

[The following text is extremely faint and illegible due to low contrast and blurring. It appears to be a list or series of entries, possibly containing names and dates, but cannot be transcribed accurately.]

Section A

This question is compulsory.

1. (a) A group of students from Sunny Secondary School in Singapore carried out a geographical investigation on tourism in Sunway City, a popular tourist destination near Kuala Lumpur, Malaysia.

Prior to their fieldwork, the students embarked on a secondary research to find out more about Sunway City. They compiled their secondary findings shown in Fig.1 (Insert 1).

- (i) Explain the usefulness of secondary data to this investigation. [2]

- (ii) Add annotations to Fig.1 (Insert 1) to describe the factors (other than Sunway Lagoon Theme Park) which encourage visitors to visit Sunway City. [3]

- (b) At Sunway Lagoon, the students stationed themselves outside the entrance of Sunway Lagoon Theme Park to administer a questionnaire to investigate the guiding question:

“How does distance travelled influence the number of visitors to Sunway Lagoon Theme Park?”

Study Fig. 2, which shows the questionnaire designed by the students.

Questionnaire

1. Gender: Male	Female
2. Which country do you come from?	
3. How old are you? (please circle)	15 & under 16-25 26-35 36-45 46-55 56 & above
4. How long are you staying in the theme park? (please circle)	1 hour 2 hours 3 hours 4 hours 5 hours 6 hours & above
5. How big is your group? (please circle)	Alone 2-3 4-5 6-7 8-9 10 & above

Fig. 2

- (i) Explain why the entrance of Sunway Lagoon Theme Park is an appropriate choice. [1]

- (ii) Study Table 1, which shows the results of the age and gender of the visitors interviewed.

Table 1
Age and gender of visitors ((Q 1 and 3)

Age	15 & under	24	12%
	16-25	32	16%
	26-35	46	23%
	36-45	46	23%
	46-55	32	16%
	56 & above	20	10%
Gender	Total	200	100%
	Male	100	50%
	Female	100	50%
	Total	200	100%

How representative is the sample of the visitors interviewed?

[2]

- (iii) Study Table 2, which shows the results of origin of visitors by country.

Table 2
Origin of visitors by country (Q 2)

Country	No. of visitors
Malaysia	55
Singapore	20
Saudi Arabia	20
Indonesia	18
China	17
India	13
Japan	13
Australia	12
South Korea	10
USA	8
UK	7
Thailand	7
Total	200

What conclusions can be drawn from Table 2 in response to the guiding question “How does distance travelled influence the number of visitors to Sunway Lagoon Theme Park?”.

[3]

- (iv) A student analysed the origin of visitors from Malaysia as shown in Table 3. and represented it on a map. Fig. 3 (Insert 1) is their partially completed map.

Use the data in Table 3 to complete the map.

[2]

Table 3
Origin of visitors from Malaysia (Q 2)

State	No. of visitors
Johor	11
Kelantan	2
Melaka	5
Negeri Sembilan	4
Pahang	3
Penang	5
Perak	7
Selangor	15
Trengganu	3
Total	55

- (c) One student thought there may be a link between length of stay in Sunway Lagoon Theme Park and the size of the group (Q 4 and Q 5 in the questionnaire shown in Fig. 2).

State a hypothesis the student could use for this inquiry and explain how the hypothesis can be tested.

[4]

- (d) As an extension to their study, the students wanted to assess the environmental impact of tourism in the theme park.

Design a bi-polar recording sheet with 2 aspects.

[3]

- (e) Another group of 8 students travelled to Kuala Lumpur City Centre to investigate the hypothesis "**Shops cater more to tourists than to the locals**".

Describe how the students, working in pairs can go about collecting data using a land use transect and ensuring its reliability.

[5]

Section B**Answer one question from this section**

2. (a) Study Photograph A (Insert 2), which shows a coastal landform. Describe the features of landform X and account for its formation. [5]
- (b) With the aid of a labelled diagram, explain the term "wave refraction". [4]
- (c) Study Photograph B (Insert 2), which shows a coastal environment. Use Photograph B to describe two dominant erosional processes and explain how geology of the coast may have contributed to the rate of erosion at this coastal environment. [4]
- (d) Study Photograph C (Insert 2), which shows different coastal protection measures. Compare the coastal protection measures shown in Photograph C. [4]
- (e) "Man pose a greater threat to the coral reef ecosystem than nature." To what extent do you agree with this statement? Use examples to support your answer. [8]
3. (a) Study Fig. 4 (Insert 2), which shows distribution of mangroves species in some parts of the World. Describe the distribution of mangroves species as shown on Fig. 4. [4]
- (b) Study Photographs D to F (Insert 2), which show a mangrove ecosystem. Use the photographs to help explain how mangroves adapt to the harsh environment they grow in. [3]

- (c) Study Tables 4A and 4B, which show top 10 countries/territories tourism earnings in 2000 and 2015 respectively.

Table 4A

Top 10 countries/territories tourism earnings in 2000

Rank	Country/Territory	Revenue (billion \$US)
1	USA	82.4
2	France	33.0
3	Spain	30.0
4	Italy	27.5
5	UK	21.9
6	Germany	18.7
7	China	16.2
8	Canada	10.8
9	Austria	9.8
10	Australia	9.23

Table 4B

Top 10 countries/territories tourism earnings in 2015

Rank	Country/Territory	Revenue (billion \$US)
1	USA	204.5
2	China	114.1
3	Spain	56.5
4	France	45.9
5	UK	45.4
6	Thailand	44.5
7	Italy	39.4
8	Germany	36.8
9	Hong Kong (China)	36.1
10	Macau (China)	31.3

Compare the changes in top 10 countries tourism earnings between 2000 and 2015.

[6]

- (d) Discuss the role of the media in influencing tourist decisions in their choice of destination.

[4]

- (e) "Sustainable tourism is best achieved by adopting ecotourism."
To what extent do you agree with this statement? Use examples to support your answer.

[8]



ZHONGHUA SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2018
Secondary 4 EXPRESS

Candidate's Name	Class	Register Number

GEOGRAPHY

Paper 1

2236/01

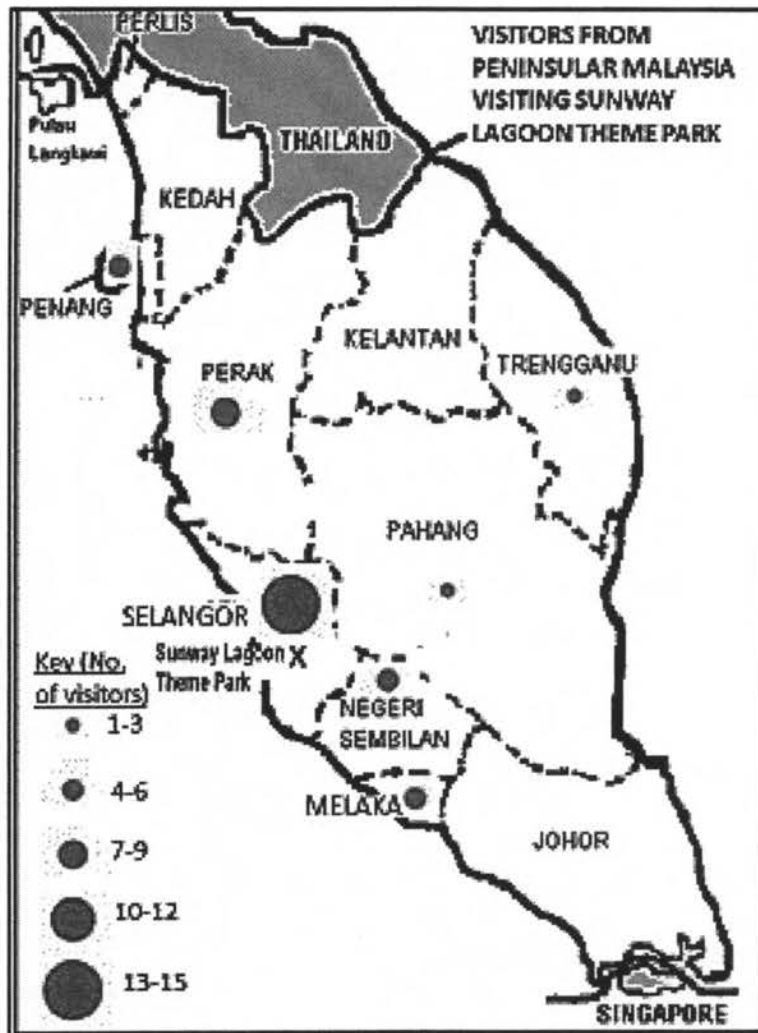
29 August 2018
1 hour 40 minutes

INSERT 1

This Insert contains Fig. 1 and Fig. 2 for Question 1. Attach Insert 1 to answer script.

This insert consists of 3 printed pages including this cover page.

Fig. 3 for Question 1



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ZHONGHUA SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2018
Secondary 4 EXPRESS

Candidate's Name	Class	Register Number

GEOGRAPHY

Paper 1

2236/01

29 August 2018
1 hour 40 minutes

INSERT 2

This Insert contains Photographs A, B and C for Question 2 and Fig. 4, Photographs D, E and F for Question 3.

This insert consists of 4 printed pages including this cover page.

Photograph A for Question 2



Photograph B for Question 2

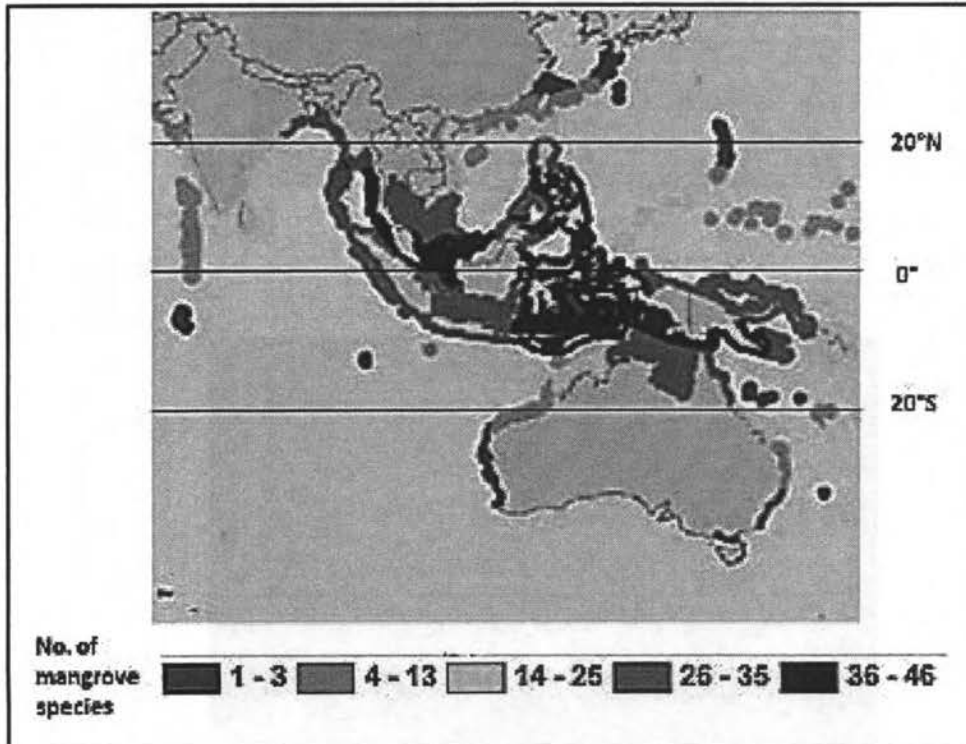


Photograph C for Question 2



Fig. 4 for Question 3

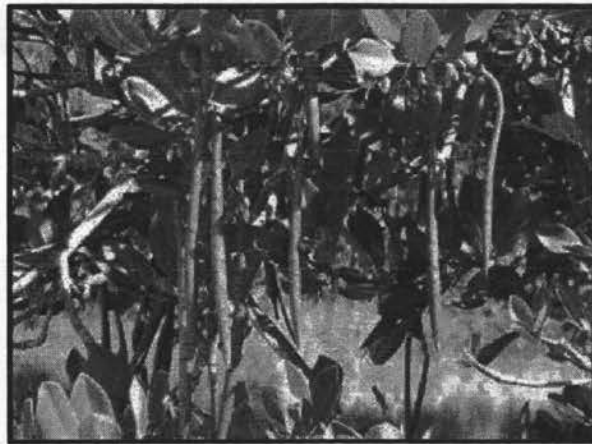
Mangroves species in some parts of the World



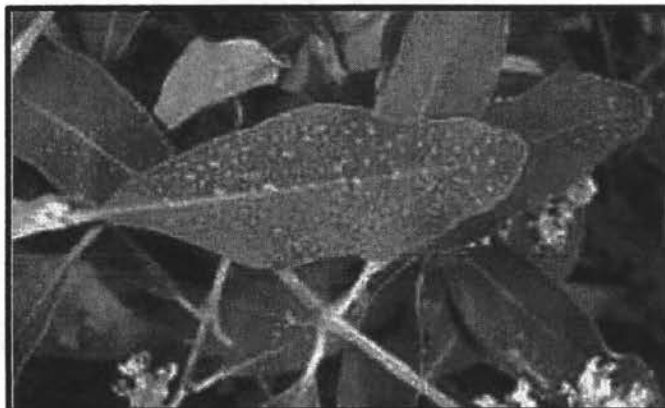
Photograph D for Question 3



Photograph E for Question 3



Photograph F for Question 3





ZHONGHUA SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2018
SECONDARY 4 EXPRESS

Candidate's Name	Class	Register Number

GEOGRAPHY**2236/02**

Paper 2

13 September 2018**1 hour 30 minutes**

Additional Materials: Answer Paper
 1 Insert
 1:25 000 Topographical Map of Rose Belle

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on all the work you hand in.
 Write in dark blue or black pen on both sides of the paper.
 Do not use staples, paper clips, highlighters, glue or correction fluid.

Section AAnswer **one** question.**Section B**Answer **one** question.

Write all answers on the Answer Paper provided.

Candidates should support their answers with the use of relevant examples.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

The Insert contains Fig. 1, Fig. 2 and Fig. 3 for Question 1, Fig. 4 and Photographs A and B for Question 2, Fig. 6 and Fig. 7 for Question 3, and Fig. 9, Fig. 10, Fig. 11 and Table 1 for Question 4.

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.

The total number of marks for this paper is 50.

For Examiner's Use	
Section A	/25
Section B	/25
Total	/50

Section A

Answer one question from this section.

- 1 a) Study Fig. 1 (Insert), which shows the global distribution of solar radiation.
Describe the global variation in solar radiation above 200 kWh/m². [5]
- b) Use an annotated diagram **only** to explain the formation of convectional rain. [4]
- c) Study Fig. 2 (Insert), which shows the climate and location of Lisbon, Portugal.
Use Fig. 2 to describe and account for the temperature characteristics of Lisbon. [5]
- d) Study Fig. 3 (Insert), which shows ways to mitigate the impact of storm surges.
With reference to Fig. 3, explain how damage to property caused by storm surges can be reduced. [3]
- e) 'Human actions are the main drivers of climate change.'
Using examples, discuss the accuracy of this statement. [8]

- 2 a) Study Fig. 4 (Insert), which shows the annual change in forest area by region from 1990 to 2010.

With reference to Fig. 4, compare the changes in forest areas in each region from 1990 to 2010.

[5]

- b) With the use of a specific example, discuss one measure which the government has implemented to mitigate climate change in an urban environment.

[4]

- c) Study Fig. 5, which shows the age of oceanic rocks and mid-ocean ridges on the ocean floor.

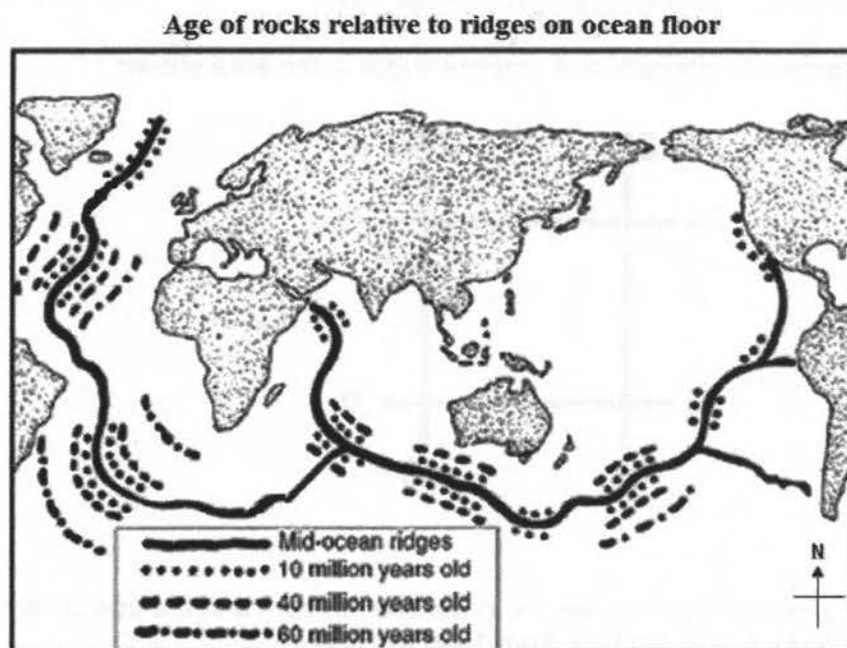


Fig. 5

Describe the distribution of mid-ocean ridges in the world and the ages of the rocks where the ridges lie.

[4]

- d) Study Photograph A and Photograph B (Insert), which show the eruption of Mount Agung and its surroundings in Bali in 2017.

With reference to Photographs A and B, suggest the hazards associated with the eruption of Mount Agung. Draw a well-labeled cross-section of Mount Agung.

[4]

- e) 'The severity of impact of an earthquake is largely determined by its distance from the epicentre.'
 To what extent do you agree with this statement? Use examples to support your answer.

[8]

Section B

Answer one question from this section.

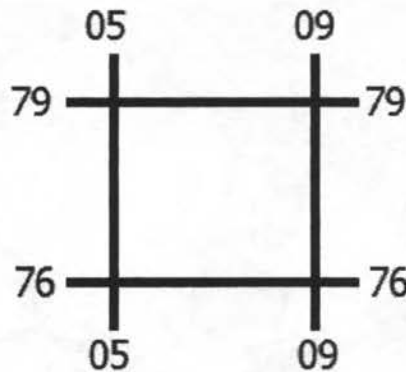
- 3 a) Account for the prevalence of HIV/AIDS in less developed countries. [4]

- b) Study Fig. 6 (Insert), which shows information about the lack of access to clean water.

With the help of Fig. 6, suggest the impacts caused by a lack of access to clean water. [5]

- c) Study the 1:25 000 topographical map of Rose Belle.

Explain the factors to intensify and process sugar in the area shown. [4]



- d) Study Fig. 7 (Insert), which shows the production of corn and the use of corn for ethanol production in the U.S. from 1980 to 2009.

Describe the trend in the production of corn and the use of corn for ethanol in the U.S from 1980 to 2009. Explain how this trend could threaten food security in less developed countries. [4]

- e) 'Food safety is a primary cause for food consumption to vary in the world.' To what extent do you agree with this statement? Use examples to support your answer. [8]

- 4 a) Study Fig. 8, which shows the trends in infant mortality rates and female literacy from 1990 to 2004.

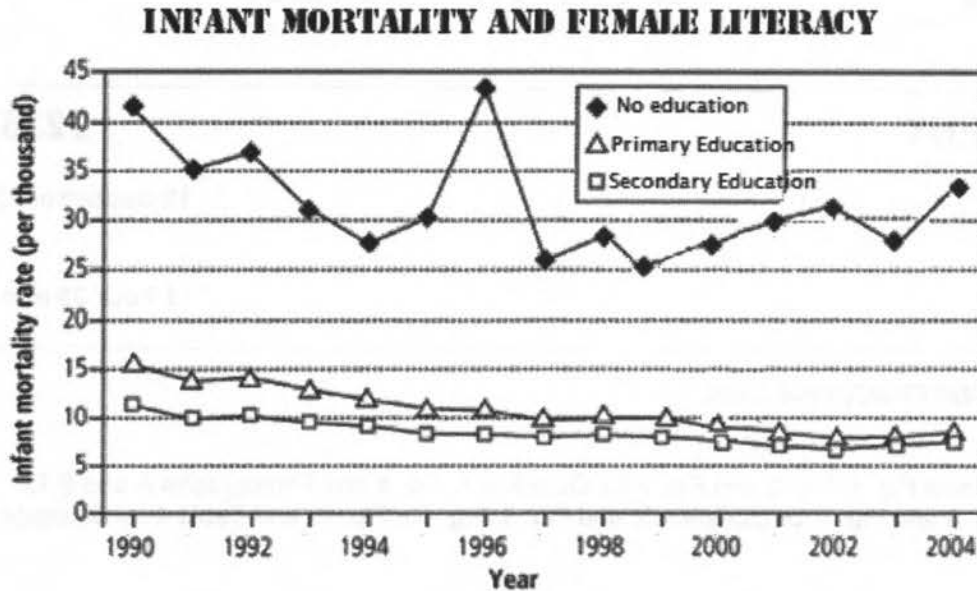


Fig. 8

Describe and suggest reasons for the relationships between infant mortality rate and female literacy. [4]

- b) Study Fig. 9 (Insert), which shows the doctor to patient ratio in Lesotho and Table 1 (Insert), which shows some statistics for Lesotho.

With the help of Fig. 9 and Table 1, account for the life expectancy of the people in Lesotho. [5]

- c) Study Fig. 10 (Insert), which shows the areas infected by malaria and Fig. 11 (Insert), which shows the spread of malaria.

With reference to Fig. 10 and Fig. 11, describe the extent of malaria transmission in Indonesia and explain how malaria is spread. [4]

- d) Use examples to comment on the roles of the community and international organisations in managing the spread of infectious diseases. [4]

- e) 'The social impact of HIV outweighs the economic impact.'
Do you consider this statement to be true? Explain your answer. [8]

THE END



ZHONGHUA SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2018
SECONDARY 4 EXPRESS

GEOGRAPHY

2236/02

Paper 2

13 September 2018

INSERT

1 hour 30 minutes

READ THESE INSTRUCTIONS FIRST

This Insert contains Fig. 1, Fig. 2 and Fig. 3 for Question 1, Fig. 4 and Photographs A and B for Question 2, Fig. 6 and Fig. 7 for Question 3, and Fig. 9, Fig. 10, Fig. 11 and Table 1 for Question 4.

Fig. 1 for Question 1

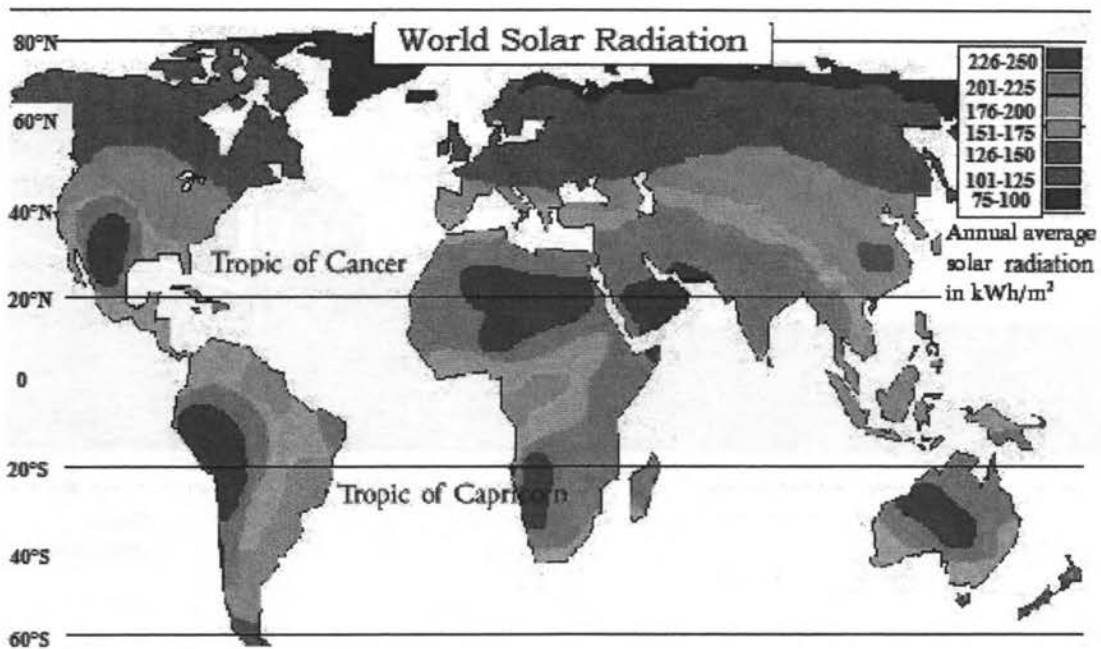


Fig. 2 for Question 1

Climate and location of Lisbon, Portugal

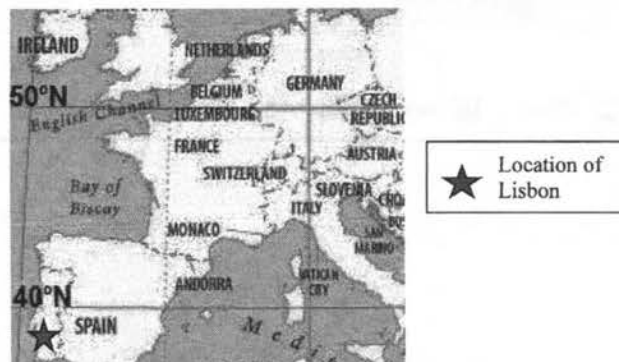
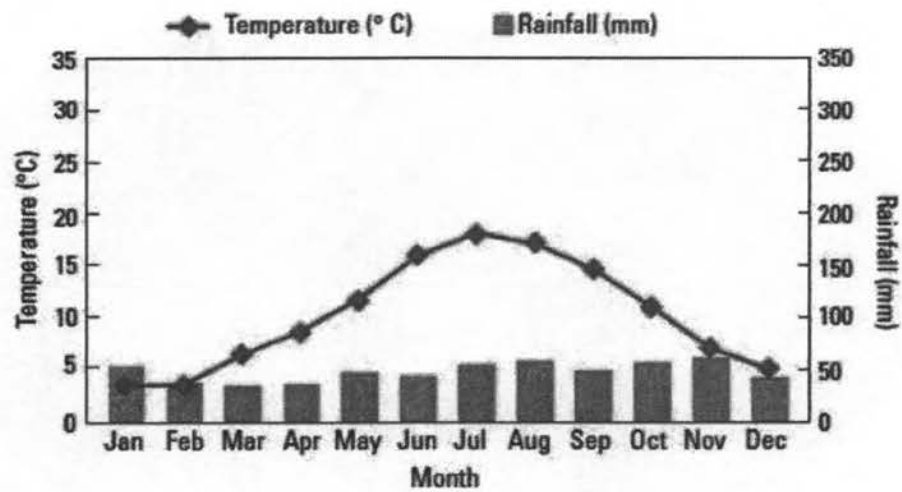


Fig. 3 for Question 1

Mitigation against storm surges

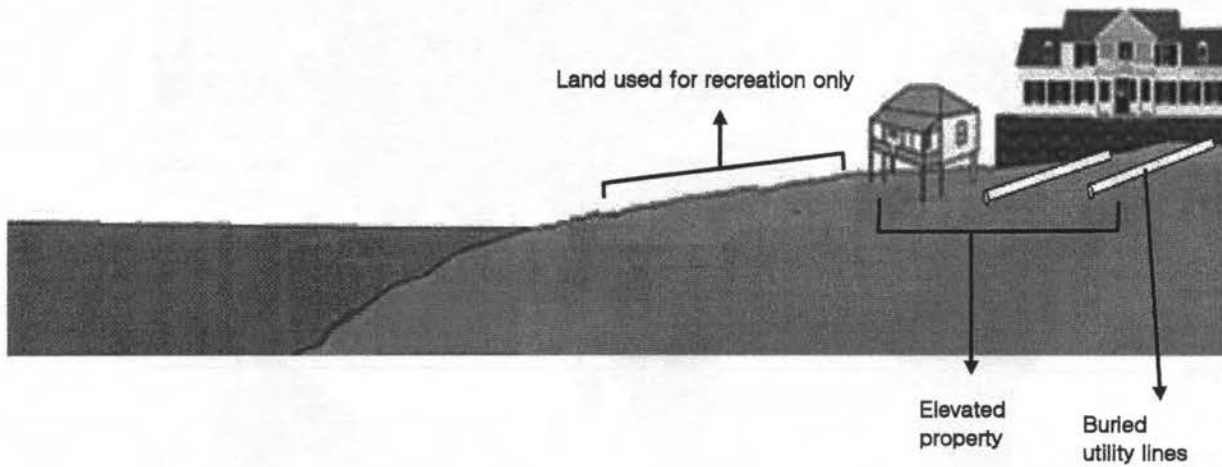
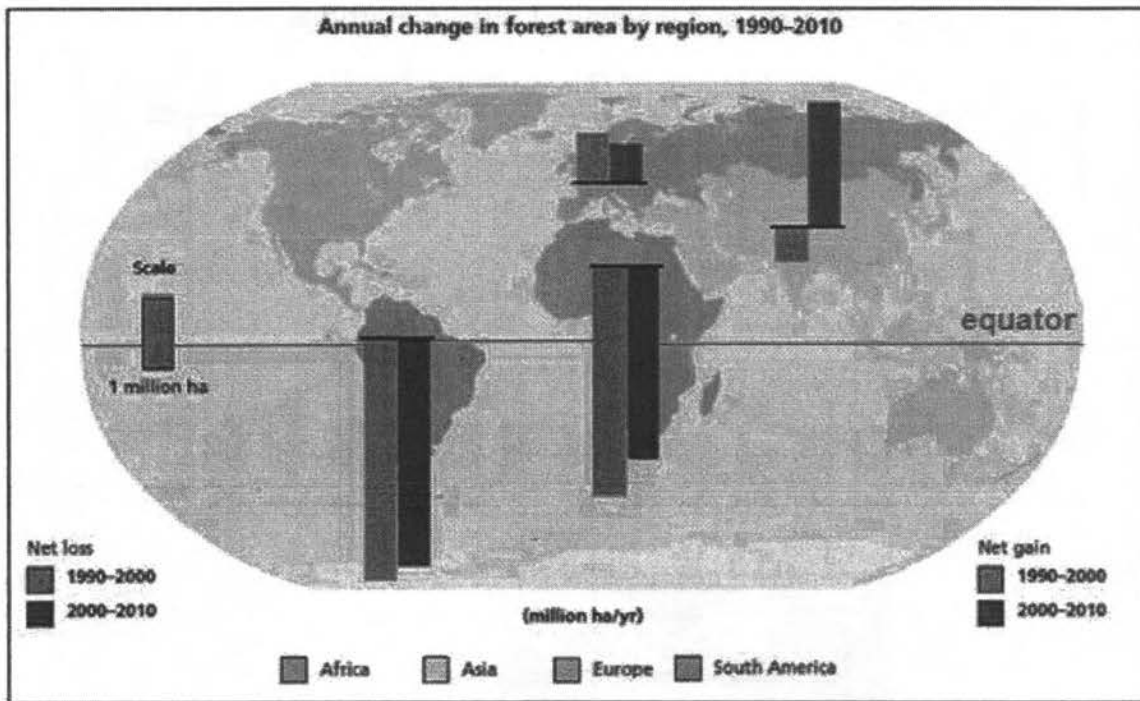


Fig. 4 for Question 2



Photographs A and B for Question 2



Photograph A



Photograph B

Fig. 6 for Question 3

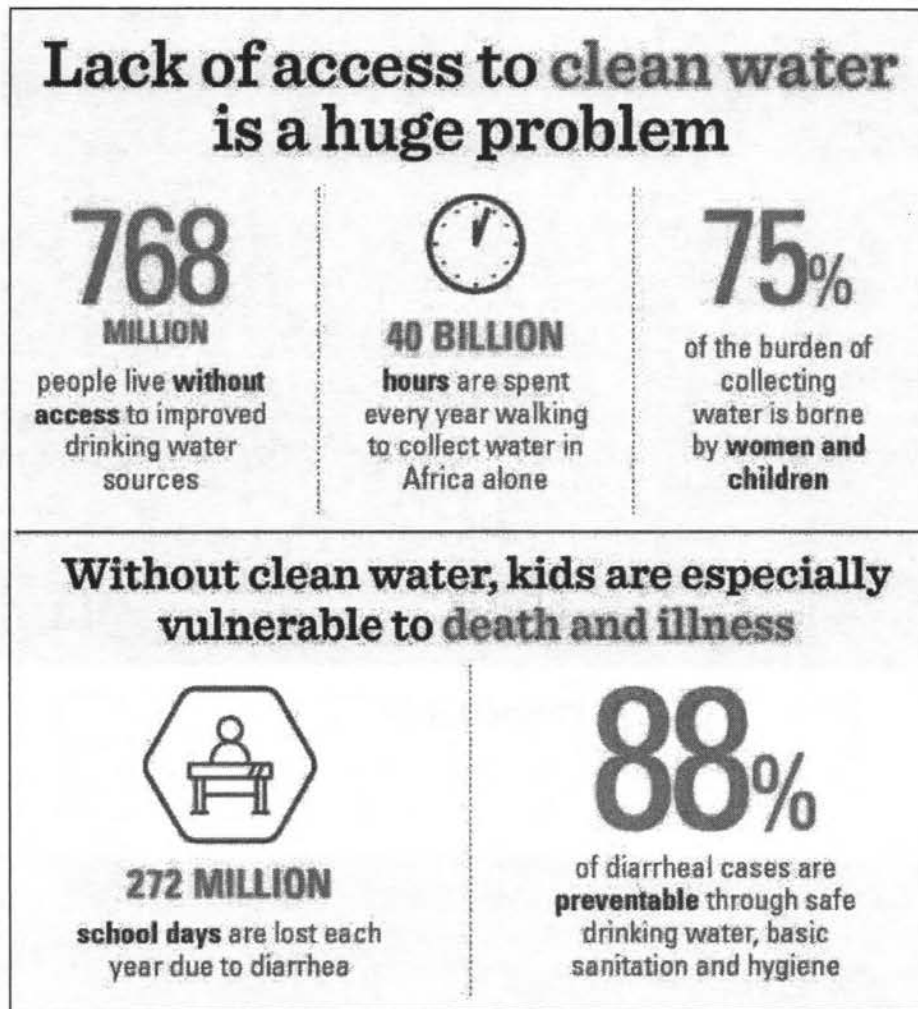


Fig. 7 for Question 3

Corn and ethanol production in the U.S.

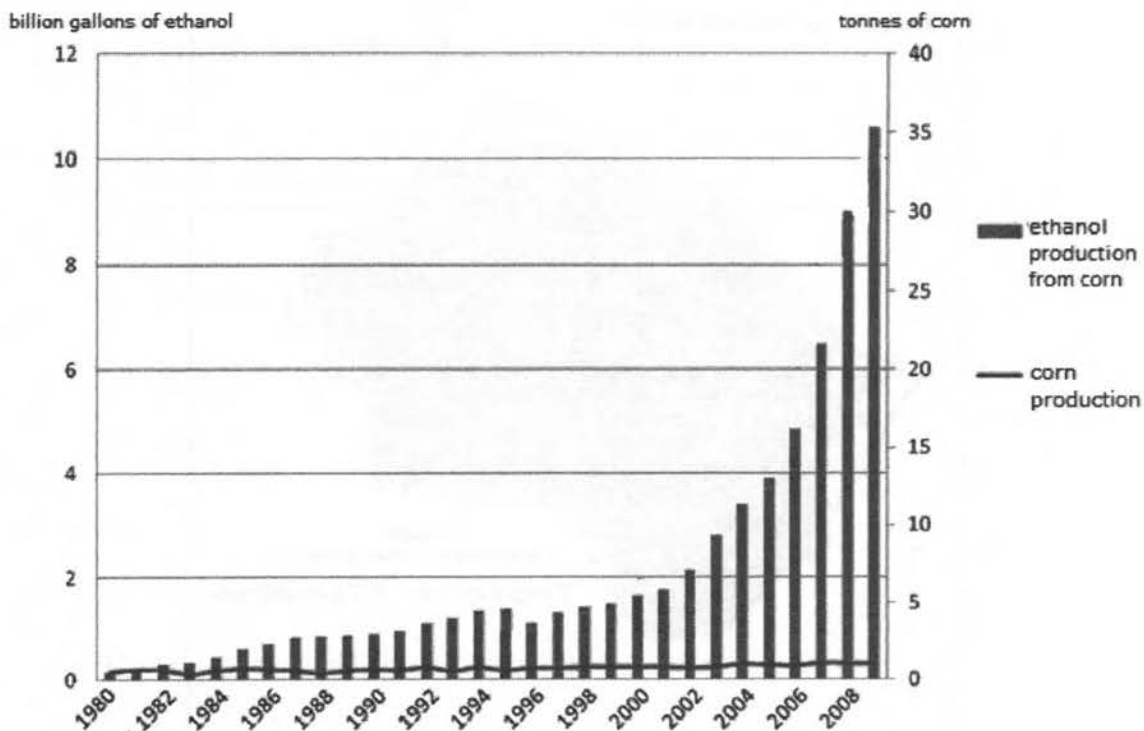


Fig. 9 for Question 4

Doctor to patient ratio in Lesotho

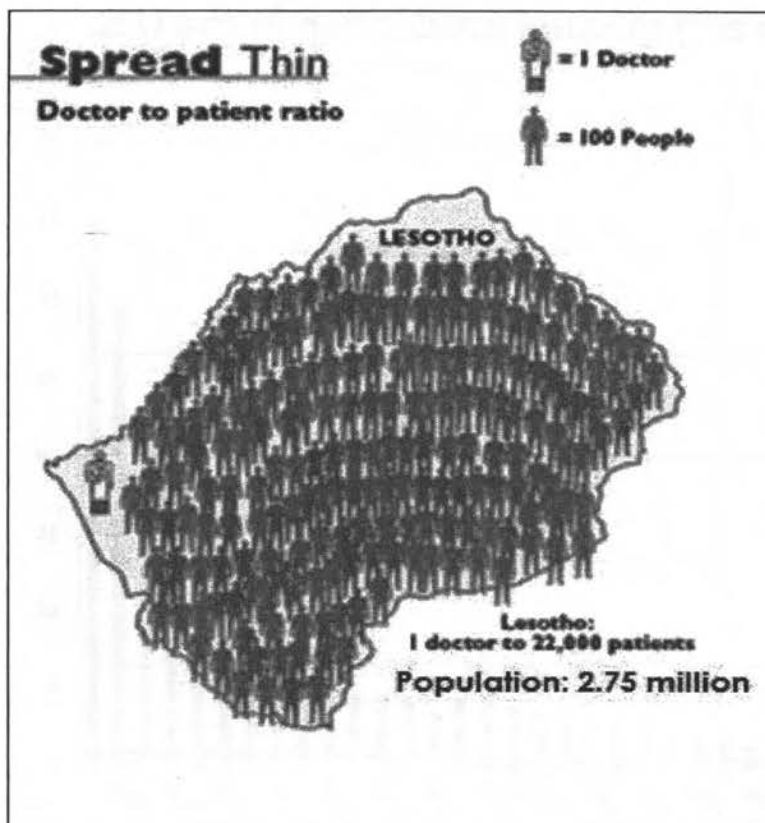


Table 1 for Question 4

National statistics in 2016

2016	Lesotho	LDC Average
Expenditure on health per capita (US\$)	276	280
Total expenditure on healthcare (% of GDP*)	7.6	4.7 - 10
GDP per capita (USD\$)	859	979
Life expectancy (years)	48	68
* GDP stands for the total dollar value of all goods and services produced over a specific year, divided by population in the country		

Fig. 10 for Question 4

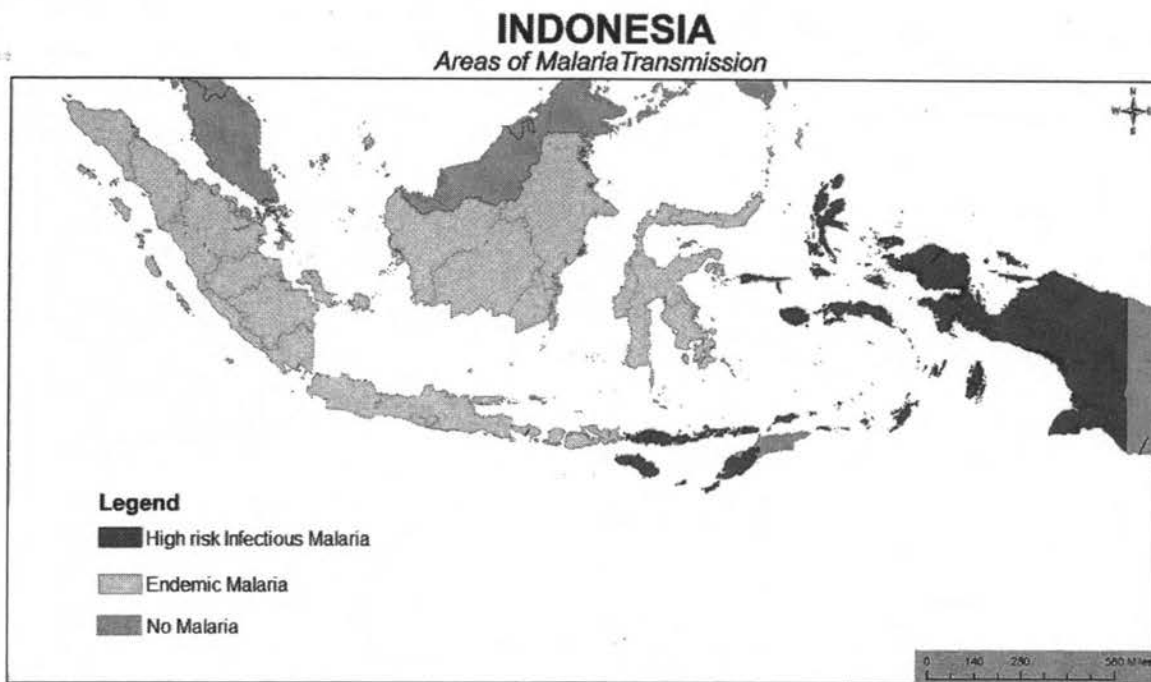
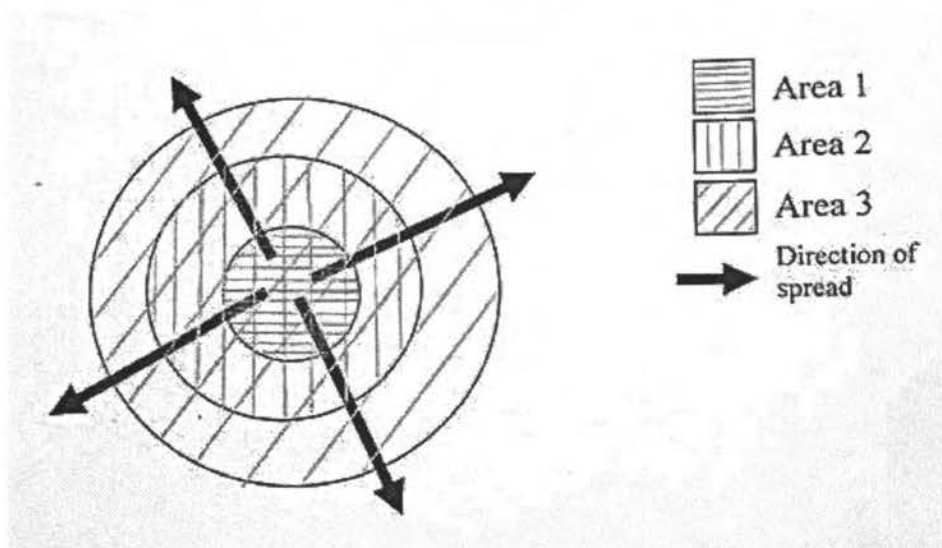


Fig. 11 for Question 4

Spread of malaria



END



Section A

This question is compulsory.

1. (a) A group of students from Sunny Secondary School in Singapore carried out a geographical investigation on tourism in Sunway City, a popular tourist destination near Kuala Lumpur, Malaysia.

Prior to their fieldwork, the students embarked on a secondary research to find out more about Sunway City. They compiled their secondary findings shown in Fig.1 (Insert 1).

- (i) Explain the usefulness of secondary data to this investigation. [2]

- Provides background information about the place and the vicinity given that the students may not have travelled to Sunway City.
- Helps the students to formulate relevant hypothesis and guiding questions for their fieldwork.
- Secondary data can also be used to confirm their findings from the primary data they collected.

Any 2

- (ii) Add annotations to Fig.1 (Insert 1) to describe the factors (other than Sunway Lagoon Theme Park) which encourage visitors to visit Sunway City. [3]

- Near to Malaysian towns & cities for locals to recreate eg 23 km to Kuala Lumpur City Centre.
- Accessible to those who wish to drive there including Singaporeans eg Federal Highway OR Accessible to those using Bus Rapid Transit eg Sunway Lagoon BRT Station OR Accessible to international tourists flying in eg Kuala Lumpur International Airport and Sultan Abdul Aziz Shah Airport.
- A range of accommodations available to meet different budget needs eg Sunway Clio Hotel, Sunway Pyramid Hotel etc.
- Availability of varied food outlets eg Taste Enclave, Busaba Thai etc.
- Convention Centre able to hold conferences/exhibitions for MICE tourists eg Sunway Pyramid Convention Centre
- Shopping mall for shopping eg Sunway Pyramid Shopping Mall/spa for those who wish to relax eg Mandara Spa.

Any 3

- (b) At Sunway Lagoon, the students stationed themselves outside the entrance of Sunway Lagoon Theme Park to administer a questionnaire to investigate the guiding question:
“How does distance travelled influence the number of visitors to Sunway Lagoon Theme Park?”

Study Fig. 2, which shows the questionnaire designed by the students.

Questionnaire

1. Gender: Male	Female					
2. Which country do you come from?						
3. How old are you? (please circle)	15 & under	16-25	26-35			
	36-45	46-55	56 & above			
4. How long are you staying in the theme park? (please circle)	1 hour	2 hours	3 hours	4 hours	5 hours	6 hours & above
5. How big is your group? (please circle)	Alone	2-3	4-5	6-7	8-9	10 & above

Fig. 2

- (i) Explain why the entrance of Sunway Lagoon Theme Park is an appropriate choice. [1]
- Expected high visitor traffic flow being the entrance and so will enable the students to achieve their sample size.
 - People entering the theme park is the correct target for the survey.
 - Questions asked in the survey do not require interviewees to have completed the theme park experience.

Any 1.

- (ii) Study Table 1, which shows the results of the age and gender of the visitors interviewed.

Table 1
Age and gender of visitors ((Q 1 and 3)

Age	15 & under	24	12%
	16-25	32	16%
	26-35	46	23%
	36-45	46	23%
	46-55	32	16%
	56 & above	20	10%
Gender	Total	200	100%
	Male	100	50%
	Female	100	50%
	Total	200	100%

How representative is the sample of the visitors interviewed ?

[2]

- A sample size of 200 provides a large enough data to make accurate analysis/conclusion.
- Gender sampling with equal numbers for both males and females each 50% ensures views of both genders are represented.
- Unequal representation of each age group.

Any 2

- (iii) Study Table 2, which shows the results of origin of visitors by country.

Table 2
Origin of visitors by country (Q 2)

Country	No. of visitors
Malaysia	55
Singapore	20
Saudi Arabia	20
Indonesia	18
China	17
India	13
Japan	13
Australia	12
South Korea	10
USA	8
UK	7
Thailand	7
Total	200

What conclusions can be drawn from Table 2 in response to the guiding question “How does distance travelled influence the number of visitors to Sunway Lagoon Theme Park?”.

[3]

- The nearer the origin of visitors is to Sunway Lagoon Theme Park, the more their numbers. For example, largest group of visitors are from Malaysia
- Outside of Malaysia, nearby countries such as Singapore and Indonesia have higher percentage while countries further away such as USA and UK have smaller percentage.
- However, there are anomalies such as Saudi Arabia, though further away is similar to Singapore OR Thailand though nearer is similar to UK

(iv) A student analysed the origin of visitors from Malaysia as shown in Table 3. and represented it on a map. Fig. 3 (Insert 1) is their partially completed map.

Use the data in Table 3 to complete the map.

[2]

Table 3
Origin of visitors from Malaysia (Q 2)

State	No. of visitors
Johor	11
Kelantan	2
Melaka	5
Negeri Sembilan	4
Pahang	3
Penang	5
Perak	7
Selangor	15
Trengganu	3
Total	55

- Accurate plotting of Kelantan and Johor
1m each

- (c) One student thought there may be a link between length of stay in Sunway Lagoon Theme Park and the size of the group (Q 4 and Q 5 in the questionnaire shown in Fig. 2).

State a hypothesis the student could use for this inquiry and explain how the hypothesis can be tested.

[4]

Hypothesis [1]

"Visitors travelling in groups are more likely to stay longer in Sunway Lagoon Theme Park" OR

"Solo traveller is likely to stay fewer hours in Sunway Lagoon Theme Park"

Accept plausible answer

Test hypothesis [3]

- Draw a scatter graph to show the relationship between the size of the group and their length of stay in Sunway Lagoon Park. With X-axis being size of the group and Y-axis the length of stay in Sunway Lagoon Park.
- Plot the data collected from the survey and draw a line of best fit.
- When group size increases with length of stay in Sunway Lagoon Park, the hypothesis is proven.

- (d) As an extension to their study, the students wanted to assess the environmental impact of tourism in the theme park.

Design a bi-polar recording sheet with 2 aspects.

[3]

- Format of bi-polar recording sheet from +2 to -2
- Any 2 aspects
- Overcrowding/Increased congestion
- Littering/pollution
- Shortage of parking space

Accept plausible answer

- (e) Another group of 8 students travelled to Kuala Lumpur City Centre to investigate the hypothesis **“Shops cater more to tourists than to the locals”**.

Describe how the students, working in pairs can go about collecting data using a land use transect and ensuring its reliability.

[5]

Method [4]

- Obtain a base map with the main street, identify transect and note the start and end points. Each pair 1 transect.
- Design a land use classification key on the types of goods and services (eg hotel, money changer, souvenir shop, F&B, local grocery shop etc) offered based on secondary research prior to the field work.
- Walk along the transect and note down on the base map the types of goods sold and services offered on both sides of the line of transect.
- Draw a land use map of the street using the key for the various types of land use and mark those for tourists and locals respectively.

Reliability [1]

- All 4 pairs do the land use transect concurrently and adopt similar key for classification of goods & services and distinction between shops for tourists/locals.

Accept plausible answer

Section B

Answer one question from this section

2. (a) Study Photograph A (Insert 2), which shows a coastal landform. Describe the features of landform X and account for its formation.

[5]

Describe [2]

- Flat/gentle gradient
- Consist of fine sediments
- Extends north-north west from the mainland
- Wider nearer the mainland and narrower towards the offshore island

Any 2

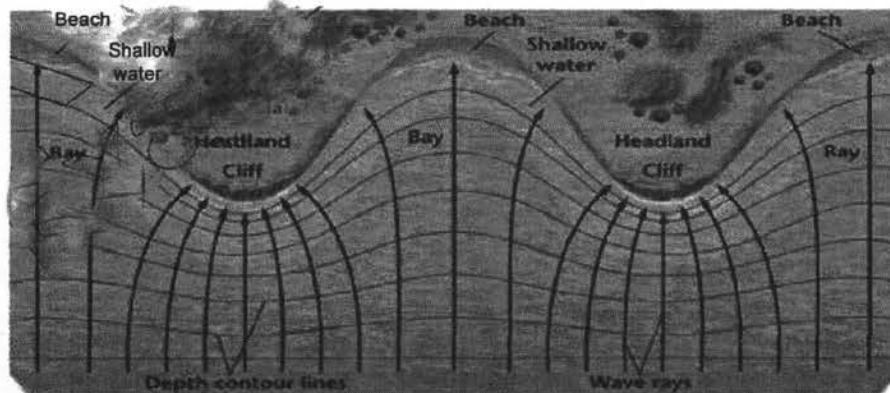
Formation [3]

- When longshore currents encounter an abrupt change in coastline, the materials they carry will be deposited in the direction of the longshore drift.
- Over time, the accumulation of materials will result in a long, narrow ridge of sand called the spit, with one end attached to the mainland and the other end extending seawards.
- As the spit extends seawards, it joins an offshore island to form a tombolo.

- (b) With the aid of a labelled diagram, explain the term "wave refraction".

[4]

- Wave refraction is a process by which waves change direction and is accompanied by change in speed and wave length of the waves as they approach a coastline.
- Waves bend and converge at headlands because when waves travel from deep water into shallow water, friction with the sea bed will slow it down causing a decrease in speed and a decrease in wave length. As it bends towards a headland, it increased in wave height leading to greater erosive power.
- Waves diverge when they reach a bay, resulting in decreased wave height and less wave energy and more deposition.
- Labelled diagram



- (c) Study Photograph B (Insert 2), which shows a coastal environment. Use Photograph B to describe two dominant erosional processes and explain how geology of the coast may have contributed to the rate of erosion at this coastal environment.

[4]

2 erosional processes [2]

- Hydraulic action: when waves strike against a rock surface, air will be trapped in the bedding planes and rock joints. The air that is compressed by the oncoming waves exert pressure on the bedding planes/joints. When the waves retreat, the air will expand. This repeated compression and expansion of air will weaken and shatter the joints.
- Abrasion/corrasion: when waves carry sediments such as pebbles, they are hurled against the coast, knocking and scrapping the surface areas of the coast/landform.
- Attrition: when rock particles carried by waves hit against each other, they break down into smaller pieces.
- Solution/Corrosion: Sea water reacts chemically with water soluble minerals in the coastal rocks and dissolves them

Geology [2]

- Rock type: more resistant rocks such as granite will erode at a slower rate compared to less resistant rocks.
- Rock structure: less jointed rocks will provide less opportunities for erosion to take place compared to rocks with more joints.

- (d) Study Photograph C (Insert 2), which shows different coastal protection measures. Compare the coastal protection measures shown in Photograph C. [4]

Similarity [2]

- Both are hard engineering measures.
- Both are made of concrete materials and need time for construction.
- Both lined the coastline.

Differences [2]

- The concrete seawall is curved at the upper portion and lined the coastline while the tetrapods are stacked at an interlocking position and placed in front and at the base of the seawall.
- The seawall helps to absorb and break the waves energy OR curve seawall helps to deflect up rushing water back into the sea while the tetrapods help dissipate wave energy as they allow water to pass around them and so no powerful backwash is generated.

Accept plausible answer

- (e) "Man pose a greater threat to the coral reef ecosystem than nature."
To what extent do you agree with this statement? Use examples to support your answer. [8]

Level 1 [0-3 marks]

At this level, answers will be generalized or with minimal support if any given at all. Reasoning is rather weak and expression may be unclear. A basic answer that has little development. Answers will lack examples or other evidence, or it is so

sketchy that it adds little support to the answer.

Level 2 [4-6 marks]

Disagreement or agreement will be supported by appropriate details. 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 some places. Some examples or other evidence will be presented to support answers in at least one place in the answer.

Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given on whether Man or nature pose a greater threat to the coral reef ecosystem.

3. (a) Study Fig. 4 (Insert 2), which shows distribution of mangroves species in some parts of the World.

Describe the distribution of mangroves species as shown on Fig. 4.

[4]

- High mangrove diversity of 36-46 species are found within 20°N and 20°S of the Equator in the coastal areas of Southeast Asia such as western Thailand, Peninsular Malaysia, Borneo, Philippines, Sulawesi and New Guinea.
- Moderately high mangrove diversity of 26-35 species are located in the coastal areas of Cambodia and southern Vietnam and another stretch from Myanmar to Bangladesh. The Indonesian islands of Sumatra and Java also fall into this category.
- Moderately low diversity of mangrove species of 14-25 skirts the outline of India and northern Vietnam.
- The northern coastline of Australia has a moderately higher number of mangrove species (14-25) compared to the western and eastern coastal areas which range from low (4-13) to very low number of species (1-3).
- Beyond 20°N and 20°S mangrove biodiversity dwindles to low (4-13) and very low (1-2) such as along the southern coastline of China and southwest and southeast Australia.

Any 4

Accept plausible answer

- (b) Study Photographs D to F (Insert 2), which show a mangrove ecosystem. Use the photographs to help explain how mangroves adapt to the harsh environment they grow in.

[3]

Photograph D

- Prop/stilt roots to anchor the trees firmly in the **soft and muddy soil**. OR
- Exposed roots such as pencil-like roots to take in oxygen when they are not submerged in water to cope with the **waterlogged/oxygen-deficient** environment.

Photograph E

- The propagule starts to grow its sprout in the fruit while it is still on the mother tree. When it falls, its javelin-shaped helps to **pierce the soft mud** to germinate and grow into a sapling immediately.

Photograph F

- Salt secreting glands on the underside of the leaves helps them cope with the **saline environment** as the salt will be washed off by rain.

- (c) Study Tables 4A and 4B, which show top 10 countries/territories tourism earnings in 2000 and 2015 respectively.

Table 4A**Top 10 countries/territories tourism earnings in 2000**

Rank	Country/Territory	Revenue (billion \$US)
1	USA	82.4
2	France	33.0
3	Spain	30.0
4	Italy	27.5
5	UK	21.9
6	Germany	18.7
7	China	16.2
8	Canada	10.8
9	Austria	9.8
10	Australia	9.23

Table 4B**Top 10 countries/territories tourism earnings in 2015**

Rank	Country/Territory	Revenue (billion \$US)
1	USA	204.5
2	China	114.1
3	Spain	56.5
4	France	45.9
5	UK	45.4
6	Thailand	44.5
7	Italy	39.4
8	Germany	36.8
9	Hong Kong (China)	36.1
10	Macau (China)	31.3

Compare the changes in top 10 countries tourism earnings between 2000 and 2015.

[6]

Similarity [2]

- USA remained the top both in 2000 and 2015.
- Tourism earnings for all top 10 countries increased

Differences [4]

- Gap between the 1st and 10th widened (\$US73.17 b in 2000 verses \$US173.2 b in 2015)
- In 2000, the top 10 countries were dominated by developed countries from the continents of North America and Europe (except for China in 7th position) but in 2015, Asian countries such as China and her territories and Thailand entered into the list (4 out of 10 countries). OR in 2015, Austria and Australia are out of the race.
- In 2000, Australia was the only country in the southern hemisphere in the top 10 countries but by 2015 all top 10 countries are from the northern

hemisphere.

- In terms of rate of increase, China experienced an impressive rate of 604% and USA 148%.

Accept plausible answers

- (d) Discuss the role of the media in influencing tourist decisions in their choice of destination. [4]

- The media refers to channels such as television, radio, newspapers, internet and reports about a country or an area. The media influence tourist decisions by increasing their awareness of tourist destinations which they might not have considered.
- Positive reports such as the friendliness of the local population, interesting culture, shopping opportunities and attractive scenery can encourage tourists to visit a place.
- Negative reports such as disease outbreaks and natural disasters can deter tourists both immediately and for many years to come.
- The media through the internet also provides a convenient platform for tourists to make their travel plans such as booking of flights, hotel reservation etc through "expedia", "trivago" etc.

Accept plausible answers

- (e) "Sustainable tourism is best achieved by adopting ecotourism."
To what extent do you agree with this statement? Use examples to support your answer. [8]

Level 1 [0-3 marks]

At this level, answers will be generalized or with minimal support if any given at all. Reasoning is rather weak and expression may be unclear. A basic answer that has little development. Answers will lack examples or other evidence, or it is so sketchy that it adds little support to the answer.

Level 2 [4-6 marks]

Disagreement or agreement will be supported by appropriate details. 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 some places. Some examples or other evidence will be presented to support answers in at least one place in the answer.

Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given on whether sustainable tourism is best achieved by adopting ecotourism.



ZHONGHUA SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2018
SECONDARY 4 EXPRESS

ANSWERS

FULL GEOGRAPHY

2236/02

Paper 2

13 September 2018

Secondary 4 Express

1 hour 30 minutes

Section A

Answer one question from this section.

- 1 a) Study Fig. 1 (Insert), which shows the global distribution of solar radiation.

Describe the global variation in solar radiation above 200 kWh/m². [5]

- Areas experiencing high solar radiation above 200 kWh/m² are mainly located between 40°N to about 50°S. **OR**
- Stretches from 40°N in the northern hemisphere to 50°S in the Southern hemisphere.
[General trend – 1m]
- High solar radiation of 201-225 kWh/m² is experienced in regions around the Tropic of Cancer (about 20°N), in Asia - countries such as the northern part of Myanmar, Bangladesh, India, Pakistan, Afghanistan, Iraq and the northern part of Saudi Arabia.
- On the South American continent where there is a stretch on the west stretching along Peru to Brazil and a small area on the eastern coast of Brazil.
- Dominant in Australia, covering most of the northeastern region.
- Major parts of the African continent, covering much of the northern and eastern coast and most of Madagascar, except its southern tip.
[Any 2 points – 2m]
- The highest solar radiation of 226-250 kWh/m² is found in small regions on each continent. A small region is located in southern USA and northern Mexico.
- On the western coast of South America, stretching inland towards Peru and Bolivia.
- On the African continent, about 10°N to 30°N on both sides of the Tropic of Cancer, near the south western part of Africa in Namibia and a small area at the tip of Somalia, extending towards Yemen, Oman and a large part in the south of Saudi Arabia.
- In central Australia, spreading from inland towards the Northwestern coast of the country.
[Any 2 points – 2m]

- b) Use an annotated diagram **only** to explain the formation of convectional rain. [4]
Annotations @1m each

- c) Study Fig. 2 (Insert), which shows the climate and location of Lisbon, Portugal.

Use Fig. 2 to describe and account for the temperature characteristics of Lisbon. [5]

- Large annual temperature range of about 13°C.
- Mild winters (4°C) and cool summers (17°C)
- Low mean annual temperature (about 9°C).

Account for [2m]

- Lisbon experiences mild winters and cool summers as it is near the coast. During winter, the sea takes a longer time to lose heat, thus warm air above the sea increases the temperature of coastal areas, resulting in mild winters (4°C). During summer, the sea takes a longer time to gain heat, thus cool air above the sea helps lower the temperature of coastal areas at Lisbon, hence summers are cool (17°C).
- Lisbon is also located at a high latitude of about 40°N, hence the angle of incidence from the sun is small as solar radiation spreads over a large area, resulting in a low mean annual temperature (about 9°C).

- d) Study Fig. 3 (Insert), which shows ways to mitigate the impact of storm surges.

With reference to Fig. 3, explain how damage to property caused by storm surges can be reduced.

[3]

- Developments are restricted in the areas near the coasts by gazetting it for recreational use so as to prevent property damage during floods.
- Properties are elevated above ground using stilts and concrete to prevent flooding due to storm surges.
- Utility lines such as power and telecommunication lines and water supply networks can be buried underground to avoid damage by strong winds and storm surges which may cause breakage and disruption to services.

- e) 'Human actions are the main drivers of climate change.'
Using examples, discuss the accuracy of this statement.

[8]

Level 1 [0-3 marks]

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Level 2 [4-6 marks]

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Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given to decide whether human actions are the main cause of climate change.

- 2 a) Study Fig. 4 (Insert), which shows the annual change in forest area by

region from 1990 to 2010.

With reference to Fig. 4, compare the changes in forest areas in each region from 1990 to 2010.

[5]

- Generally, the southern hemisphere experienced a greater net loss of forest area (about 6.5 million ha in South America, 6 million ha in Africa) than the northern hemisphere, which only experienced a small net loss of about 0.5 million ha in Asia from 1990 to 2010.
- In South America, there was a greater net loss of forest area from 1990-2000 (3.3 million ha) as compared to 2000-2010 (3.2 million ha).
- In Africa, there was also a greater net loss of forest area in 1990-2000 (3.2 million ha) than from 2000-2010 (2.8 million ha).
- One anomaly would be Asia where there was a net loss of forest area from 1990-2000 (0.5 million ha) but there was a net gain of forest area from 2000-2010 (2 million ha).
- Whereas in Europe, there was no net loss of forest throughout the years. There was a net gain of forest area from 1990-2010. From 1990-2000, there was a larger net gain (0.7 million ha) but a smaller net gain from 2000-2010 (0.5 million ha).

b) With the use of a specific example, discuss one measure which the government has implemented to mitigate climate change in an urban environment.

[4]

- One implementation by the Singapore government is the Green Mark Scheme which is an award to encourage the construction of energy efficient 'green' buildings.
- This can be done by installing solar panels / using natural ventilation instead of air-conditioning to reduce the usage of electricity. Lesser fossil fuels would be burnt to produce electricity, hence reduce the amount of greenhouse gases which are emitted.
- Less greenhouse gases would trap less heat in the atmosphere, mitigating the effects of climate change.
- The limitation would be that 'green' buildings cost more to build as materials such as bamboo or reusable or recycled metal are more expensive. Thus, some companies might not be keen to construct 'green' buildings.

Other possible strategies: Plant-a-tree, Singapore Green Plan

Accept other plausible answers.

Describe the distribution of mid-ocean ridges in the world and the ages of the rocks where the ridges lie.

[4]

Distribution of mid-ocean ridges – 2m

- The mid-ocean ridges are found in the middle of the Atlantic Ocean, where the mid-Atlantic ridge runs through North to South in the

middle of the ocean.

- A stretch of mid-ocean ridges run from the Indian Ocean near Somalia, southwards into the Southern Ocean and extends towards the south and eastern part of the Pacific Ocean.

Each point to have at least 2 details.

Age of rocks – 2m

- The ages of the rocks are mostly similar on both sides of the spreading ridge and increase with distance away from the spreading centre of each mid-ocean ridge.

OR

Right beside the spreading zone of the mid-ocean ridge, the rocks are the youngest (10 million years old), and increases in age. Furthest away from the spreading ridge, the rocks are the oldest (60 million years old) on both sides of the ridge.

- One anomaly would be that in the Southern Ocean at the Southeast of Australia, there is a band of rocks 60 million years old on one side of the spreading ridge but not on the other.

Accept other plausible answers.

- d) Study Photograph A and Photograph B (Insert), which show the eruption of Mount Agung and its surroundings in Bali in 2017.

With reference to Photographs A and B, suggest the hazards associated with the eruption of Mount Agung. Draw a well-labeled cross-section of Mount Agung.

[4]

- The eruption of Mount Agung emitted **thick ash clouds** which could be carried by winds to other cities, causing breathing difficulties such as asthma.

OR

- **Thick ash cloud** could reduce visibility in the atmosphere resulting in airport closures as the ash could damage plane engines and cause dangers.
- **Pyroclastic flows** of hot gases and burning rocks could travel at high speeds and burn acres of vegetation, damaging farmland and destroying property, incurring economic losses.
- **Hot lava flows** could travel down the flanks of the volcano to burn everything in its path hence destroying properties.
- **Volcanic bombs** may be spewed out of the volcano which can crush properties and kill people.

Any 3 points.

- Well-labeled diagram – 1m

- e) 'The severity of impact of an earthquake is largely determined by its distance from the epicentre.'
To what extent do you agree with this statement? Use examples to support your answer. [8]

Level 1 [0-3 marks]

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Level 2 [4-6 marks]

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Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given on whether the distance from epicenter determines the severity of impact of an earthquake.

Section B

Answer one question from this section.

- 3 a) Account for the prevalence of HIV/AIDS in less developed countries. [4]
- Social stigma in LDCs may lead to many infected victims being discriminated by family members and healthcare professionals who might refuse to treat them. Without timely treatment of the disease, these patients spread it to others.
 - Due to the lack of education, people in LDCs are unaware about sex and sexuality, hence engage in unsafe sex which increase the spread of HIV/AIDS.
 - Risk-taking behaviors such as drug abuse and alcohol consumption may affect one's judgement and lead to unsafe sexual practices which encourages the spread of HIV/AIDS.
 - Lapses in medical practices in LDCs such as reusing needles tainted with HIV/AIDS or blood transfusions tainted with HIV/AIDS, result in the patient being infected with the disease in hospitals.
 - Due to the lack of education and difficulty in getting jobs, many people in LDCs turn to vice trades as commercial sex workers.

Sexual activity with an infected person led to the spread of the disease.

- Highly mobile populations in the LDCs such as truck drivers travel long distances for work or work far from home hence they engage with commercial sex workers while travelling and become infected.
- HIV is difficult to detect because there are no visible signs of the disease for most of the period of infection. Infected people may not be aware and spread it to others.
- Due to poverty, HIV/AIDS victims in LDCs often fail to stay on track with their antiretroviral therapy as antiretroviral therapy treatment is too costly for them. They are not cured of the disease and spread it to others.

Any 4 points.

b) Study Fig. 6 (Insert), which shows information about the lack of access to clean water.

With the help of Fig. 6, suggest the impacts caused by a lack of access to clean water.

[5]

- 768 million people lack access to clean drinking water so they consume dirty water which could cause diseases such as cholera to spread, eventually leading to death.
- As women and children spend as much as 40 billion hours to collect water in Africa, they are unable to be employed. Without an income, their standard of living remains low.
- A lack of basic sanitation and hygiene could result from open defecation which contaminated river / underground water, which might increase incidences of diarrhea.
- As population has poor health such as 88% of diarrheal diseases, there is a loss of productivity for the workforce as they are unable to work which will result in slower economic growth.
- Children lose about 272 million school days a year as they are ill from diarrhoea hence are uneducated and lack the skills to be employed. They are unable to help contribute to the economy.
- The government would have to channel more funds into healthcare to treat the population, with less funds available for infrastructural development. A lack of basic infrastructure and sanitised environment would discourage investors from investing in the country, reducing foreign revenue.

Any 5 points.

Accept other plausible answers.

c) Study the 1:25 000 topographical map of Rose Belle.

Explain the factors to intensify and process sugar in the area shown.

[4]

- Sugar is cultivated on fairly gentle slopes, seen from the widely-spaced contour lines and a low elevation of around 220-310m. A gentle slope would reduce soil erosion so that the fertile topsoil and nutrients in the soil will be retained for repeated harvests.

OR

A gentle relief reduces surface runoff so that water can infiltrate into the soil for the sugar crops to absorb for growth.

OR

A gentle relief allows farmers to transport and operate machines more easily on the farm which reduces the need for labour per unit area leading to higher productivity.

- Presence of a sugar factory and mill in 0777 allows for the processing of sugar to be packaged and processed into sugar products, so as to minimise degradation of the crop (reduce yield lost).
- Presence of many watercourses and dams (0678, 0778) channel water to various parts of the sugar plantation to irrigate the crops.
- Presence of the town of Rose Belle (0877, 0777, etc) provides a market for the sale of sugar crop and also drives the demand for sugar.
- Presence of many roads (Motorway UC and Road-Main A) allow sugar to be transported to the factory (0777) to be processed efficiently or to other towns to be sold.

Any 4 points.

- d) Study Fig. 7 (Insert), which shows the production of corn and the use of corn for ethanol production in the U.S. from 1980 to 2009. Describe the trend in the production of corn and the use of corn for ethanol in the U.S from 1980 to 2009. Explain how this trend could threaten food security in less developed countries. [4]

- The production of corn remains fairly constant, between 0.1 tonnes to 0.2 tonnes from 1980 to 2009.
- At the same time, ethanol production from the use of corn for ethanol also **increases gently** from about 0.1 billion gallons in 1980 to about 2.1 billion gallons in 2002, before **increasing more rapidly** till about 10.5 billion gallons in 2009.
- There was a slight dip in ethanol production from the use of corn from about 1.4 billion gallons in 1995 to about 1 billion gallon in 1996, which then continued to increase thereafter.

Reason – 1m

- The increased use of corn for ethanol would result in less corn being made available for sale and consumption in less developed countries. This would cause the prices of corn to rise due to competition for corn. People in LDCs will be unable to afford the high price of corn, leading to food shortages.

- e) 'Food safety is a primary cause for food consumption to vary in the world.' To what extent do you agree with this statement? Use examples to support

your answer.

[8]

Level 1 [0-3 marks]

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Level 2 [4-6 marks]

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Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given on whether food safety concern is a primary cause for food consumption to vary in the world.

- 4 a) Study Fig. 8, which shows the trends in infant mortality rates and female literacy from 1990 to 2004.

Describe and suggest reasons for the relationships between infant mortality rate and female literacy.

[4]

Describe – 2m

- The higher the level of female literacy, the lower the infant mortality rate. With secondary level education, infant mortality rate is lower, ranging from 6 to 11 per 1000. With primary education, the infant mortality rate is slightly higher, ranging from 8 to 15 per 1000. With no education, the infant mortality fluctuates greatly from 10 to 44 per 1000.
- From 1995 to 1996, there was a sharp increase in the infant mortality rate from 30 to 44 per 1000. However from 1996 to 1997, there was a drastic decline in infant mortality rate, from 44 to 26 per 1000.

Reasons – 2m

- Mothers of infants who have no education are unable to obtain jobs hence will be unable to afford nutritious food for the infants. Infants are malnourished, resulting in a high infant mortality rate.

OR

Mothers who have primary or secondary education are aware of providing a balanced diet for the infants, hence have a lower infant mortality rate.

- With no proper education, mothers lack skills and remain

unemployed. As a result, they lack the income and capability to afford healthcare services for themselves and the infant, resulting in high infant mortality rates.

OR

With primary or secondary education, mothers have the ability to work and income to afford healthcare to monitor the healthy growth of infants, accounting for the low infant mortality rate.

- With no education, females lack knowledge to care for the infants, leading to high infant mortality.
- Due to the lack of education, mothers lack the knowledge and awareness to take precautions against sudden disease outbreaks such as cholera, accounting for the sharp increase in infant mortality rate from 1994 to 1996. Intervention by the government or NGOs might have taken place to rapidly control the disease outbreak which led to a drastic decline in infant mortality from 1996 to 1997.

Accept other plausible answers.

- b) Study Fig. 9 (Insert), which shows the doctor to patient ratio in Lesotho and Table 1, which shows some statistics for Lesotho.

With the help of Fig. 9 and Table 1, account for the life expectancy of the people in Lesotho.

[5]

- Lesotho has a low doctor to patient ratio of 1:22 000, hence one doctor would have to cater to many patients. Doctors will be unable to provide timely treatment for each patient. Diseases are left untreated to cause death, resulting in a low life expectancy of 48 years.
- Low expenditure on healthcare per capita of US\$276 hence children are rarely vaccinated due to lack of funds. They are more prone to diseases and hence have a low life expectancy of 48 years.
- A low total expenditure on healthcare in Lesotho (7.6% of GDP) would mean that less funds were allocated to train and recruit medical professionals. A lack of healthcare professionals will affect the health of patients as they are unable to receive prompt treatment, thus they succumb to diseases and have a low life expectancy of 48 years.
- Lack of available healthcare infrastructure like hospitals and clinics due to a low expenditure on healthcare (7.6% of GDP) will hinder patients' access to treatments hence they succumb to diseases, resulting in a low life expectancy of 48 years.
- A greater proportion of the poor in Lesotho with a low GDP per capita of US\$859 would be unable to afford the costs of healthcare treatment and medicine, resulting in poor health to shorten the life expectancy of the population of 48 years.
- A low GDP per capita of US\$859 hence the population has lower purchasing power to afford food. Without a balanced diet, people have poor health and thus a low life expectancy of 48 years.

Any 5 points.

Accept other plausible answers.

- c) Study Fig. 10 (Insert), which shows the areas infected by malaria in Indonesia and Fig. 11 (Insert), which shows the spread of malaria.

With reference to Fig. 10 and Fig. 11, describe the extent of malaria transmission in Indonesia and explain how malaria is spread. [4]

- Malaria is spread throughout all the Indonesian islands. East Indonesia has many islands concentrated with a high risk of infectious malaria, stretching from Papua to the smaller islands on its west (Maluku Utara, Maluku, Nusa Tenggara Timur and Timor-Leste). The islands to the west of Indonesia experiences endemic malaria, namely the islands of Sumatra, Kalimantan, Java, Sulawesi and Bali.
- Generally, the more developed islands of Indonesia experience endemic Malaria, namely Sumatra, Kalimantan and Java.
- Malaria is spread via expansion diffusion. When the population is infected with malaria, the disease spreads outwards from the original source from Area 1 and extends to Area 2 and Area 3. [1m – compulsory]
- Malaria is spread via the mosquito-human- mosquito chain where a mosquito takes the blood from an infected person. The malaria parasites from human blood infect the mosquito with malaria. The infected mosquito then bites another healthy human victim and infects the person with the disease.

- d) Use examples to comment on the roles of the community and international organisations in managing the spread of infectious diseases. [4]

Community [2m]:

- Communities can work together to control diseases by introducing possible disease control strategies based on knowledge of local conditions / deciding on when and where strategies will be implemented and by whom / engaging health workers to train and monitor members. [1m]
- One example of a community involvement is the Stamp-out dengue in Singapore where students educate the neighbourhood to learn about precautions against breeding of mosquitoes to control the spread of malaria. / The limitation would be the stubborn attitudes of residents to resist change in lifestyles to prevent mosquito breeding.

OR

- Community-Led Total Sanitation in Sierra Leone works to remove the practice of open defecation by raising awareness and digging toilets at each household to contain the spread of bacteria from human waste. / There is difficulty in implementing the strategy in urban areas due to ongoing migration and lack of space for toilets.

International Organisations [2m]:

- Both international organisations and the community play complementary roles to provide financial and technical resources, and expertise from both public & private sectors to provide treatment for victims. [1m]

- The World Bank has set up the Rolling Back Malaria programme since 2005 to provide insecticide-treated bed nets & anti-malarial drugs at a lower cost, which would allow more people to safeguard against mosquitoes at home and afford the drugs to treat the disease to prevent further spread. / However, the World Bank has limited control over how its fund is used in health care once the monies have been provided to the country.
OR
- The United Nations has implemented the 'Getting to Zero UNAIDS Strategy' with the aim of achieving zero new HIV infections, zero discrimination and zero AIDS-related deaths through the provision of universal access to antiretroviral therapy for HIV/AIDS victims to treat the disease. / However, stigma against women and other victims of HIV/AIDS remain widespread and continue to obstruct effective responses to manage HIV/AIDS.

Answer to consist of 1 definition and 1 example.

- e) 'The social impact of HIV outweighs the economic impact.
Do you consider this statement to be true? **Explain your answer.**

[8]

Level 1 [0-3 marks]

At this level, answers will be generalized or with minimal support if any given at all. Reasoning is rather weak and expression may be unclear. A basic answer that has little development. Answers will lack examples or other evidence, or it is so sketchy that it adds little support to the answer.

Level 2 [4-6 marks]

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Level 3 [7-8 marks]

At this level, answers will be comprehensive and supported by sound knowledge. Both agreement and disagreement are considered and well supported. Reasoning is clear and logical with good expression of language. Examples or other evidence to support answers will be extensive. Balance in answer. A clear indication will be given on whether the social impact of HIV outweighs the economic impact.

[Faint, illegible text, likely bleed-through from the reverse side of the page]