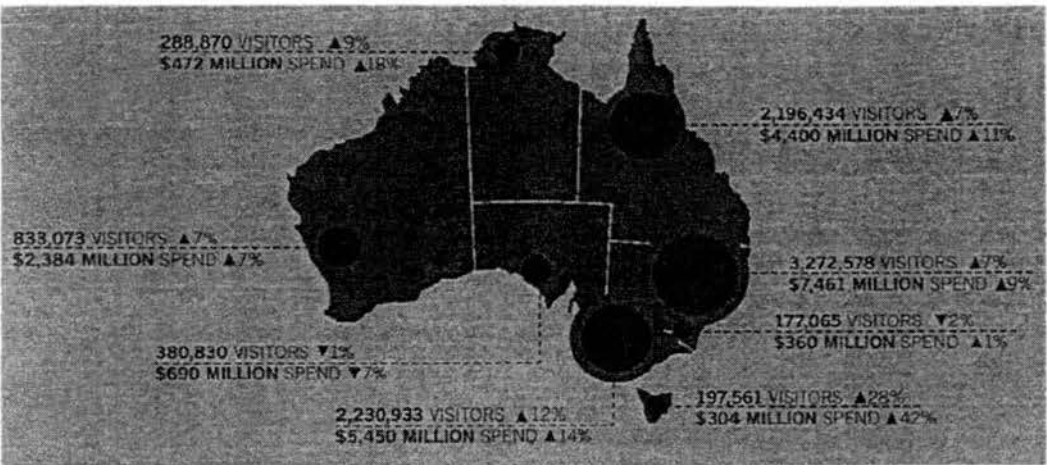


Source: Pearson

Fig. 8

- With reference to Fig. 8, describe the distribution of the mangroves. [3]
- (d) Describe the factors that will affect wave energy. [3]
- (e) 'Humans are the main cause of coastal destruction.'
With the use of specific examples, evaluate this statement. [8]

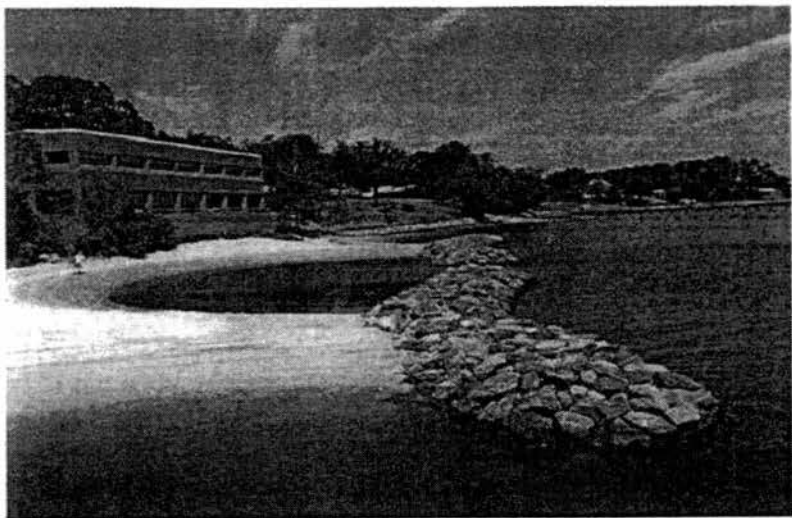
- 3 (a) Study Fig. 9 which shows the international visitor numbers and tourism receipts in Australia in 2014.



Source: tra.gov.au

Fig. 9

- (i) Describe the relationship between visitor arrivals and tourism receipts in Australia in 2014 in Fig. 9. [3]
- (ii) A popular tourist attraction in Australia is the Great Barrier Reef. Explain how tourism may have a negative impact on the coral reefs. [3]
- (b) With reference to specific examples, briefly explain how an outbreak of diseases can affect tourism. [4]
- (c) Fig. 10 shows a form of coastal protection.



Source: <http://ccrm.vims.edu>

Fig. 10

Identify the coastal protection measure and explain the drawbacks associated with this measure. [3]

- (d) Fig. 11 is an extract from the Singapore Tourism Board.

Aligning this with existing marketing campaigns, STB has added new digital and social media initiatives to further increase interaction with target audiences from key markets, and exchange information and ideas online.

One of the recent initiatives was the strategic partnership forged with TripAdvisor. Through this partnership, STB is now able to provide updated user-generated content on YourSingapore.com, such as TripAdvisor ratings, reviews and opinions on Singapore's restaurants, attractions and shopping. The partnership also extends to the inclusion of our destination content on TripAdvisor's Singapore City Guides mobile application, which provides expertly curated itineraries, self-guided tours, transit maps, and hotel, restaurant, and attraction reviews from the TripAdvisor community.

STB also launched a suite of destination videos on the YourSingapore YouTube channel in March 2013.

Source: STB

Fig. 11

With reference to Fig. 11, explain how the use of different media could facilitate an increase in tourists traffic to Singapore. [4]

- (e) How far do you agree that local communities play a more important role than tourists in achieving sustainable tourism? Evaluate with the use of specific examples. [8]

END OF PAPER

[Turn Over]



Geylang Methodist School (Secondary)

**Humanities
Department**

Geography

Name: _____

Class: _____

Date: _____

Insert

A map of Sentosa Island, Singapore

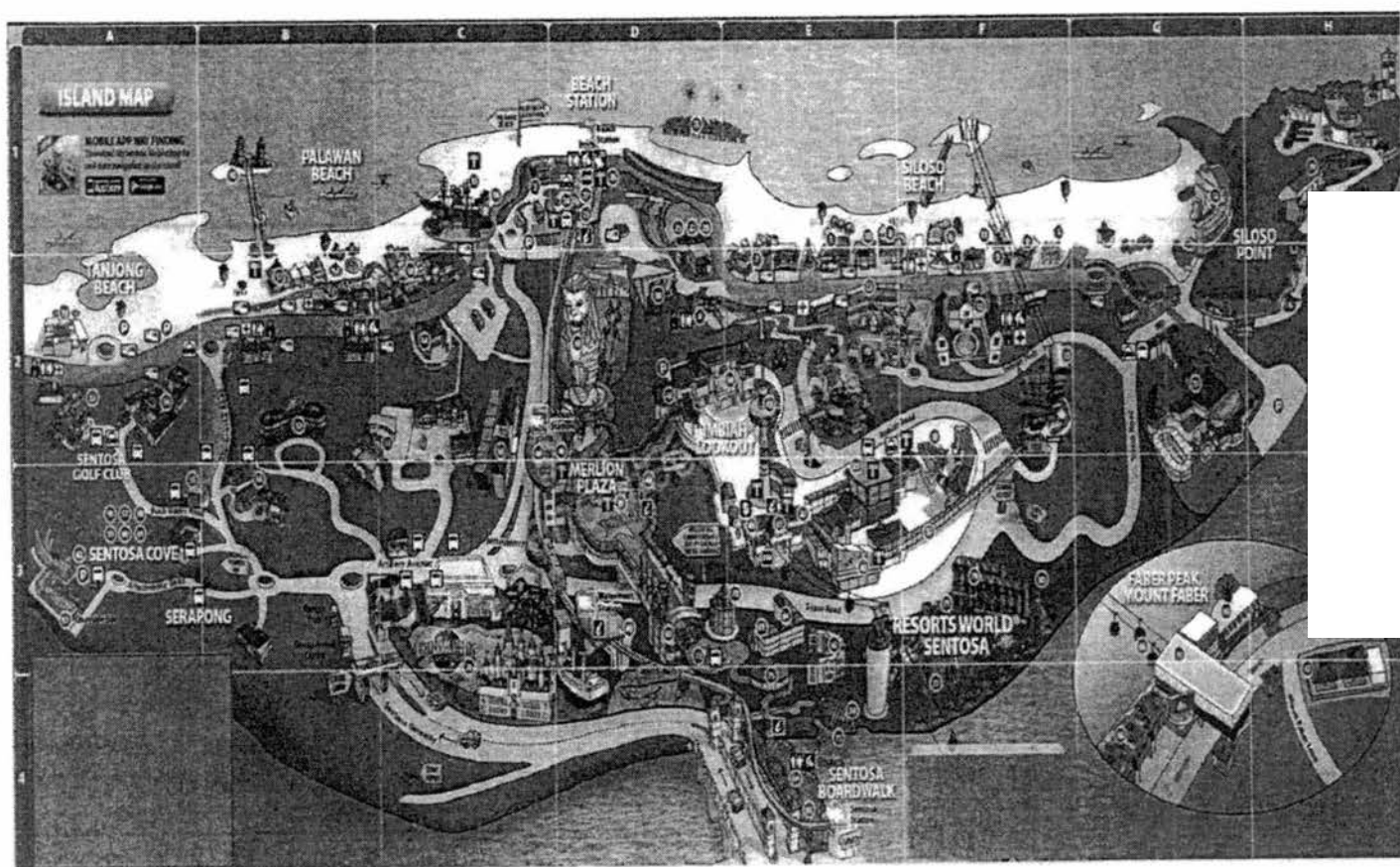


Fig. 1 for Question

[Turn Over]

GMS(S)/GY/P1/PRELIM2017/4E

Questionnaire

Dear Participants, We are a group of students from Geylang Methodist and we would like to find out which is the most popular tourist site in Sentosa Island. Your inputs would help us greatly. This survey will only take 5 minutes. Thank you!	
Gender:	☐ Male ☐ Female
Age group (years old):	☐ 0 – 15 ☐ 16 – 30 ☐ 31 – 45 ☐ 46 – 60 ☐ Above 60
Country of Origin:	☐ Asia: _____ ☐ Europe: _____ ☐ Africa: _____ ☐ Americas: _____ ☐ Middle East: _____ ☐ Others: _____
How many times have you been to Sentosa?	☐ 1 ☐ 2 to 3 ☐ 4 to 5 ☐ Above 5 times
Which of the following places do you most look forward to visiting in Sentosa?	☐ Fort Siloso ☐ Sentosa Merlion ☐ Images of Singapore Live ☐ Butterfly Park and Insect Kingdom ☐ Underwater World Singapore and Dolphin Lagoon ☐ S.E.A. Aquarium ☐ Adventure Cove Waterpark ☐ Skyline Luge Sentosa ☐ Universal Studios Singapore ☐ Beaches ☐ Others: _____
For the choice you have indicated, explain why:	
Do you like the beaches in Sentosa?	☐ Yes ☐ No
Why or why not?	

Fig. 2 for Question 1**[Turn Over]**

A beach at Sentosa

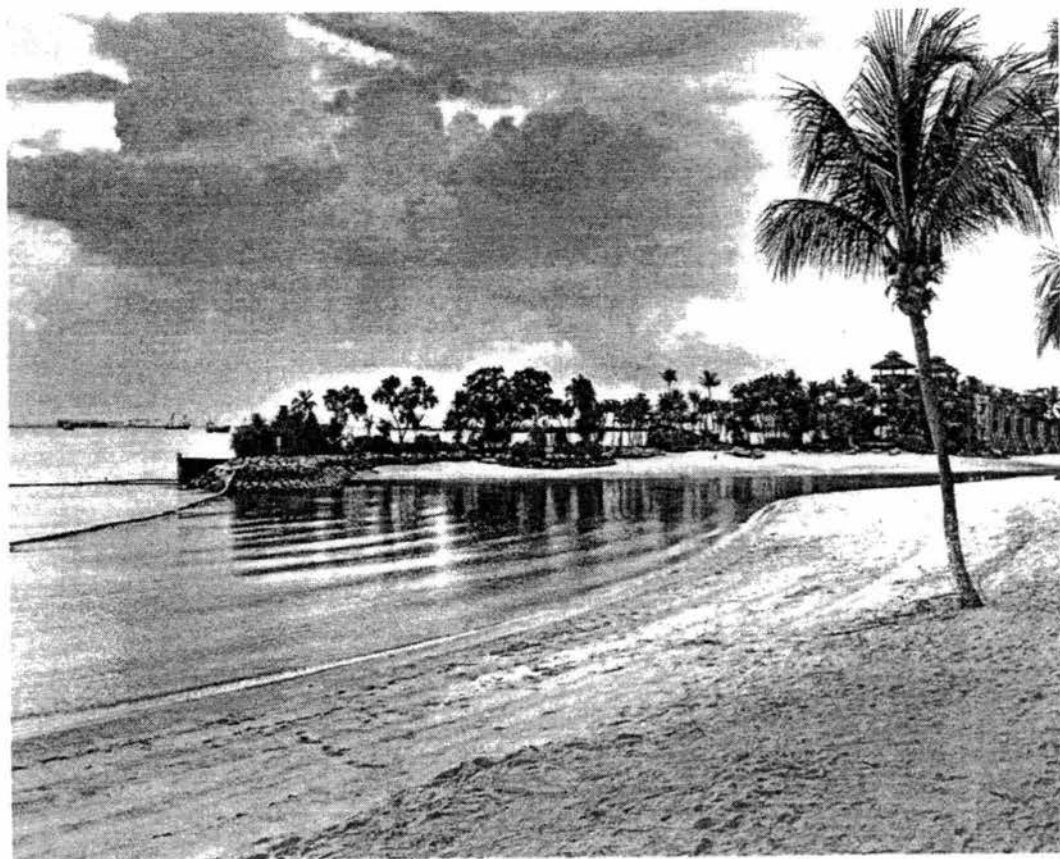


Fig. 6 for Question 1



Geylang Methodist School (Secondary) Preliminary Examination 2017

HUMANITIES

2236/2

Paper 2 Geography

4 Express

Additional materials :
Writing paper

1 hour 30 minutes
16 August 2017

READ THESE INSTRUCTIONS FIRST

Write in dark blue or black pen.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Section A

Answer **one** question.

Section B

Answer **one** question.

Write all answers on the writing papers provided.
Candidates should support answers with the use of relevant examples.
Sketch maps and diagrams 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.

Section A

Answer **one** question from this section.

- 1 Study Fig. 1, which shows information on Typhoon Vongfong moving across Japan.

Map of Typhoon Vongfong moving across Japan

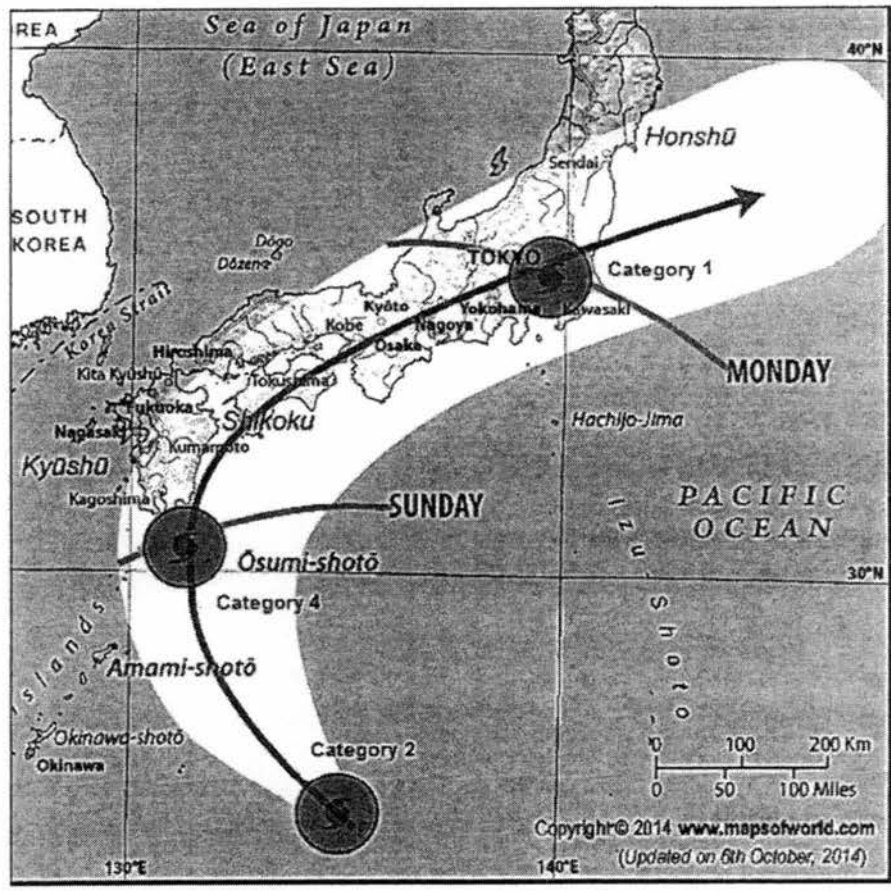


Fig. 1

- (a) Based on Fig. 1, describe and account for the path and intensity of Typhoon Vongfong moving across Japan. [5]

- (b) Study Fig. 2, which shows where major earthquakes have taken place in California, USA.

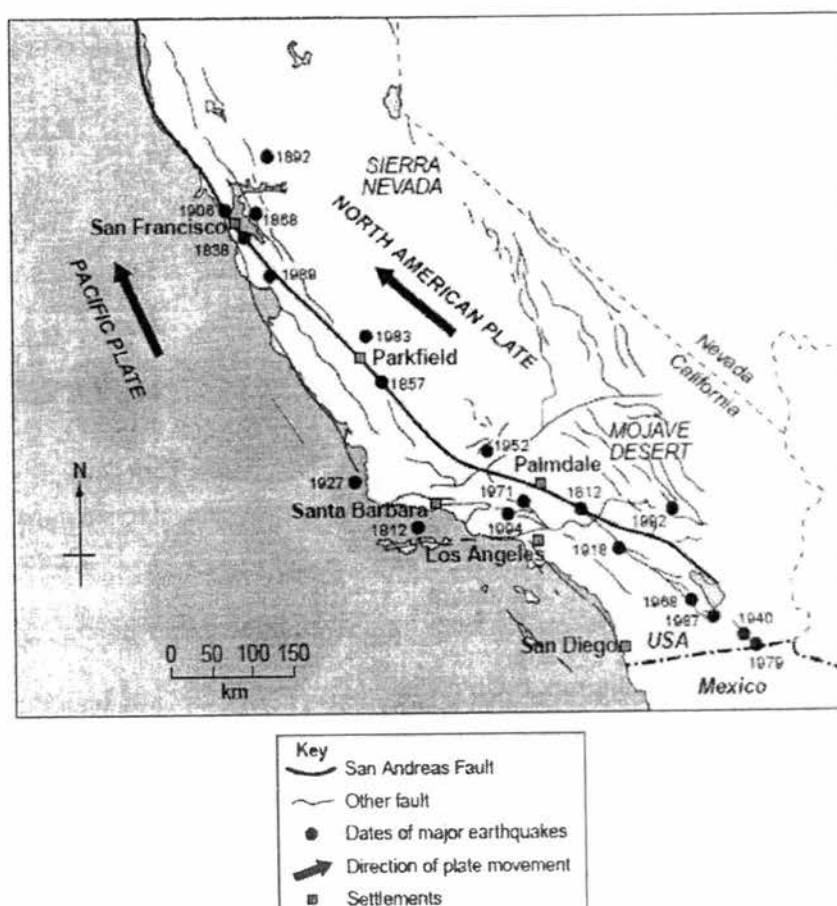


Fig. 2

- (i) San Francisco was affected by an earthquake in 1989.
What was the distance and direction of this earthquake from San Francisco? [2]
- (ii) Explain why earthquakes take place on or close to major faults, such as the San Andreas Fault. [5]
- (c) Compare the landforms and processes involved when two continental plates converge and two continental plates diverge. Support your answer with relevant examples. [5]
- (d) 'Unlike volcanic areas where people stay for the benefits despite the hazards, earthquake zones only bring hazards for people living there.'
To what extent do you agree with the statement? Give reasons to support your answer. [8]

- 2 (a) Study Fig. 3, which shows some impacts to United States by Hurricane Sandy in 2012.

Information on Hurricane Sandy in 2012

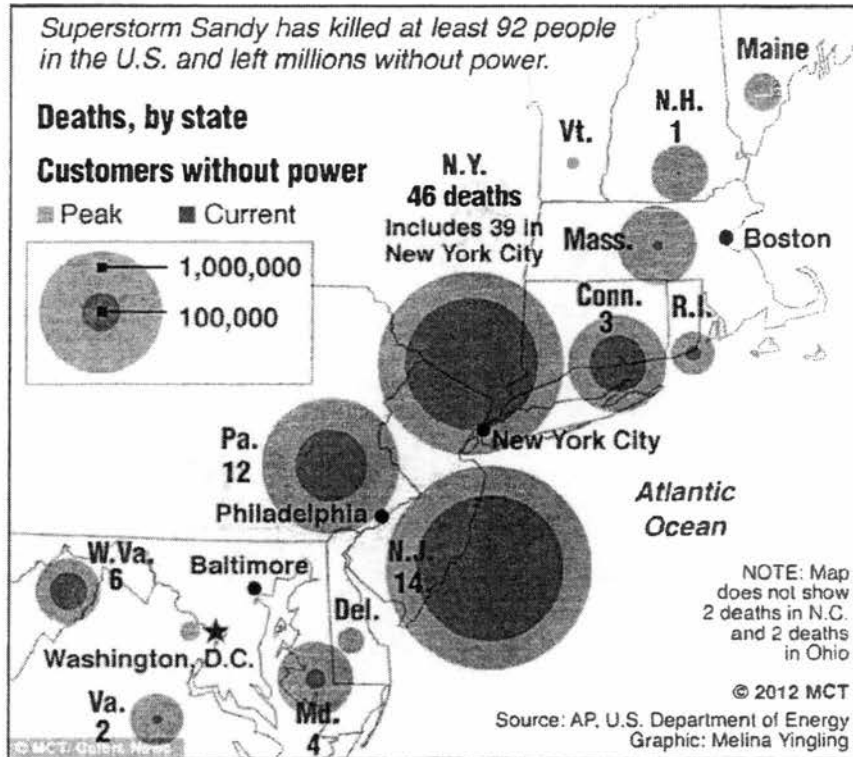


Fig. 3

- (i) Based on Fig. 3, describe the distribution of the current impact of Hurricane Sandy. [4]
- (ii) With reference to Fig. 3 and studies made, explain the economic impacts of Hurricane Sandy. [4]
- (b) Discuss the effectiveness of the Kyoto Protocol. [4]

- (c) Study Fig. 4, which shows the distribution of tropical climate zone.

World Map showing Geographical Distribution of Tropical Climate Zone

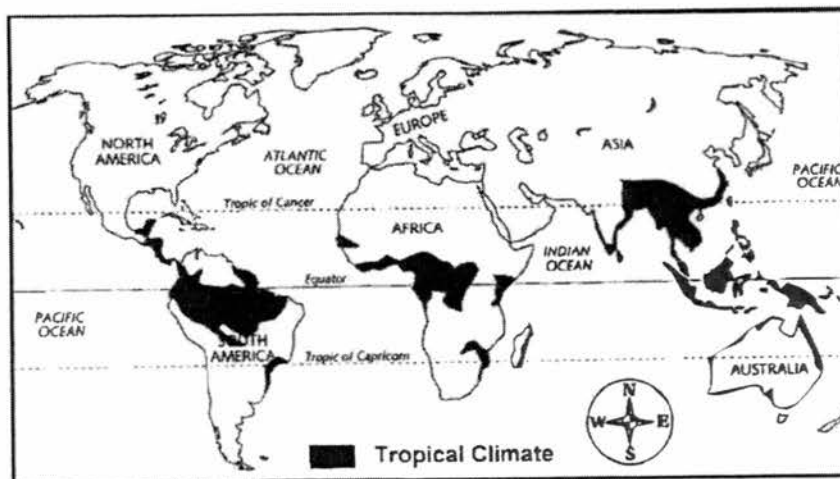


Fig. 4

Using Fig. 4, describe the distribution of the tropical climate zone in the world.

[5]

- (d) 'The impacts of climate change are not limited to the environment.' Discuss. Support your answer with relevant examples.

[8]

Section B

Answer **one** question from this section.

- 3 Study Fig. 5, which shows the food consumption in Asia in 1970 and 2009.

Food consumption in Asia in 1970 and 2009

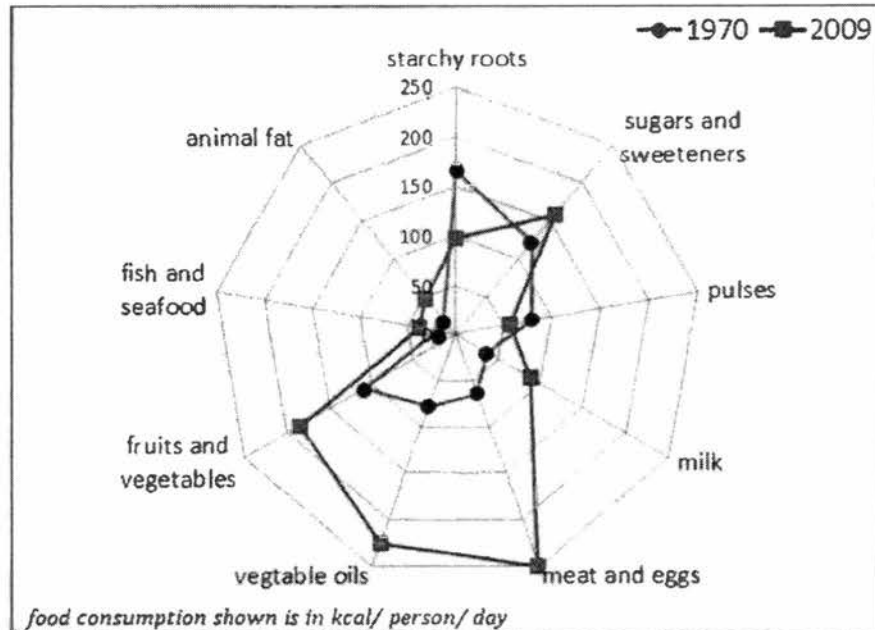


Fig. 5

- (a) (i) Using Fig. 5, describe how the consumption of different food types has changed from 1970 to 2009. [5]
- (ii) Account for the changes mentioned in (a)(i). [4]
- (b) Discuss the effectiveness of food aid and food programmes from the international communities to the countries that are facing food shortages. [5]

- (c) Study Fig. 6, which shows the world's major rice-growing regions.

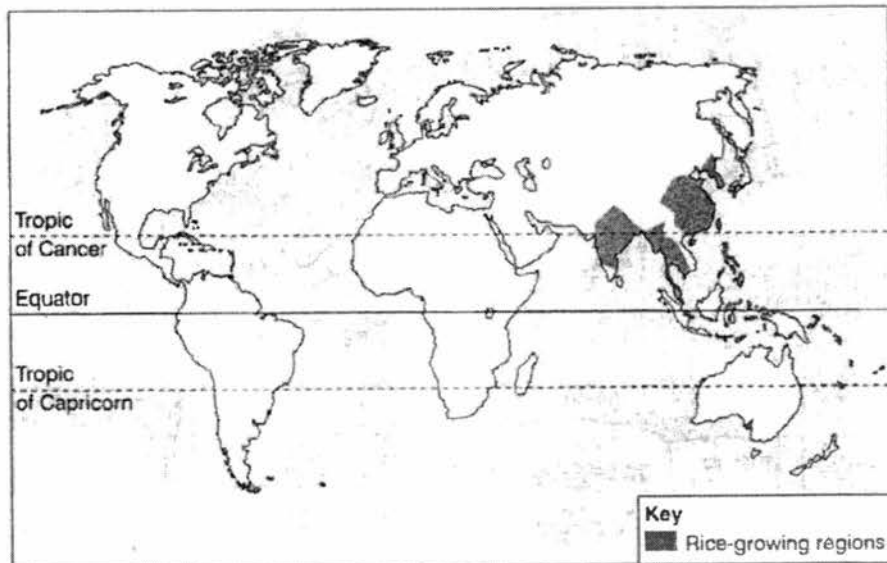


Fig. 6

Describe the distribution of major rice-growing regions in the world shown in Fig. 6 and explain how physical factors may affect the production of rice in these places. [5]

- (d) 'Intensification of food production cannot be carried without harming the environment.'

Do you agree with this statement? Explain your answer with examples. [8]

- 4 (a) Study Figs. 7a and 7b, which show two different types of farming.

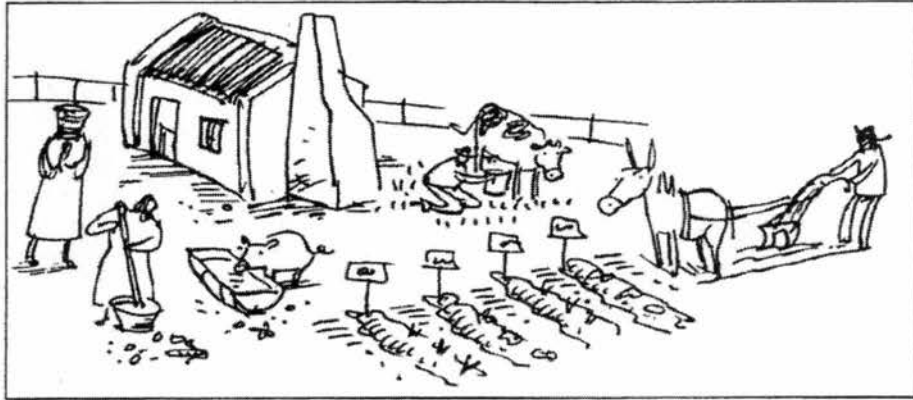


Fig. 7a

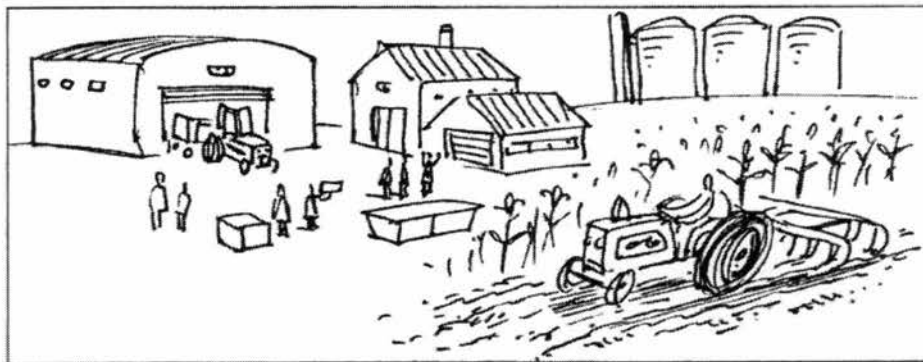


Fig. 7b

- Compare the two types of farming shown in Figs. 7a and 7b and their productivity. [5]
- (b) With the use of examples, explain how infectious diseases may spread from its source of origin. [4]
- (c) Study Fig. 8, which shows the percentage of HIV prevalence by age in South Africa from 1991 to 2001.

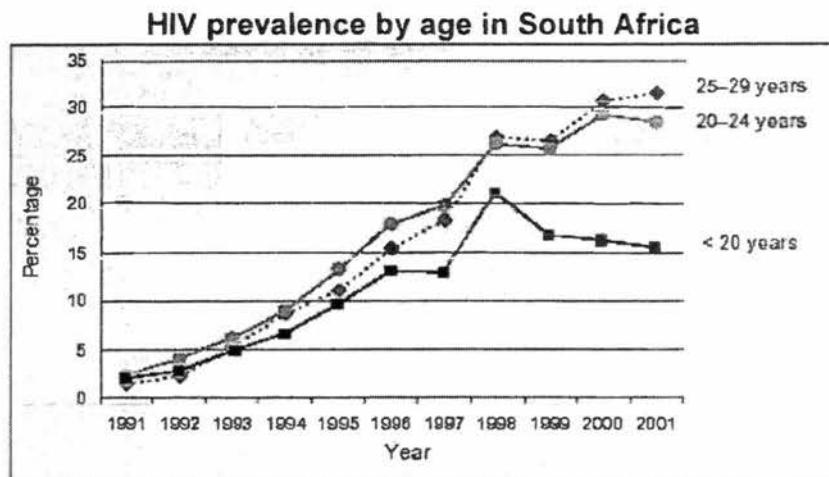


Fig. 8

- (i) Based on Fig. 8, describe the trend of HIV prevalence by age in South Africa from 1991 to 2001. [3]
- (ii) Describe the impacts of HIV experienced by the people in South Africa. [4]
- (d) 'Eradication of infectious diseases around the world cannot be done without individual responsibility.'
- How far do you agree with this statement? Give reasons for your answer. [8]

END OF PAPER

[Turn Over

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Copyright Acknowledgement

Fig. 1 ©<http://images.mapsofworld.com/world-news/Japan-typhoon.gif>

Fig. 2 © UCLES 2007

Fig. 3 © www.energy.gov

Fig. 4 © <http://ryecityschools.osborn.schoolfusion.us/modules/cms/pages.phtml?sessionId=&pageid=96748>

Fig. 7a © <https://climateadaptationcafe.files.wordpress.com/2014/03/farming.png>

Fig. 7b © <http://archive.cnx.org/resources/813b269500c19d056616dcca0ced5049dfcdd18/graphics2.png>

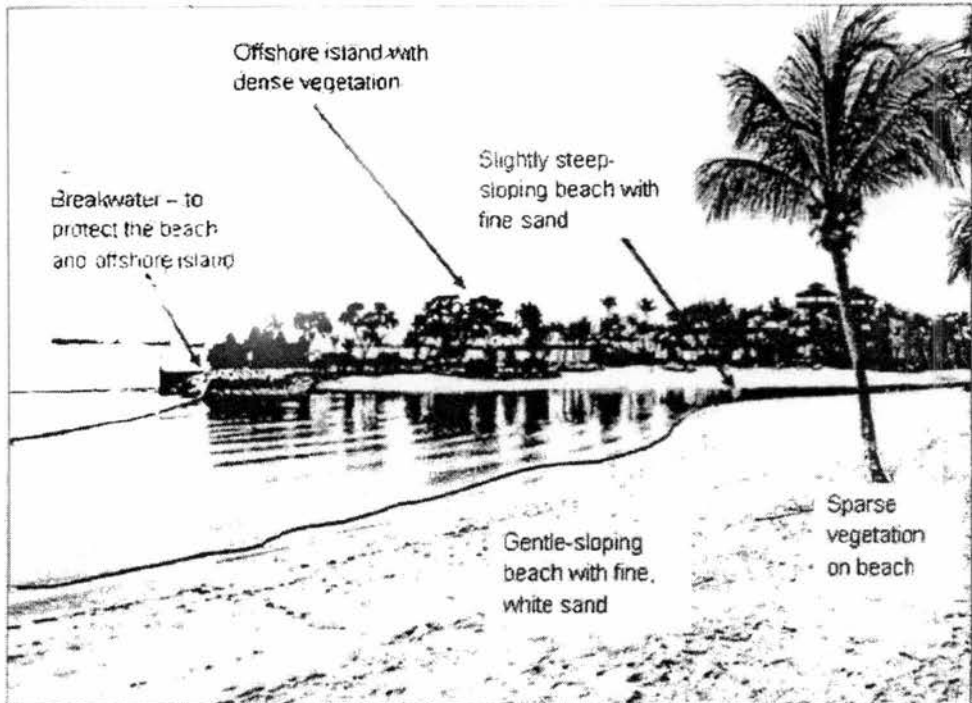
Fig. 8 © <http://www.microbiologybook.org/lecture/images/south-africa.gif>

[Turn Over

Answer Scheme for Sec 4E Core GY Paper1 EOY2017**Section A****This question is compulsory**

1		
a)	The location and justifications are: • They could conduct their questionnaire at Sentosa Station or Sentosa Boardwalk as it is the entrance to Sentosa Island where the tourists would likely pass by to enter it. • Hence there will be high human traffic in the area which can be a good place to find the respondents for the questionnaire. • The location is thus not biased and it is neutral.	[3]
bi)	The considerations to ensure its reliability include: • They need to ensure a large sample size to ensure that the data will be representative of the tourists at Sentosa. • They need to decide on a suitable sampling method such as systematic sampling. • They need to consider a suitable location to conduct the questionnaire in order to reduce biasness and obtain a large representative sample size. • They need to consider a suitable time and duration, i.e. of a higher frequency and longer duration, of conducting the questionnaire to obtain a representative sample of different tourists groups. • They should also standardise the procedures in posing questions to respondents. <i>Accept any 4 points</i>	[4]
bii)	The advantages of open-ended questions are: • Respondents are able to present their own ideas without having to select from predetermined categories which makes the data more accurate. • It enables the researcher to obtain data on genuine tourists' attitudes and perceptions • Their answers in the close-ended questions would not be restricted to inflexible choices and hence capture diverse viewpoints. <i>Accept any 2 points</i>	[2]
biii)	• Pie chart / comparative bar graph • A pie chart for each category can be used to show the percentage total for the different categories by the different age groups. • The 4 pie charts would be easy to interpret hence making it easy to analyse and compare among the categories.	[3]
biv)	• The hypothesis is not valid. • The most popular attraction in Sentosa is not the beach as only 20 out of the 75 respondents chose the beach as their choice of attraction to visit. • The most popular attraction is actually under the adventure category which includes the Adventure Cove Waterpark, Skyline	[3]

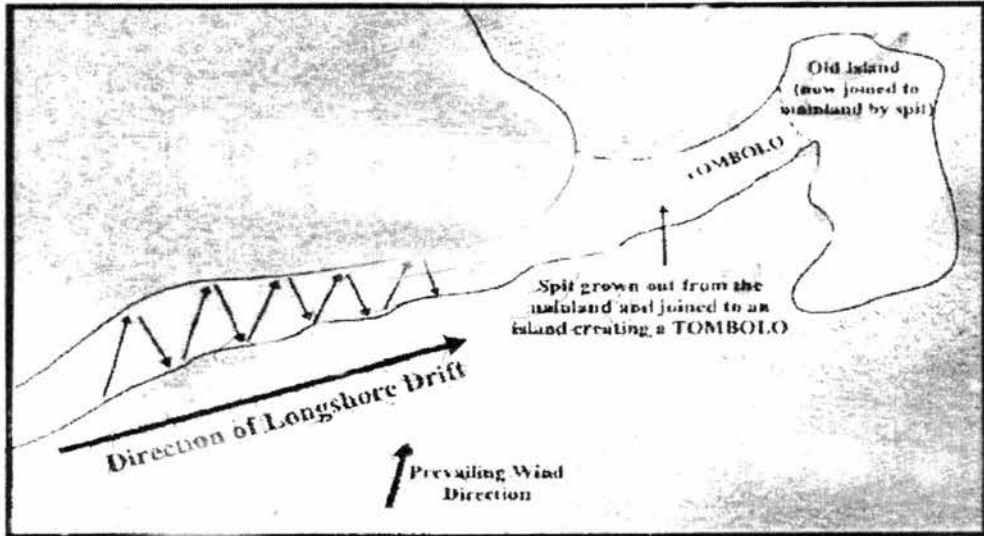
[Turn Over]

	Luge Sentosa and the Universal Studios Singapore as 29 out of 75 respondents chose that category as their choice of attraction to visit. [Reserve 1m for validity. Max 2m if no evidence]																																											
ci)	Tourists' Impression of the beach <table border="1"><thead><tr><th>Negative</th><th>-2</th><th>-1</th><th>0</th><th>+1</th><th>+2</th><th>Positive</th></tr></thead><tbody><tr><td>Overcrowded</td><td></td><td></td><td></td><td></td><td></td><td>Uncongested</td></tr><tr><td>Dirty</td><td></td><td></td><td></td><td></td><td></td><td>Clean</td></tr><tr><td>Eroded</td><td></td><td></td><td></td><td></td><td></td><td>Well-managed</td></tr><tr><td>Ugly</td><td></td><td></td><td></td><td></td><td></td><td>Beautiful and Scenic</td></tr><tr><td>Poor facilities</td><td></td><td></td><td></td><td></td><td></td><td>Excellent facilities</td></tr></tbody></table> [Award 1m for suitable range, 1m for title Award 1m for suitable categories in the perception survey]	Negative	-2	-1	0	+1	+2	Positive	Overcrowded						Uncongested	Dirty						Clean	Eroded						Well-managed	Ugly						Beautiful and Scenic	Poor facilities						Excellent facilities	[3]
Negative	-2	-1	0	+1	+2	Positive																																						
Overcrowded						Uncongested																																						
Dirty						Clean																																						
Eroded						Well-managed																																						
Ugly						Beautiful and Scenic																																						
Poor facilities						Excellent facilities																																						
cii)	 [Reserve 1 m for accurate sketching of beach Award 1 m for every 1 annotations, Max 3m in total if only labelled]	[4]																																										
ciii)	• The students can determine if the waves are destructive or constructive by calculating the wave frequency. • Wave frequency is estimated by counting the number of waves over a 10 minute period and dividing the total by the number of	[3]																																										

	minutes to determine number of waves per minute. - Students could observe the waves and record down the number of waves breaking per minute in a table in a recording sheet. - If the wave frequency is 10 or more per minute, then the waves are destructive. <i>Accept any 3 points</i>	
--	--	--

Section B

Answer one question from this section.

2		
ai)	Tombolo	[1]
aii)	Formation of a Tombolo  - Formed by longshore drift which is a combined movement of waves and longshore currents. - Waves moving obliquely at the shore move materials in a zig-zag manner by the swash and backwash, and along the seabed parallel to the coast by longshore currents. - When the coast bends abruptly, the longshore drift continues to transport materials in its original direction for some distance, into the sea. Larger materials are deposited in the slack water and finer materials are carried further away - When the deposits are adequate enough to rise above the water, a spit is formed. - When the spit joins with an offshore island, it will form a tombolo. <i>Reserve 2 m for diagram and any 4points for explanation</i>	[6]
b)	- Corals need a warm sea surface temperature of about 17-18°C to survive as they are found in the tropics. - Clear waters are ideal for its growth as this allows sunlight to reach	[4]

[Turn Over]

	them and help them to carry out photosynthesis to ensure its growth. • The seabed must not be too deep so that the coral can grow and have enough sunlight reaching them. • Next there must not be too many sediments in the water as this will may suffocate the living corals and kill them. • There has to be average salinity of 34 to 37 parts per thousand to ensure proper growth. • In addition, the waters have to be relatively calm so that the waves will not destroy the corals and will not stir up too much sediment at the sea bed. • Lastly there has to be some water movement to ensure that there are sufficient levels of oxygen being produced. Accept any 4 points	
c)	• They are not found at higher latitudes in the northern hemisphere. The mangroves are mostly found within the Tropic of cancer and Tropic of Capricorn. • Most mangroves are found along the coast near the ocean. They are concentrated in regions of Southeast Asia, Africa and Central America. • They are found along Tropical coasts like Malay Peninsula, Borneo, northern Australia	[3]
d)	The factors that will affect wave energy are: • The faster the wind blows, the greater the wave energy will be the stronger wind speed will drive the waves faster. • The longer the wind blows, the larger the waves are due to the longer duration that the wind is blowing at the water. • The greater the fetch, the more energy the waves will have as the waves travel across greater distance resulting in accumulating in more energy	[3]
e)	Human factors are the main cause of coastal destruction: <u>Natural threats to the coasts</u> Climate change • Rising sea levels which could submerge low-lying coasts, sandy beaches and deltas and river estuaries • Coastal ecosystems may not be able to adapt to the change • But warmer temperatures may encourage mangrove survival and growth in new areas although reduced rainfall and rising salinity levels of the sea could also mitigate the positive effects. • For example in Seychelles, there are reports of large scale coral bleaching to higher sea temperature, slowly killing the coastal coral reefs. Eroding shore lines • Increased, more severe storms because of climate change could rapidly erode beaches and alter shorelines.	

- Due to rising sea level at the Gulf of Thailand, there is lost fresh water around the coastal area, leading to the lost of mangrove forest.

Man made threats

Increasing population & rising demand for coastal resources

- With more than 3billion of the earth's population living within 100 km of the coasts, puts greater pressure on land and water resources
- More demand for new ports, housing which will exploit coastal resources for food and building materials.
- In Indonesia large areas of mangrove are cleared by the people for charcoal, particularly in regions with low technology and low economies as they have to depend on the mangrove forest for the resources.

Coastal Development

- Habitat loss will result from expansion of human activities along the coast
- E.g mangroves and coral reef ecosystems may be threatened by the wide spread and rapid conversion into aquaculture activities.
- In Japan and Florida (USA), land reclamation and expansion of coastal resorts and housing have led the corals being suffocated by sediments.

Pollution

- Waste disposal into the sea can destroy the coast and endanger marine life
- Aquaculture in Ca Mau, Vietnam has been responsible for creating waste and waste water that pollutes the surrounding coastal waters affecting the quality of the water

Conclusion: Natural changes in the climate could have led to melting of polar icecaps, leading to rise in sea level which leads to flooding and erosion of coastal areas. In addition, natural disasters like massive storms will also lead to erosion of costal areas. However human factors play a greater in destroying the coastal landscape, especially due to rapid development along the coastal areas for industrial needs, housing and recreational needs as seen from the large loss of corals and mangroves in Indonesia, Japan and Florida. Hence human factors are the main cause of coastal destruction.

Level 1 (0-3m)

Answers will be generalized or with minimal support if any given at all. Reasoning rather weak and expression may be unclear. A basic 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 (4-6m) Disagreement <u>or</u> 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 (7-8m) Answers will be comprehensive and supported by sound knowledge. Both agree <u>and</u> 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.	
3		
ai)	• Direct relationship or As visitor arrivals increase, tourism receipts in Australia increase • An increase of 7% of visitors in the western coast of Australia has resulted in an increase in the tourism receipts by 7%. • Anomaly: The western coast of Australia which experiences a decrease in visitors by 2% however experiences an increase in spending by 1%.	[3]
aii)	• Tourists who travel to snorkel and dive to view the beauty of coral reefs that leads to sediments being stirred, smothering coral reefs, leading to its death • Aesthetic value of coral reefs has resulted in divers removing coral reefs from the seabed that kills the reefs and threaten its ecological balance • Tourists who travel to view coral reefs in boats due to careless boating has damaged coral reefs	[3]
b)	• Outbreak of diseases discourages tourist travel as people do not want to risk getting infected with a contagious disease E.g. outbreak of SARs (Severe Acute Respiratory Syndrome) in 2003. • Hong Kong - 41% reduction in tourism GDP/ hotel occupancy dropped from 82% to 15 % • Singapore - 43% reduction in tourism GDP/ visitor arrivals in Singapore dropped by 67 % , hotel occupancy decreased by 45%, Orchard Rd retailers badly hit • China - 25% reduction in tourism and a loss of 2.8 million jobs WHO raised concern over H1N1 (swine flu) in 2009.	[4]

	• Mexico - estimated loss for the Mexican tourism industry was \$5 billion • widespread cancellation of holiday bookings to Mexico/ USA/ Europe Outbreak of MERs (Middle East Respiratory Syndrome) in 2015 • S Korea - 23 dead, 28000 quarantined, tourism was badly affected as tourists cancel their trip to S Korea <i>Max 2m if there are no specific examples.</i>	
c)	• It is a breakwater • They are aesthetically unappealing and are costly to build. • Breakwaters also protect the coast unevenly. Materials deposited in the zone behind the breakwaters are protected while those in the zones located away from breakwaters are subjected to wave action and possible erosion.	[3]
d)	The use of different media can: • Reach out to newer, younger audience and potential tourists who are more independent travellers. • Using personal stories and visual to sell Singapore to cater to niche markets. • Provides alternative travel sites rather than the usual attractions to attract repeat tourists. • Use of media and collaboration with airline and accommodation portal such as TripAdvisor can help tourists have a seamless experience for travel.	[4]
d)	Sustainable tourism is a form of tourism organized in a way that allows it to continue without damage to the environment or without leaving negative impacts on surrounding society and culture <u>Local Communities</u> • Local community refers to a group of people living in the same territory • Local communities may partner with a government or non-governmental organization (NGO) to achieve sustainable tourism by minimizing damage to the environment ◦ Locals have a good knowledge of their environment and needs and can give better feedback or input on tourism related issues when consulted. Hence, decisions made are less likely to harm their natural environment or way of life • Local communities can achieve sustainable tourism by minimizing leakage so that they gain economically through community-based tourism ◦ Community-based tourism increases tourism-related employment and business for locals and as a result raises average income and reduces leakages ▪ Locals are employed as guides, waiters, cleaners, drivers, hotel staff etc which tend to pay better than farm jobs • E.g. Candirejo Village, near Borobudur in Central Java, Indonesia	[8]

- With government support, villagers set up a cooperative in 2003 to manage and implement tourism related programmes
- Villagers participated in decision making through discussions and consultations with the cooperative about the programmes
- E.g. develop homestays, organic farms, promote local transport, train villagers to produce local handicrafts, set up catering business, and be tour guides.
- Achieved positive impact on locals, the problem of leakage is minimized as local businesses keep profits within the economy – these are evidence of sustainable tourism
 - 2002 to 2004, homestays increased from 10 to 22, andongs (traditional horse cart transport) increased from 5 to 22 (hence pollution decreased)
 - 63 new jobs created from new businesses e.g. creation of 6 local restaurants
 - 2001 to 2003 - 12.5% increase in average income per villager

However,

- Some local communities, especially in LCDs, may face difficulty in obtaining external funds to set up **businesses** or invest in vehicles to promote sustainable tourism in their **community**.
- There could be a shortage of skilled labour. e.g. locals are not qualified to be managers or consultants to help manage the impact of tourism. In such cases, the local community needs to seek the help of NGOs or other organisations to provide the expertise or training.

Tourists

- Visitors or tourists can help to achieve sustainable tourism if they are responsible enough to respect both the environment and the local community.
- They can try to minimize their carbon footprint during holidays by not using water or electricity excessively to avoid depleting resources and hence damaging the environment.
- E.g. the Tourism Sustainability Group set up by the European Commission in 2004 encouraged tourists to select their holiday destinations based on the conservation efforts of the place in its report in 2007.
- Visitor spending (e.g. entrance fees, purchase of souvenirs) can provide funds for conservation of the natural environment.
 - E.g. Sasaab Lodge in Samburu National Park in Kenya, Great Barrier Reef, Australia
- Visitor spending can also provide locals with income from employment and businesses, hence achieving sustainable tourism
 - E.g. Candirejo villagers' income increased by 12.5% from 2001 to 2003 when they provided homestays, set up organic farms and restaurants etc.
 - E.g. Pamilacan Island in the Philippines - local tour agents pay fishermen between US\$ 80 and 100 per boat for fishing/ tour service. This represents significant earnings for the locals.
- Visitors increase their awareness on the need for conservation when they travel to particular destinations. They can raise others' awareness

when they return home and share their experience and concerns to promote sustainable tourism.

However,

- Irresponsible behavior by tourists can damage tourist attractions, hence sustainable tourism cannot be achieved
- Environmental problems include:
 - E.g. littering of the Inca Trail in Machu Picchu, Peru by tourists
 - E.g. tourists collecting corals as souvenirs in the Red Sea area/ Great Barrier Reef of Australia
- Too many visitors to a place can cause strain to the environment through trampling, noise or touch.
 - E.g. Machu Picchu Trail received numerous tourists yearly hence more soil erosion and destruction of flora and fauna has been observed
- Visitors who do not respect locals can dilute local culture and customs or values especially if large numbers flock to an area.
 - E.g. Bali, Indonesia - conservative may be influenced to become more 'liberal' when they observe tourists publicly displaying affection

In conclusion, the role of local communities are not more important than tourists. Both are as important. Locals have good knowledge of their environment and can advise on conservation issues. Tourists must be responsible enough to heed such advice and respect the locals and their environment during their trips. As both parties work together, it is easier to achieve sustainable tourism.

Level	Descriptor
L1 (0-3m)	Simple statements on local communities in achieving sustainable tourism. No elaboration/examples given
L2 (4-6m)	Provide coherent description on local communities in achieving sustainable tourism. General examples given Provide coherent description on 1 other group in achieving sustainable tourism like tourists.
L3 (7-8m)	Provide convincing and detailed explanations on local communities in achieving sustainable tourism. Provide convincing and detailed explanations on 1 other group in achieving sustainable tourism like tourists. Specific examples given + Conclusion

Answer Scheme

1	(a)	Describing the path of the typhoon: • The typhoon built up momentum over the Pacific Ocean with a Category 2 and intensified to Category 4 just before hitting Japan. • It makes landfall on the Eastern Coast of Japan near Kagoshima. • The typhoon continues its path by moving northwards along the eastern coast of Japan, devastating places such as Osaka, Nagoya, finally subsiding to Category 1 on the eastern coast of Japan, just east of Honshu Island. Account for the path of Typhoon Vongfong: • The eastern coast of Japan faces the Pacific Ocean, which in the summer heats up above 26.5 degrees Celsius. Heat and moisture from the ocean waters are required for the typhoon to form. • Land masses to the Northwest acts as buffers, therefore typhoons are unlikely to form along the western coast of Japan. A tropical cyclone over land will begin to weaken rapidly because land lacks the moisture and heat sources that the oceans provide. This depletion of moisture and heat hurts the tropical cyclone's ability to produce thunderstorms near the storm's center. Without this convention, the storm rapidly subsides. • Also, sea temperatures by and large remain constant and vary very little, which helps in the genesis and the further growth of a cyclone. Whereas cyclones usually dissipate over land or over colder regions where the temperature profile varies widely and changes constantly. • Cyclones always form over the sea, in open spaces and that's where they gain strength. The terrain of the sea helps a storm gather its maximum strength whereas on land that strength is immediately cut off due too much resistance around. The increased friction over land acts as an obstacle, i.e. in the form of bushes, trees and houses and buildings, thus decreasing the speed of sustained winds. These sustained winds become weaker because of the dampening effect of larger roughness i.e. over land versus a relatively smooth ocean Reserve 2m for description and 3m for explanation	[5]	
	(b)(i)	67-100km SE/SSE	[2]	
	(b)(ii)	• Faults are line of weakness • and the major faults such as San Andreas Fault are found along transform plate boundaries between the Pacific and North American plates. • These plates are moving at either side of the faults/alongside each other/sliding past each other. • They move at different pace and in different directions from each other. Thus, they are locked and stuck together due to the friction involved as they movements are not smooth. • This causes the build up of pressure and when the rocks can no longer withstand the pressure, the plates jerk apart or have a sudden movement to release the pressure. • The energy is released in the form of seismic waves which cause tremors on the earth surface, causing earthquakes to form.	[5]	
	(c)	C-C Converge	C-C Diverge	[5]

		Similarity	Both result in the formation of mountains but they are different types of mountains.	
		Differences		
		Landforms	Fold mountain Eurasian and Indian plates forming the Himalayas	Rift valley Block mountains Somalian and Nubian plates forming the East African Rift Valley and block mountains
		Processes	Involves compressional forces When the plates converge and being compressed, folding is involved. They plates resist subduction due to similar density of the plates and the rocks on the upper layer will crumble along line of weaknesses and start to fold	Involves tensional forces When the plates diverge, faulting is involved. The faults created caused the centre section of the plates to subside forming a linear depression called the rift valley. The sections left standing are the block mountains.
(d)	Hazards of earthquake zones: <u>Tsunamis</u> Earthquakes may lead to tsunamis, which can cause widespread destruction at coastal areas when it sweeps inland. E.g. 9.2 magnitude earthquake in Indian Ocean (2004) – affected coastal areas of 12 countries. The greatest damage was in low-lying areas in Sumatra, Indonesia, especially the town of Aceh. Tsunami in Aceh was between 4m to 39m high, and went as far as 10km inland. Houses were swept away. <u>Disruption of services and fire</u> - Earthquake can disrupt services like the supply of electricity, gas and water - Vibrations on the ground can break pipes and cables, which can cause fires to start - Fires have the ability to spread quickly over a large area. - Communication services such as television broadcasts and telephone connections may also be affected. - E.g. Earthquake in Kobe (Japan) in 2004 – Pipes and transmission cables were damaged. Electricity, gas and water supplies were disrupted, affecting 1.4 million residents. <u>Landslides</u> - The shaking of the ground during an earthquake can weaken the slopes of hills and mountains and unstable slopes will cause landslides. - Heavy rain may also lead to mudflows.			[8]

- E.g. Earthquake in Peru in 1970 – destabilized the slope of a volcano (Mt. Huscaran) and triggered a massive landslide that travelled over 160km/h and flattened the town of Ranrahica within seconds. More than 18 000 people died and only 200 people survived.

Destruction of property and infrastructure

- Earthquakes can cause damage to homes, buildings and infrastructure like roads, bridges and buildings.
- People may end up homeless after an earthquake occurs and may live in temporary shelters while waiting for their homes to be built
- Transportation may be affected as it is unsafe for people to use damaged roads
- E.g. Earthquake in Tohoku (Japan) in 2011 – tsunami travelled 10km inland as a result of the earthquake. This damaged the homes of hundreds of thousands of people. There was a severe shortage of houses and people's health in the long run may be affected.

Loss of lives

- **Earthquakes and their associated hazards threaten the lives of people who live in earthquake zones**
- E.g. 7.9 magnitude earthquake in Sichuan (China) in 2008 – 100 000 people died, 374 000 people injured, 15 million people evacuated, 5.39 billion dollars' worth of buildings destroyed, major landslides occurred

Benefits

- Volcanic areas also tend to be earthquake zones as well. So people may stay in these areas for the benefits that the volcanoes can bring, such as income from tourism, fertile soil for agriculture and geothermal energy.
- Hence in order to tap on the benefits brought by the volcanic eruptions, people may adopt an adaptation approach to living in earthquake zones (which tend to coincide with volcanic areas), with preparation measures such as monitoring-devices and risk assessments. These enable them to reduce the impact of the hazards caused by the earthquakes. In a way, they put in more efforts in planning and implementing mitigation measures to ensure that are prepared and alert in times of disaster.

Thus, although earthquakes can bring about many hazards, they can also heighten the awareness and efforts of the people to be prepared as the people are aware of the risks.

Level	Descriptor
L1 (0-3m)	At this level answers will be generalised or with minimal support if any stand were given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development.
L2 (4-6m)	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.

		L3 (7-8m)	At this level answers will be supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language.	
2	(a)(i)	The impact of Hurricane Sandy is distributed along the eastern coast of USA, the coast along the Atlantic Ocean. The highest number of people affected by the power failure is in N.J. The highest number of deaths is in New York with 46 deaths. New York also faces the second highest number of impact in the number of people affected by the power failure. Vt. experiences the lowest number of people affected by the power failure. Some Coastal areas such as R.I., Del. Mass., Maine do not record any deaths.		[4]
	(a)(ii)	- The damaged power lines would cause power outages and this would result in inconvenience to the people when their electrical appliances/communication device fail as their daily activities are disrupted - Damage to buildings such as commercial/residential properties OR damage to infrastructure such as roads, bridges require high cost of repairs and some states might face financial issues or be in debt when they are trying to recover from the disaster. - Power outages in industries can cause a huge loss of income and economy is affected negatively as businesses cannot be carried out. - The loss of income due to damaged crops can affect the source of income of many locals and this might have an adverse effect on their standard of living.		[4]
	(b)	<u>Successes</u> Many countries such as Finland and Ireland have met or exceeded the target set to reduce greenhouse gas emissions, slowing down the process of global warming. The Clean Development Mechanism (CDM) gave Certified Emission Reduction (CER) credits to countries which carried out emission-reduction projects in less developed countries, encouraging overall reduction of greenhouse gases in the world. First formal agreement which reflected the first step taken by 11 countries in the world in tackling climate change. <u>Limitations</u> Not all countries are able to meet their targets of reducing greenhouse emissions from 2008 to 2012 by at least 5% below their 1990 levels, limiting the efforts in slowing down global warming. Lack of penalty for countries such as Denmark, Sweden and UK which exceeded the set targets of reducing the greenhouse gas emissions. The agreement was not ratified by all countries (such as USA which prioritises their coal industry) in the world limiting the effectiveness of reducing greenhouse gases. Reserve 2m each for successes and limitations Kyoto Protocol did not make it compulsory for countries with low greenhouse gas emissions to share energy-efficient technology with countries with high greenhouse emissions, limiting the overall reduction in carbon emissions.		[4]
	(c)	Between the Tropic of Cancer and Tropic of Capricorn OR		[5]

	- Between 0° and 30° North and South of the equator (30°N and 30°S of the Equator) - In Asia, the largest concentration of countries that experiences Tropical Climate is in <u>South East Asia</u> in countries such as Singapore, Malaysia, Indonesia, Thailand, Myanmar, Laos, Cambodia, Vietnam - In <u>East Asia</u>, Southern part of China has Tropical Climate - And also in <u>South Asia</u> in countries such as India, Bangladesh, Sri Lanka - In the continent of Africa, West, Central and East Africa in countries such as Democratic Republic of Congo and Kenya has Tropical Climate. - In South America, countries such as Brazil, Ecuador and Mexico in Central America lies within the Tropical Climate zone - North East Australia also experiences Tropical Climate	
(d)	Climate change refers to any long-term change in Earth's climate, or in the climate of a region or city. Small changes in the climate could affect the environment such as leading to increased sea levels, more frequent extreme weather events, reduce the length of the growing season in different regions and sometimes spread of infectious insect-borne diseases. Although these impacts are mostly environmental but they posed great risks to humans too. <u>Rise in sea levels</u> One of the impacts of climate change is the rise in sea levels. A warming climate can cause seawater to expand and ice over land to melt, both of which can cause a rise in sea level. This further impact the environment by eroding the habitat of coastal wildlife and animals. At present, over 600 million people worldwide live in areas less than 10 metres above sea level. Two-thirds of the world's largest cities are located in coastal areas. Rising sea level also threatens these low-lying areas and island. For example, the Majuro Atoll in the Pacific Ocean will lose 80% of its land if sea level rises by half a metre. When sea level rises, coastal area will be in danger of being flooded and people will lose their homes and livelihood too. <u>Frequent extreme weather</u> Another impact of climate change is more frequent extreme weather events. An extreme weather event is a severe and rare weather phenomenon. Very often such sudden environmental alterations will result in significant economic losses and the loss of lives. One type of extreme weather event is heat wave. Heat waves are 'silent killers' which can kill many people. In August 2003, Europe experienced a heat wave which killed more than 70 000 people. <u>Reduce length of growing season</u> Climate change could affect the length of growing season in certain regions. The growing season refers to the period during which the crops can grow. In some places, higher temperature prevents the crops from growing. For example, in the Yunnan province, China, the production of fruits such as apples and cherries, and nuts such as almonds and walnuts is reduced as these fruits and nuts require cool weather conditions. In Canada, the average wheat grain yield has also been reduced. When growing season is affected and food production is reduced, it means lower income and food supply for the people involved. <u>Spread of infectious diseases</u>	[8]

		Climate change can also result in spread of some infectious insect-borne diseases. Climate change could result in increased temperatures and rainfall in various parts of the world. Insects thrive in these favourable conditions. They may lead to the spread of some infectious insect-borne diseases, which are diseases transmitted to human or animals by insects. For example, heavy rainfall may allow mosquitoes to grow in numbers in aquatic habitats, resulting in the spread of malaria and dengue fever. In 2015, Brazil alone reported over 1.5 million cases. The Philippines reported more than 169 000 cases and Malaysia exceeding 111 000 suspected cases of dengue. The impacts of climate change is not limited only to the environment. Man who are dependent on the environment for survival are most affect economically and socially in the long run when changes in the environment takes places due to climate change. The degree of seriousness of any impact of climate change can be measured by the scale of the impact, such as number of deaths or amount of economic losses. Climate change may cause the spread of insect borne diseases but not everyone who contracts insect-borne diseases will die from it. Hence it is not the most serious impact. Sea level rise and frequent extreme weather events affect more people across the world and cause greater loss of lives and significant economic losses. <table><tr><th>Level</th><th>Descriptor</th></tr><tr><td>L1 (0-3m)</td><td>At this level answers will be generalised or with minimal support if any stand were given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development.</td></tr><tr><td>L2 (4-6m)</td><td>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.</td></tr><tr><td>L3 (7-8m)</td><td>At this level answers will be supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language.</td></tr></table>	Level	Descriptor	L1 (0-3m)	At this level answers will be generalised or with minimal support if any stand were given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development.	L2 (4-6m)	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.	L3 (7-8m)	At this level answers will be supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language.	
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3	(a) (i)	• Consumption of all food types has increased except for pulses and starchy roots • Meat and eggs consumption records the highest increase of 180 kcal (1970:70, 2009:250). • Sugars and sweeteners records the lowest increase of 30kcal. (1970:130, 2009:160). • Fish and seafood and milk have the same amount of increase of 50 kcal. Fish and seafood has increased marginally by 50kcal (1970:10, 2009:40) and milk has increased by 50 kcal (1970:90, 2009:40) • Fruit and vegetable consumption has increased by 80kcal (1970:110, 2009:190). • Animal fat has increased by 40 kcal (1970:10, 2009:50). • Starchy roots consumption has decreased more than pulses. Starchy roots has decreased by 70kcal (1970:100, 2009:170) while pulses consumption has decreased by 20kcal (1970:80, 2009:60).	[5]								
	(a)(ii)	• Higher disposable income and purchasing power in Asia . Therefore, able to afford to buy more food from most food types . • Population growth is one of the key drivers in the demand of food. Hence, the increase in the consumption of food could be due to the increasing population of Asia.	[4]								

	• Due to food price crisis that occurred between 2006 and 2008, staple food such as starchy roots and pulses rose more than other food. Hence, people in Asia could have found that it is more costly to purchase starchy roots and pulses • Migration and globalisation over the years may have resulted in more types of food and cuisines available in Asia and also more fast food outlets, hence allowing food types to increase in demand	
(b)	Food Programmes provided by United National World Food Programme. <u>Responding to Emergencies</u> This is a strategy for the provision of emergency food assistance during wars and natural disasters. (+) Food was successfully delivered to 99.5% of targeted recipients during the 2011 Sudan food crisis. (-) During such emergencies, food prices may be inflated, which results in high costs for the UNWFP. (-) The extent of its assistance may also be limited by how much funds these organisations receive from donors. <u>Cash and Voucher Scheme</u> This involves the distribution of cash and vouchers in places where food is available but people are unable to afford it. (+) Cash and vouchers benefit the local economy because beneficiaries spend the money in local markets. (-) Over time, this may create a culture of dependency among beneficiaries. <u>School Meals</u> This involves the provision of school meals to provide nutrition for school children. (+) School feeding provides an incentive for enrolment and attendance and can help children learn more effectively. (-) The coverage of these programmes is uneven across countries. In low income countries, only 18% of children receive a daily meal at school, compared to nearly 49% of children in middle income countries. Programmes provided by the World Bank <u>Global Agriculture and Food Security Programme (GAFSP) (2010)</u> GAFSP provides financing to countries that need help in increasing agricultural productivity and assistance to improve food security in specific countries and regions. (+) GAFSP has helped 7.5 million people in 12 countries such as Togo, Rwanda and Nepal. (+) In Rwanda, the GAFSP funded a project in 2010 to reduce soil erosion and improve productivity in hillside agriculture. This has increased potato yields by 7 times and cereal yields by 4 times. In Togo, GAFSP projects have helped farmers increase corn and cassava productions. (-) As the GAFSP relies on funds from donors, these donors may influence how the funds are used to their advantage. (-) The extent of its assistance may also be limited by how much funds they receive from donors.	[5]
(c)	- o Mostly located in Asia, in particular China, South Korea, India and countries in Southeast Asia. - o These countries are located along the Tropic of Cancer, with most countries located between the Equator and the Tropic of Cancer.	[5]

	Explain physical factors: Climate - o High temperature above 5 degrees Celsius between Equator and Tropic of Cancer helps increase rates of photosynthesis and seed germination. - o High average annual rainfall in these areas of between 1000 and 2500 millimetres also is conducive for growth of rice, which requires a lot of water - o These places also can produce a lot of rice as they are mostly warm and with high rainfall throughout the year, with the exception of China, Korea, and India. Type of soil - o Fertile soil with more clay and rich in nutrients are best for growing rice. - o Soils which retain large amounts of water are best for growing rice - o Places such as Philippines have volcanic soil, which is highly fertile and suitable for growing of rice.	
(d)	I disagree with this statement. The intensification of food production can have adverse impacts on the environment such as eutrophication and salinization but these impacts can be mitigated with proper management and sustainable farming. One challenge associated with the intensification of crop production is the effect of chemicals on water and soil quality. The overuse of fertilizers and pesticides causes chemicals to become concentrated in the soil. Overtime, they would seep into groundwater, contaminating it. They may also be washed into water bodies by surface run-off. The chemicals that reach the streams and rivers become nutrients for algae to grow on the surface of the water. This leads to eutrophication, the presence of excess nutrients in water leading to algae bloom. Algae bloom depletes oxygen in the water and block sunlight from reaching aquatic plants, leading to the death of water plants and animals. The decomposition of these aquatic creatures and plants further depletes oxygen in the water. For example in the USA, it was found that pesticides from farmland had contaminated groundwater and this is a serious concern as about 23% of the freshwater used in the country comes from groundwater sources. Thus, the intensification of crop production can affect the environment in a detrimental way. Irrigation can cause problem when not properly managed. Extensive irrigation may cause the ground to be waterlogged when too much water seeps into the soil and causes the soil to be over saturated. This causes the roots to be deprived of air and nutrients that the crops need, eventually causing them to die. Salinisation can also occur when the water added to the soil during irrigation evaporates directly from the moist soil after evaporation. It occurs when there is no proper drainage of excess water. The groundwater may reach the upper soil layers, bringing up dissolved salts from the ground. Saline soils are those in which the concentration of salts is too high for crops to grow well. For example, the problems of water logging and salinization have been observed in Murray-Darling Basin in Victoria, Australia. The naturally occurring salts became concentrated in some parts of the basin due to human activities such as irrigation development. Thus, the intensification of crop production can affect the environment in a detrimental way.	[8]

		However, measures can be taken to ensure that intensification of food can be carried out without harming the environment. Implementing control measures aimed at preventing from reaching water bodies because it is less effective to treat the water bodies once the problem has occurred. As such, measures to manage runoff should be in place. Raising awareness of eutrophication through public campaigns, school environmental education programmes and targeted outreach within communities. Monitoring the pollution level in the environment is a continuous effort that requires cooperation between government, organisation and the community. Thus, I disagree that intensification of food production cannot be carried out without harming the environment. <table border="1"> <thead> <tr> <th>Level</th><th>Descriptor</th></tr> </thead> <tbody> <tr> <td>L1 (0-3m)</td><td>At this level answers will be generalised or with minimal support if any stand were given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development.</td></tr> <tr> <td>L2 (4-6m)</td><td>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.</td></tr> <tr> <td>L3 (7-8m)</td><td>At this level answers will be supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language.</td></tr> </tbody> </table>	Level	Descriptor	L1 (0-3m)	At this level answers will be generalised or with minimal support if any stand were given at all. Reasoning rather weak and expression may be unclear. A basic answer that has little development.	L2 (4-6m)	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.	L3 (7-8m)	At this level answers will be supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language.	
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4	(a)	• Type of farming: A is subsistence farming while B is commercial farming. • Purpose: In subsistence farming, the purpose of farming is production of crops to feed farmer and his family, while in commercial farming, the purpose of farming is large-scale production of crops intended for sale, rather than to meet the consumption needs of the farmers or the farmer's livestock (i.e. cash crops) • Land: Subsistence farming uses small (1–3 ha) pieces of land while commercial farming uses large land area (30 ha or more). • Labour: Subsistence farming uses family members of the farmer as labour while commercial farming uses hired labour • Capital: Subsistence farming has lower capital inputs and thus uses simple farming tools and seeds from previous harvests whereas commercial farming has higher capital inputs and thus uses machinery such as tractors and combine harvesters • Crop yield and productivity: Therefore, subsistence farming produces lower crop yield and is less productivity than commercial farming, which produces high crop yield and is more productive.	[5]								
4	(b)	• Relocation diffusion: when a disease spreads to new areas outside its current geographic range, while still being present in the location of origin; it can leap over great distances and intervening populations, less affected by distance; occurs when a community migrates from one place to another • such as the migration of African male workers and the spread of HIV/AIDS • e.g. SARS and its spread in Asia through a doctor who travelled from China to Hong Kong	[4]								

	- Expansion diffusion: when an infectious diseases is spread outwards from its source but generally stays in the same region, takes place through contact between people and is strongly affected by distance and more likely to occur when people have contact or interact - for example the spread of Malaria between people in Africa	
(c)(i)	- The percentage of HIV prevalence in South Africa has increased for all ages. <20 years old: 2-15%, 20-24 years: 2-29%, 25-29 years: 2-31% - From 1991-1997, age group from 20-24 years old records the highest rate of increase from 2-20%. - From 1998-2001, the rate of increase for the age group 25-29 years old overtakes that of 20-24 years old. - The age group <20 years old records the lowest rate of change. - For all age groups, the highest increase in the percentage of HIV prevalence was from 1997-1998. - By 2001, the age group of 25-29 records the highest percentage of HIV prevalence of 31%, followed by 20-24 years old age group and <20 years old age group.	[3]
(c)(ii)	- Hardship for those infected and their families – stigma and avoidance from other members of the community. - Loss of income and job when a breadwinner or caregiver becomes ill with HIV/AIDS. - Economic burden upon family members as ARV treatment is expensive and those affected with HIV/AIDS need nutritious food. - AIDS increases the number of deaths (including infant mortality rate) and reduces the life expectancy of people in the country. - Trauma of bereavement and orphan crisis – these orphans suffer from the emotional trauma of losing their parents and being stigmatized by society. These children are often assumed to be HIV positive themselves	[4]
(d)	Individual involvement - Individuals can take action to help manage the spread of infectious diseases when they are aware of what these diseases are and the conditions which favour their spread. For example being aware about hand, foot and mouth disease (HFMD) outbreaks in a community could make individuals more mindful about their own hygiene. Individuals may also become more aware of the likely ways the disease can be transmitted. - Individuals can exercise social responsibility. Examples of these include being constantly aware of unsanitary conditions or conditions which make it conducive for diseases to spread. This allows individuals to take precautionary measures against infectious diseases. <u>Community involvement</u> - Communities can work together to control diseases by introducing possible disease control strategies - Deciding when and where strategies will be implemented and by whom and - Engaging health workers to train and monitor members <u>Government strategies:</u> - Governments are actively involved in managing the spread of diseases by carrying out precautionary measures that aim to prevent	[8]

outbreaks of diseases. Governments also use mitigation measures to try to reduce the occurrence of an epidemic.

- Governments can implement precautionary measures, which are strategies used to reduce the occurrence of diseases. Examples of these are providing vaccinations against H1N1 and thermal fogging.
- Mitigation measures are strategies that are used to reduce the impact of a disease or health problem, after it has emerged in a country. When an outbreak or epidemic occurs within a country, governments need to respond with mitigation measures. These can include organising the closure of schools and public places during an epidemic. In many cases, it may involve providing health care services as well as requiring doctors to report cases of diseases. For example, Singapore responded to the Sars outbreak in 2003 through control measures such as detecting and isolating infected people in a dedicated hospital, and subjecting potential patients to home quarantine by law.

Involvement by international organisations

- The WHO'S 'Directly Observed Treatment, short-course' address TB among the poor and vulnerable populations, contribute to health system strengthening based on primary health care, engage all care providers, empower people with TB, and communities through partnership, enable and promote research.
- The Joint United Nations Programme on HIV/AIDS (UNAIDS) 'Getting to Zero Strategy'. Their goals to reduce sexual transmission of HIV/AIDS by half, provide universal access to antiretroviral therapy for people living with HIV, and address HIVspecific needs of women and girls.

Conclusion:

- In reality, individual responsibility is indeed the most important factor but also the most difficult goal to achieve, which results in why infectious diseases are so difficult to eradicate. Society is simply too culturally diverse and different groups of people will respond differently to advice, education or to what their authorities advocate – making the idea of everyone being responsible for themselves almost impossible. Being humans in such a complex network, there will always be room for errors and irresponsible ways of living and thus the hopes of eradicating infectious diseases globally remain one of mankind's big challenges.