Section A

This question is compulsory

1 Omara Spit located in North Island, New Zealand is a popular place for tourism. The area is rich in bird wildlife, especially seasonal migratory birds, and the coast offers many opportunities for beach recreation.

A group of students conducted a one day coastal and tourism fieldwork.

Fig. 1a (Insert 1) shows the topographical map of the area.
Omara spit is located between Easting 35 and 39 and Northing 31 and 33. Fig. 1b (Insert 1) is a satellite photograph of Omara Spit.

(a) (i) From the map and photograph evidence, identify the direction of the prevailing wind and longshore drift that has led to the formation of Omara Spit. [2]

(ii) Explain how the students can determine the direction of longshore drift along Matarangi Beach on Omara Spit. [3]

(b) Recognising that Omara Spit has a number of sites for bird watching, the students wanted to find out if the influx of tourists to the areas disturbs or affects the bird population. Photograph A shows bird watching activity in the area.

Form a hypothesis for the investigation. [1]

Birdwatching at Omara Spit

Photograph A

(c) To investigate the hypothesis, the students counted the number of visitors and birds at each site at three different times in the day.

Table 1 shows the visitor count and bird count for the different sites.

Visitor and Bird count at Omara Spit

Time of Count	Site 1		Site 2		Site 3		Site 4	
	No of visitors	No of birds	No of visitors	No of birds	No of visitors	No of birds	No of visitors	No of birds
11.30 am	20	100	100	200	25	105	20	60
1.30 pm	10	120	50	205	15	150	12	50
3.30 pm	40	120	60	210	15	70	25	65

Table 1

(i) Comment on the time intervals chosen for the counts. [2]

(ii) Describe how the students could present the information for Sites 1 and 4 in one graph to compare the data collected. [3]

(iii) Analyse the data from Table 1, what conclusion might the students draw to answer their hypothesis? [3]

(iv) What factors might affect the validity of the students' conclusion? [2]

(d) The students wanted to develop a profile of visitors to the bird watching sites on Omara Spit. They decided to conduct in-depth interviews with a number of visitors at the sites.

Explain why it would be important to consider these issues in their questionnaire:

(i) Age group

(ii) If they had visited the area before

(iii) If they had done bird watching before [3]

(e) Students wanted to investigate if tourism has influenced the traffic condition along the main street.

Describe how the students could collect the data and how the information could be presented graphically to show the impact of tourism. [6]

Section B

Answer one question from this section

2 (a) (i) Study Photograph B which shows an area where coastal erosion is taking place in Iceland. On Insert 2, annotate the diagram of Photograph B to give evidence that coastal erosion has occurred in the area. [5]

Reynisfjara coastline in Iceland

Photograph B

(ii) Explain why coastal erosion is much more rapid on some coasts than others. [4]

(iii) Describe two processes of erosion that may affect this area. [4]

(b) Study Photograph C which shows sea defences along a coast in England.

Sea Defences in England

Photograph C

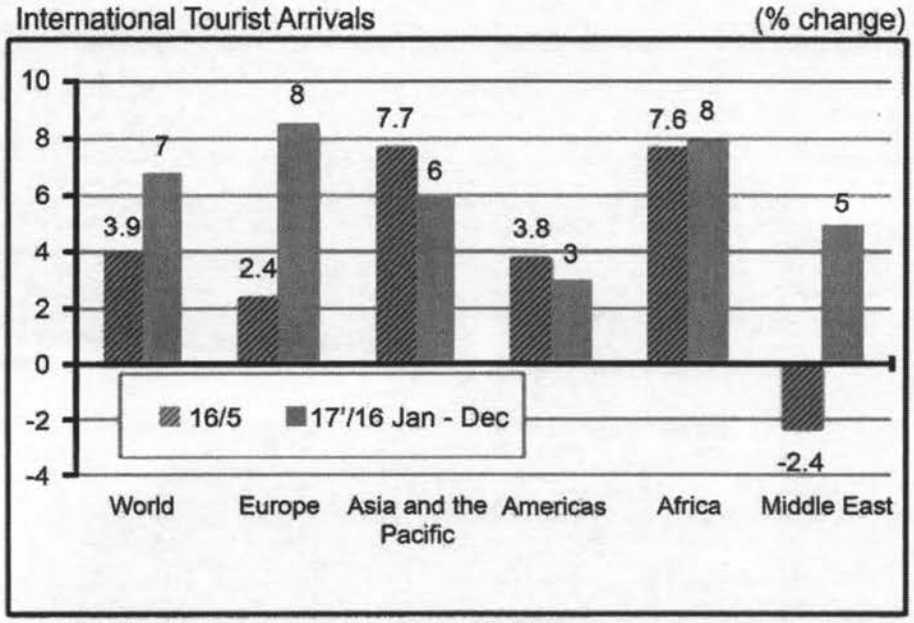
Suggest how the sea defences shown in Photograph C help to protect the coastline. [4]

(c) 'The conservation of coastal ecosystems outweighs the economic benefits of removing them for coastal development.'

How far do you agree with this statement? [8]

3 (a) Fig. 2 shows the percentage change in world tourism from 2015 to 2017.

Percentage Change in International Tourist Arrivals



Source: World Tourism Organization (UNWTO) ©

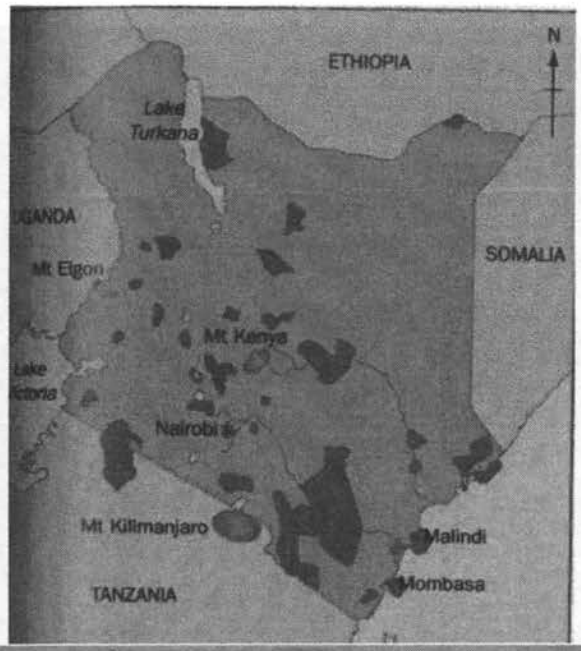
Fig. 2

(i) Describe the changes in international tourism arrivals from 2015 to 2017. [4]

(ii) Explain why world tourism is growing and yet some regions experience negative growth. [6]

(b) Fig. 3 shows the National Parks for safari holidays and a photograph of the coastal resort of Mombasa in Kenya, Africa.

Location of National Parks in Kenya



Legend:

National Parks of Kenya (dark green)

The coastal resort of Mombasa

Fig. 3

(i) Describe the beach at the coastal resort of Mombasa seen in the photograph and explain how it is formed. [4]

(ii) Describe the distribution of National Parks in Kenya. [3]

(c) Assess the role that groups of people play to ensure that National Parks created in many countries achieve sustainable tourism. [8]

THE END

INSERT 1

Satellite image photograph of Omara Spit. New Zealand

Fig. 1b

Survey map extract showing part of North Island, New Zealand, 1:50000 scale

NSERT 1

LEGEND

- esidential area
- rge buildings
- olated building
- omestead, stockyard — Awapuni
- lasshouse or greenhouse
- hurch, cemetery, grave
- aining track
- olf course, helipad

- Native forest
- Exotic coniferous forest
- Exotic non-coniferous forest
- Scrub
- Scattered scrub
- Shelter belt
- Trees
- Orchard or vineyard
- Mangroves

- Coastal rocks
- Shoal or reef
- Sand and mud
- Sand
- Shingle
- Swamp
- Boat ramp
- Breakwater, wharf, jetty
- Slipway
- Marine farm, seawall

Cardinal Points

N W E S

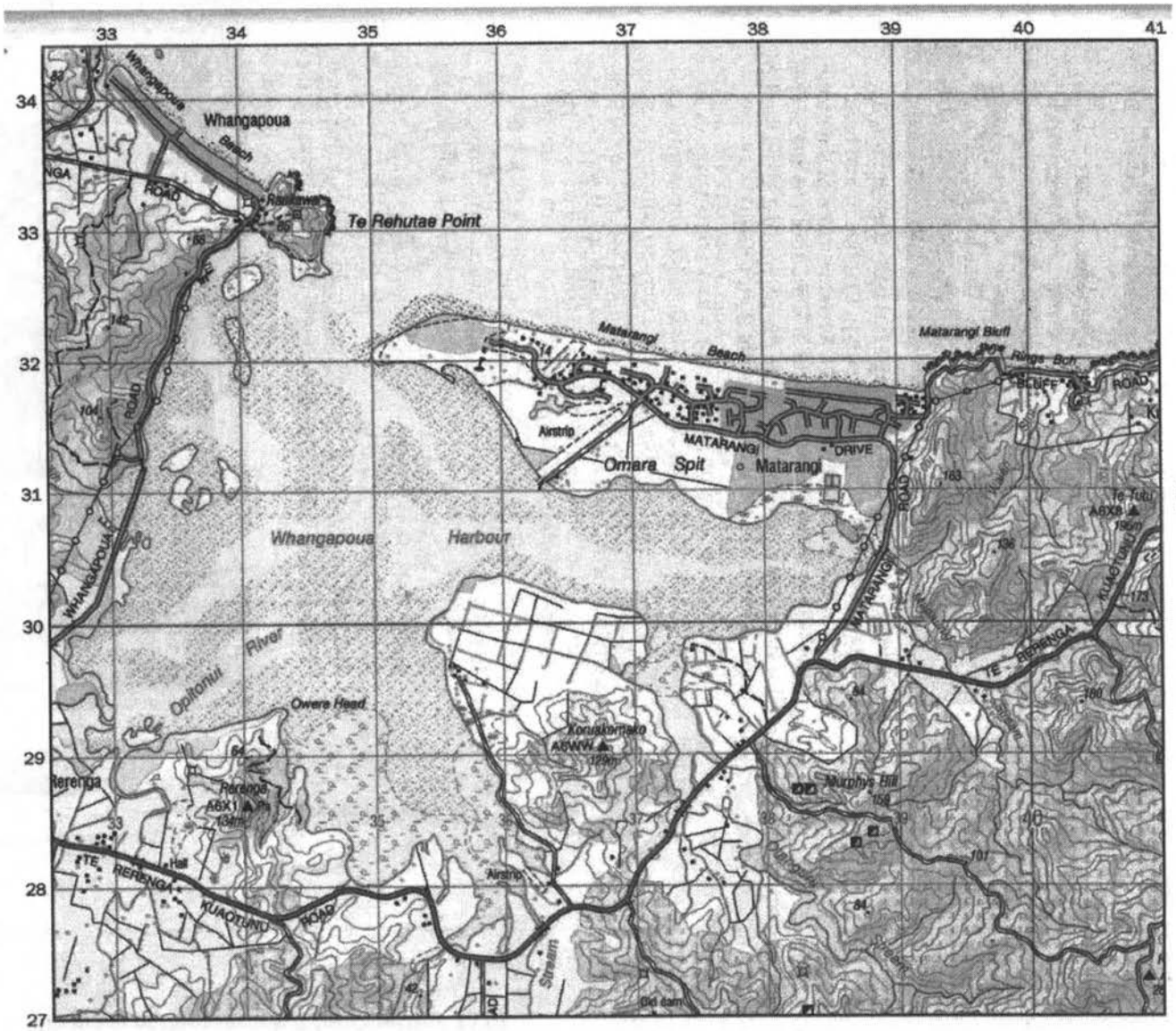
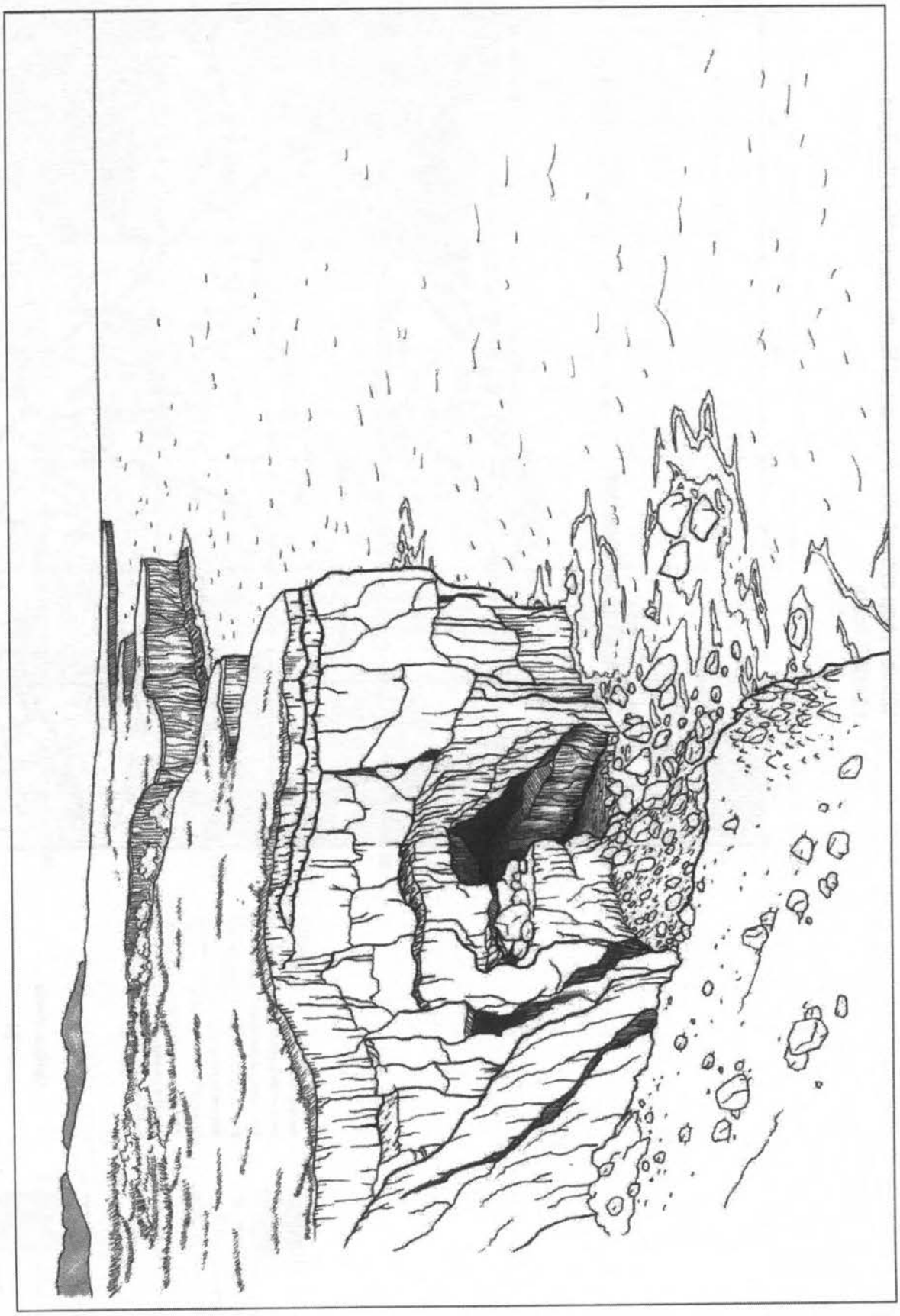


Fig. 1a

Diagram of Photograph B for Question 2a (i)



TANJONG KATONG SECONDARY SCHOOL

Preliminary Examination 2018

Secondary 4

CANDIDATE NAME

CLASS

INDEX NUMBER

GEOGRAPHY **2236/02**

Paper 2 **24 August 2018**

1 hour 30 minutes

Additional Materials: Answer Paper

READ THESE INSTRUCTIONS FIRST

Write your name, class and index 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, glue or correction fluid.

Section A
Answer **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.

On the Insert, write your name and index number in the spaces provided and attach it to your answer paper at the end of the examination.

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 questio

This document consists of **10** printed pages

[Turn over

Section A

Choose **one** question from this section

1 The San Francisco Bay Area in California, USA is an area which expert geologists warn will experience an imminent earthquake of high magnitude.
Fig.1 shows the numerous faults in the area and the percentage probability of a major earthquake occurring along the various faults. Fig. 2 shows the predicted ground shaking and damage that will occur in the event of a major earthquake.

Faults and Percentage Probability of Earthquake in the next 30 Years

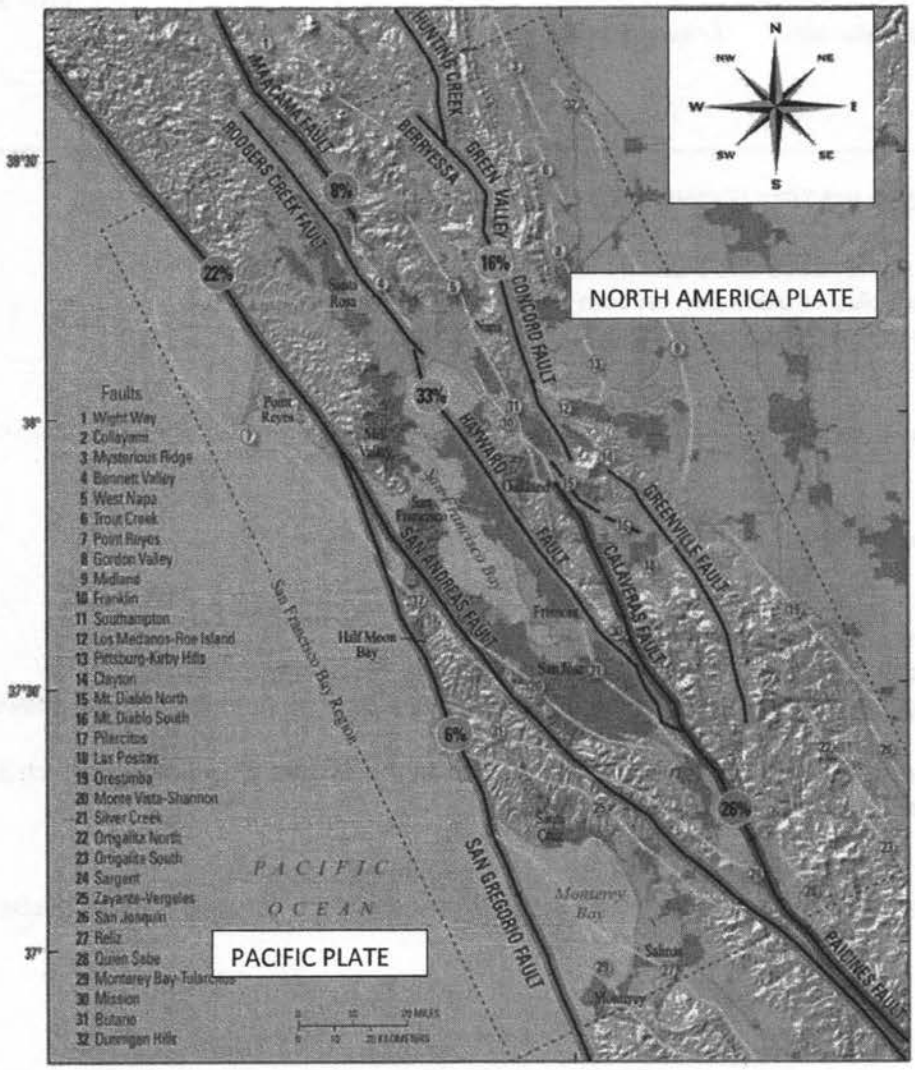


Fig. 1

Predicted Shaking and Damage from a major earthquake in the area

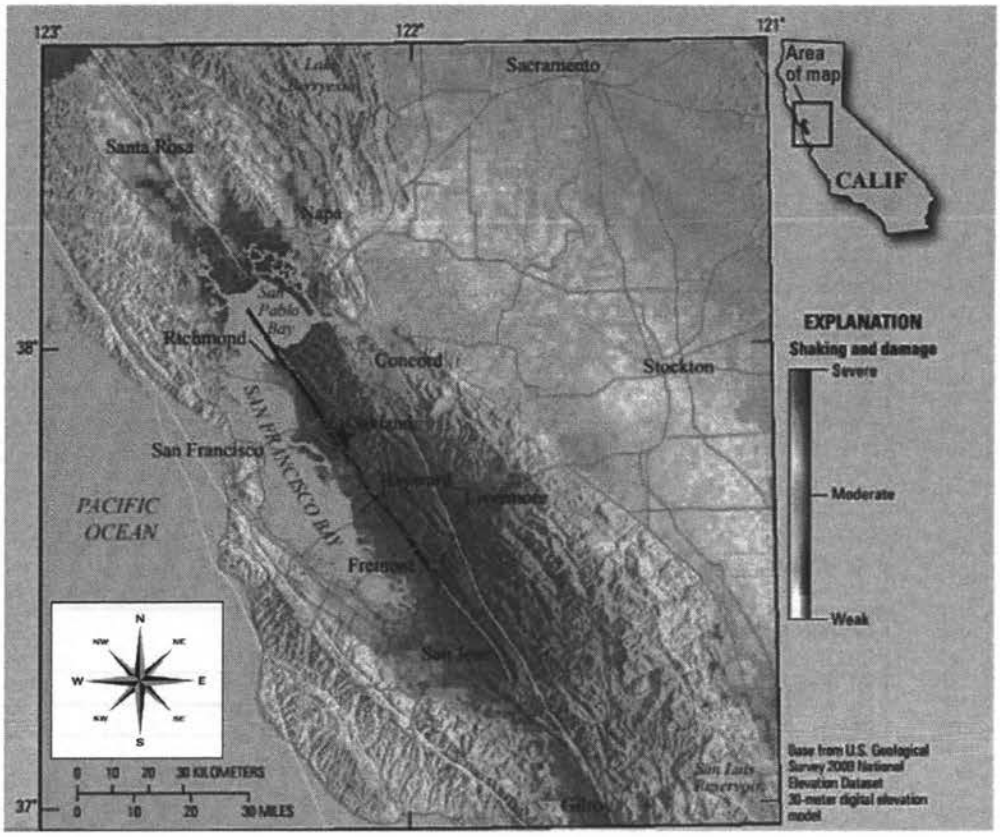


Fig. 2

(a) (i) Using Fig. 1 and Fig. 2, describe the distribution of predicted shaking and damage in the San Francisco Bay Area from a major earthquake. [5]

(ii) Explain the reasons why expert geologists are warning of an imminent earthquake in the San Francisco Bay Area in California, USA. [4]

(b) Fig. 3 shows information about the most powerful earthquake in each year from 2003 to 2012.

Year	Magnitude (Richter Scale)	Number of Deaths	Depth of Focus (km)
2003	8.3	0	27
2004	9.1	227 898	30
2005	8.6	1313	30
2006	8.3	0	10
2007	8.5	25	34
2008	7.9	87 587	19
2009	8.1	192	18
2010	8.8	547	35
2011	9.0	20 896	29
2012	8.6	0	23

Fig. 3

Fig. 4 describes the depth of earthquake focus

Depth of Focus (km)	Description
0 - 50km	shallow
50.1 - 300km	medium
300.1 – 670km	deep

Fig. 4

(i) With reference to Fig. 3 and Fig. 4, compare the earthquakes and variation of deaths from 2003 to 2012 as shown in Fig. 3. [4]

(ii) Besides the information given in Fig. 3, what are the likely reasons for the variation in number of deaths? [4]

(c) 'Temperature of a city throughout the year is solely influenced by how far the city is located from the equator.'
Discuss how far you agree. Give evidence to support your answer. [8]

2 (a) Study Fig. 5 which shows an area affected by an earthquake in 2010, and Fig. 6 which shows an area affected by volcanic eruption in 2006.

Fig. 5

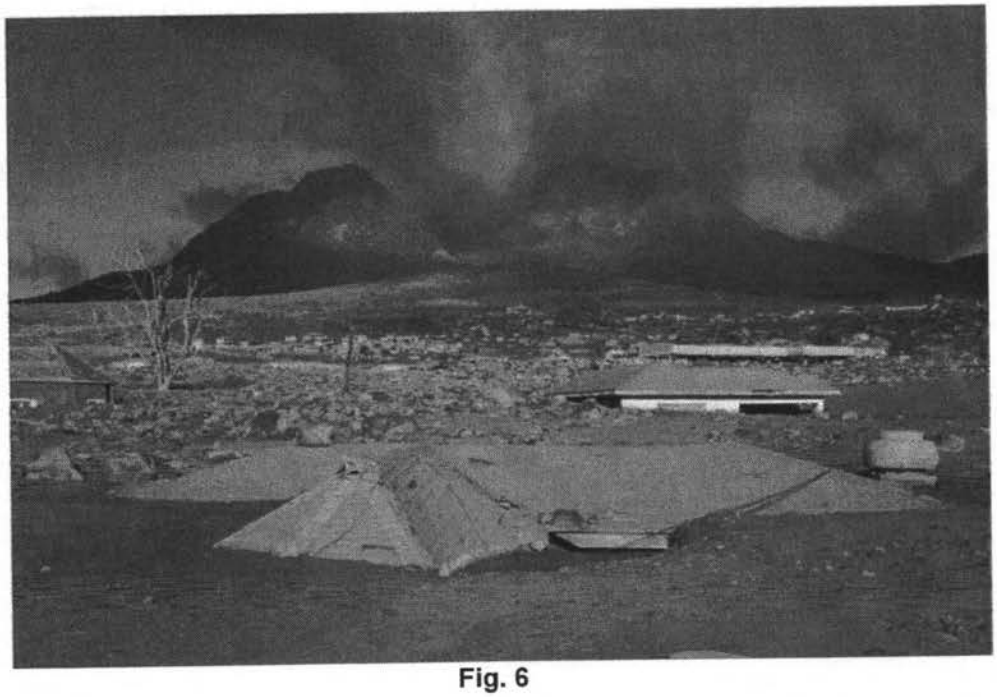


Fig. 6

Compare the immediate effects from the natural disasters shown in Fig. 5 and Fig. 6. [4]

(b) Study Fig. 7 which shows a map of how global surface temperature might change by 2070.

Global Surface Temperature

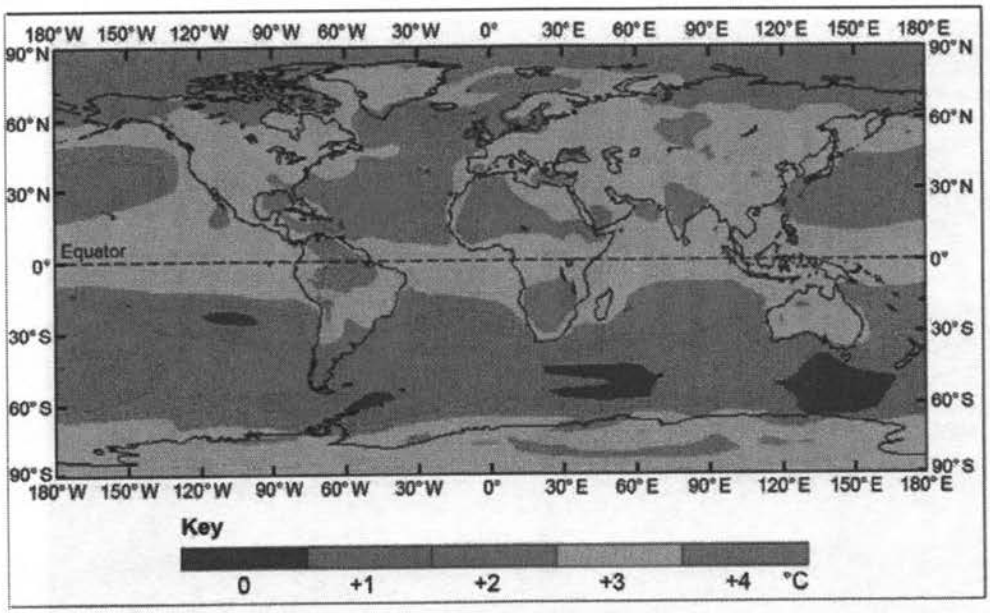


Fig. 7

(i) Describe the variation in temperature changes in the world by 2070. [4]

(ii) Explain the major causes for the projected significant increase in global temperatures by 2070. [5]

(c) Fig. 8 shows the path of Hurricane Katrina which hit USA in 2005 and Fig. 9 shows a satellite image of the hurricane and the changes in weather conditions as the hurricane approaches a city.

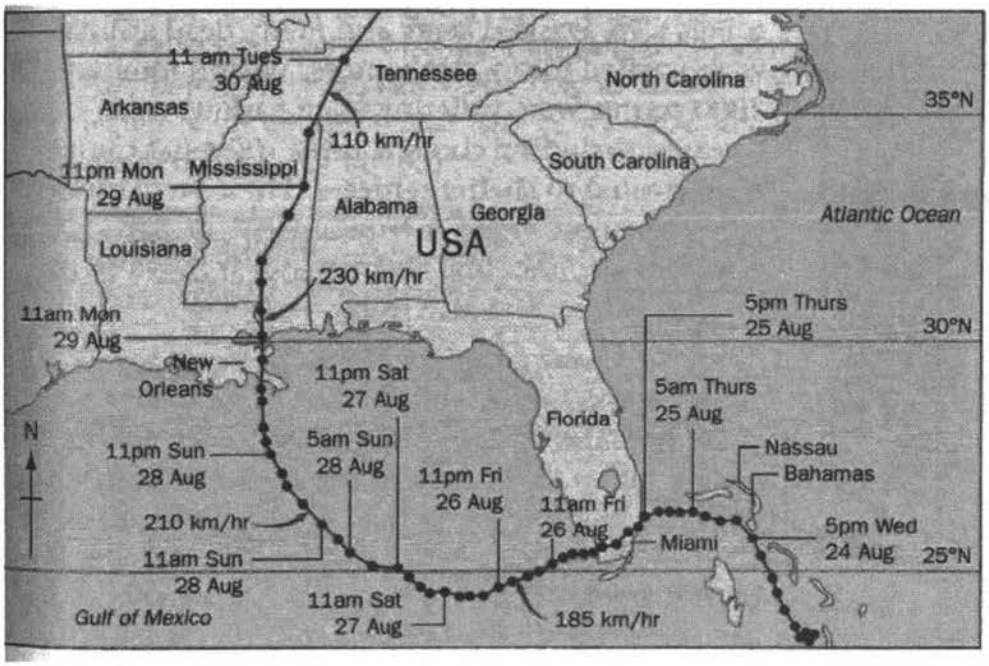
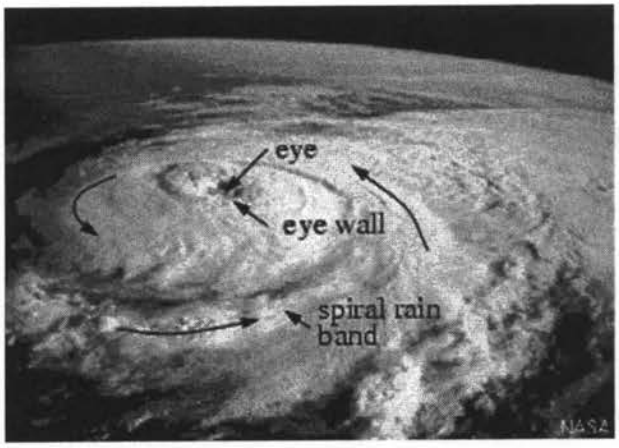


Fig. 8



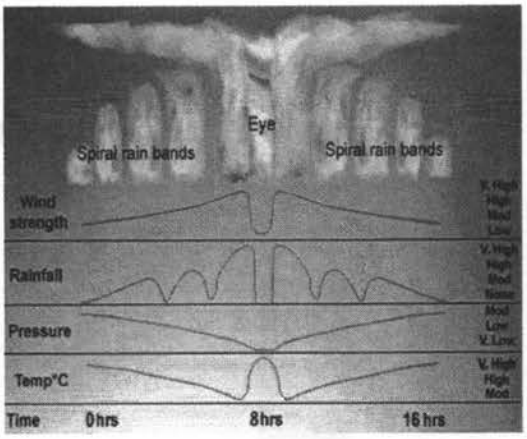


Fig. 9

Using Fig. 8 and Fig. 9, describe the path of Hurricane Katrina from 26 August to 29 August and the changes in weather conditions as the hurricane sweeps over a city like New Orleans. [4]

(d) 'The hazards associated with tropical cyclones can be effectively mitigated.'
How far do you agree with the statement? Explain your answer. [8]

Section B

Choose **one** question from this section

3 (a) Fig. 10 shows the trend in crop yield in the various regions, Fig. 11 shows world population growth from 2012 to 2050 and Fig. 12 shows the world hunger map for 2013.

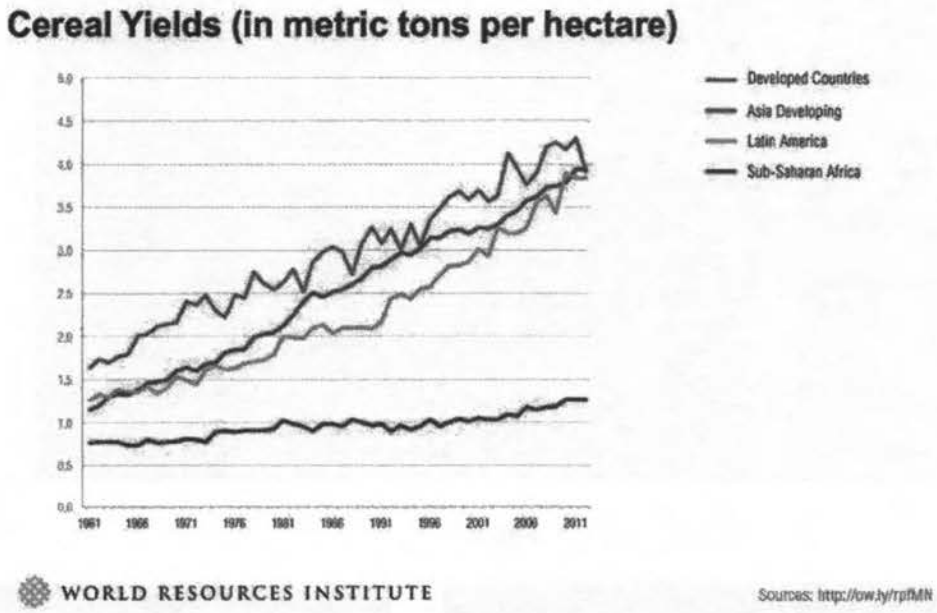


Fig. 10

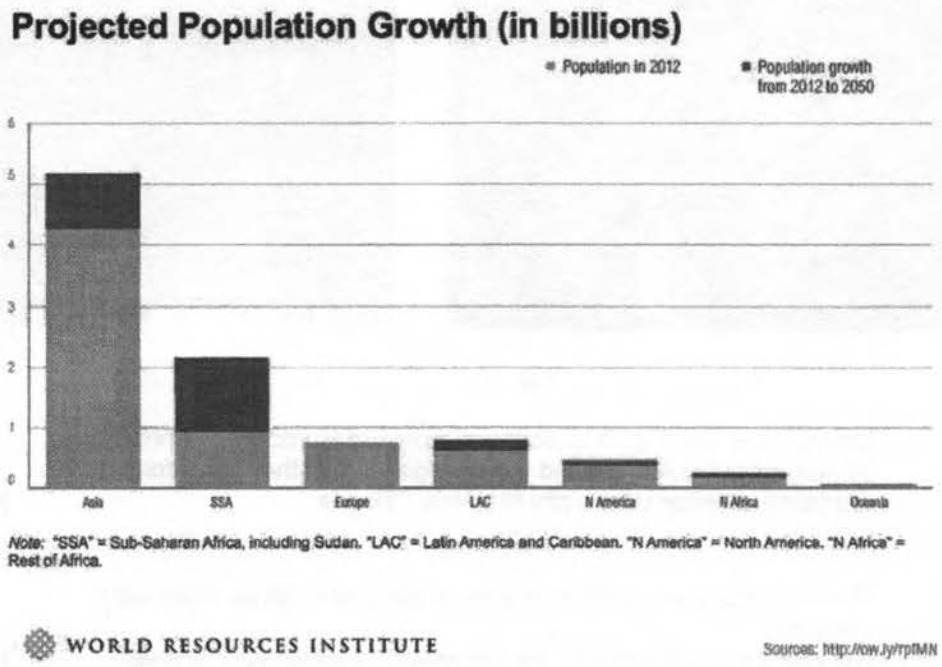


Fig. 11

World Hunger Map

Fig. 12

(i) Use information from Fig. 10 and Fig.11 to explain the distribution of countries with more than 15% of total population who are malnourished in 2013 as shown in Fig. 12. [6]

(ii) With reference to Fig. 10, what are the possible reasons for the difference in the trend of crop yield in Asia and Africa? [4]

(b) Explain the correlation between a country's development, economic wealth and life expectancy. [5]

(c) What is the difference between infectious and degenerative diseases? [2]

(d) 'Malaria is an infectious disease that can be prevented.'
With reference to examples, discuss if this statement is true. [8]

4 Fig. 13 shows the relationship between HIV infection in the world and income per person.

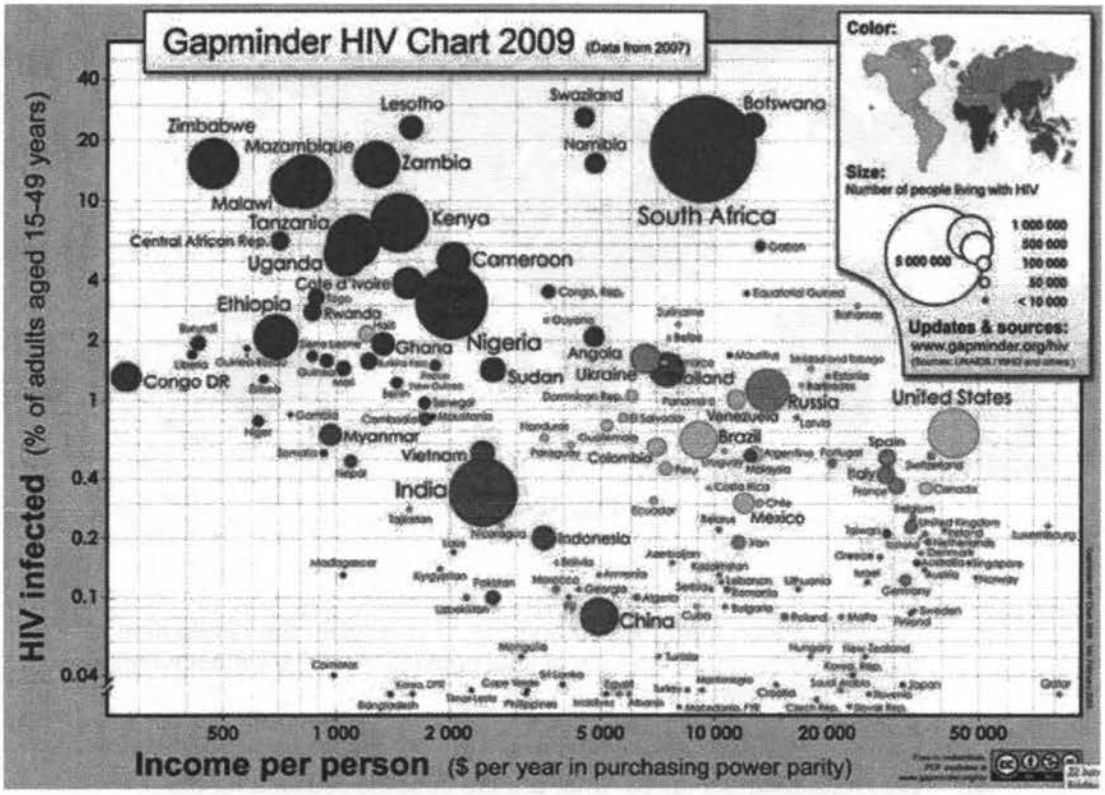


Fig. 13

(a) (i) Describe the distribution of the number of people aged 15 - 49 years living with HIV in the world in 2009. [4]

(ii) Account for the relationship between percentages of adults aged 15 - 49 years infected with HIV and income per person. [3]

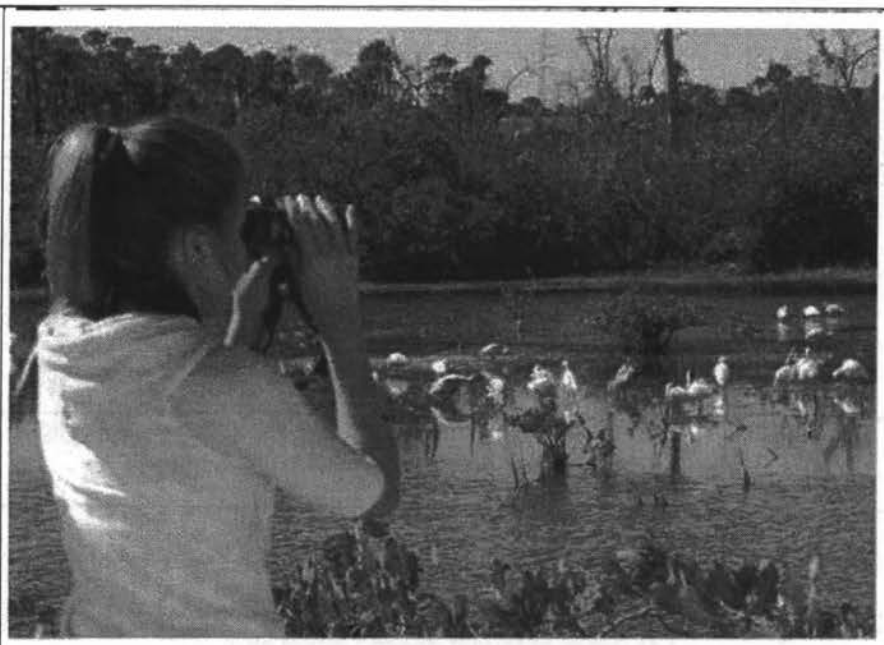
(b) Over 70% of the world's 40 million people living with HIV/AIDS are in Africa. Explain why HIV/AIDS has a profound effect on Africa's social and economic development. [6]

(c) Why is there a re-emergence of malaria in some parts of the world where malaria had been eradicated? [4]

(d) 'The main challenge in controlling the spread of HIV/AIDS in Southern Africa is the reluctance to be tested for the disease.' Do you consider this statement to be true? Explain your answer. [8]

THE END

			Marking Scheme Geography Paper 1 Prelims 2018	
			Section A **This question is compulsory**	
1			Omara Spit located in North Island, New Zealand is a popular place for tourism. The area is rich in bird wildlife, especially seasonal migratory birds, and the coast offers many opportunities for beach recreation. A group of students conducted a one day coastal and tourism fieldwork.	
			Fig. 1a (Insert) shows the topographical map of the area . Omara spit is located between Easting 35 and 39 and Northing 31 and 33. Fig. 1b (Insert) is a satellite photograph of Omara Spit.	
	(a)	(i)	From map and photograph evidence, identify the direction of the prevailing wind and longshore drift that has led to the formation of Omara Spit.	[2]
			Answer: Prevailing wind is from the northeast **and longshore drift** is towards west.	
		(ii)	Explain how the students can determine the direction of longshore drift along Matarangi Beach on Omara Spit.	[3]
			Answer: • At water's edge , stick the first pole into the sand • throw an orange into the sea from the first pole & observe the travelling path of the orange for 10 minutes • Stick the second pole into the sand where the orange finally lands after it is being moved by series of swash & backwash • Determine the direction of LSD by noting the position of the second pole from the first pole	
	(b)		Recognising that Omara Spit has a number of sites for bird watching, the students wanted to find out if the influx of tourists to the areas disturbs or affects the bird population. Photograph A shows bird watching activity in the area. Form a hypothesis for the investigation. **Birdwatching at Omara Spit**	**[1]**



Photograph A

Answer :

The larger the number of tourist, the fewer the birds.

(c) To investigate the hypothesis, the students counted the number of visitors and birds at each site at three different times in the day.

Table 1 shows the visitor count and bird count for the different sites

Visitor and Bird count at Omara Spit

Time of Count	Site 1		Site 2		Site 3		Site 4	
	No of visitors	No of birds	No of visitors	No of birds	No of visitors	No of birds	No of visitors	No of birds
11.30 am	20	100	100	200	25	105	20	60
1.30pm	10	120	50	205	15	150	12	50
3.30 pm	40	120	60	210	15	70	25	65

Table1

(i) Comment on the time intervals chosen for the counts. [2]

Answer:
Counts taken over 4 hours – late morning to mid afternoon. Birds and tourists may visit the place early in the morning and late evening. Duration of count not sufficient- should spread out over longer period

Intervals of 2 hours is reasonable or 2 hour interval is systematic

		(ii)	Describe how the students could present the information for Sites 1 and 4 in one graph to compare the data collected.	[3]
			Answer: Comparative line graph or Group bar graph use legend to show symbol for Site 1 :tourist count and Site 1 : bird count and Site 4 : tourist count and Site 4:bird count (1m) Y axis – number of counts (1m) X axis – time (1m)	
		(iii)	Analyse the data from Table 1, what conclusion might the students draw to answer their hypothesis?	[3]
			Answer : No relationship between number of tourists and birds Site 2 has most number of tourist & birds Number of tourist doesn't affect bird 11.30 am - 100 tourist and double the number of birds at 200 At 1.30 pm - half the number of tourists to 50 and birds increase to 205 Site 1 – in the afternoon when number of birds remain the same at 120 birds , the number of tourists range from 10 to 40 Site 3 – in the morning 25 tourist visited the area and bird count was lowest at 105 birds. When number of tourist remains the same at 15 people the number of birds fell from 150 to 70. Site 4 – number of birds are the least but number of tourists is roughly the same as site 1 & 3	
		(iv)	What factors might affect the validity of the students' conclusion?	[2]
			Any 2 factors that are well explained. Students only did tourist and bird count on one day – insufficient days to draw conclusion Investigation was done from late morning to mid-afternoon. Not a good spread across the day as tourists and bird watching may be done in the early morning and evening when it is not so hot or when bird population & tourist numbers are different Migratory birds fly in at different seasons, students need to conduct investigation when birds have flown in to get accurate assessment on number of birds and tourist	

			population impact. No mention of what season investigation is done	
	(d)		The students wanted to develop a profile of visitors to the bird watching sites on Omara Spit. They decided to conduct in-depth interviews with a number of visitors at the sites. Explain why it would be important for students to consider these issues in the questionnaire: (i) Age group (ii) If they have visited the area before (iii) If they have done bird watching before	[3]
			Answer: (i)Age range gives information on which age group like such outdoor activities as bird watching (ii)If they have visited area before shows if they are new comer or first time visitor to the area or frequent visitor who return to bird watch. Or it can tell they are probably locals from the area n they go often to bird watch (iii) Question on if they have done bird watching before will give students an idea if visitors to the area are avid birdwatchers & bird watching is a hobby or past time for these people or it is a first time experience to bird watch in the area – novice	
	(e)		Students wanted to investigate if tourism has influenced traffic condition along the main street. Describe how the students could collect the data and how the information could be presented graphically to show the impact of tourism.	[6]
			Answer:	
			Traffic condition Do a traffic count Select a fixed location on the busiest section of the main street. Students can select several points along the street. Should carry out at different times of the day – morning, afternoon and evening. Count the number of cars passing through the point student is standing for a duration e.g over one hour or 2 hours. Should carry this investigation during peak tourist season and off peak season to compare the impact of tourism on traffic	

			Information can be present on bar graph for both peak and off peak tourist season to show impact of tourism on traffic. Y axis number of cars, X axis time. Compare the information obtained on the number of cars for the peak and off peak season to show the impact of tourists in the area	
			Section B Answer One question from this section	
2	(a)	(i)	Study Photograph B which shows an area where coastal erosion is taking place in Iceland. On the insert, annotate the diagram of Photograph B to give evidence that coastal erosion has occurred in the area.	[5]
			Answer: one mark per point annotated on diagram Uneven coastline – different rate of erosion Steep Cliffs – formed from coastal erosion Caves /hollows at base of cliffs carved out by waves Rock debris at the base of cliff Rocky platform I the foreground	
			Reynisfjara coastline in Iceland	

Photograph B

		(ii)	Explain why coastal erosion is much more rapid on some coasts than others.	[4]
			Answer: (3m) Coast is exposed to strong wind and waves Destructive waves Steep coastal gradient less friction Geology of rocks – lines of weakness that speed up hydraulic action , softer rocks with rock minerals that can easily dissolve in water Why other coast are slower (1m) Coral or mangrove ecosystem not destroyed can protect coast from destructive waves Coastal protection measures implemented to protect sections of coast	
		(iii)	Describe two processes of erosion that may affect this area.	[4]

			Answer : Hydraulic Action (2m) : Force of water surging into cracks or lines of weaknesses. Trapped air is compressed, waves retreat , air expands. Repeated compression and expansion of air will force cracks open And break them down. Abrasion or Corrasion (2m) Waves carry load are hurl against the coast The rocks that are thrown against the coast will Carve out or chisel away the coast, breaking them down	
	(b)		Study Photograph C which shows sea defences along a coast in England.	

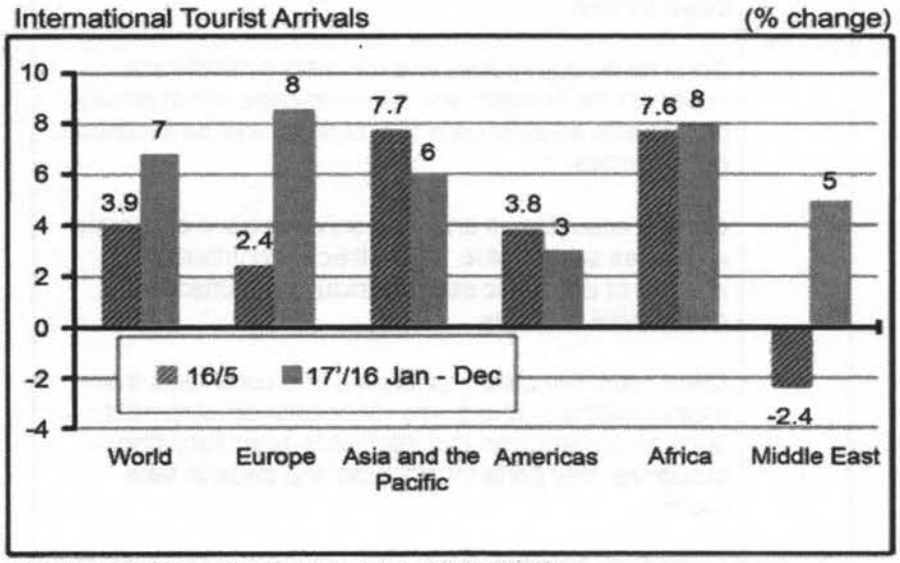
Sea Defences in England

Photograph C

			Suggest how the sea defences shown in Fig 3 help to protect the coastline.	[4]
			Answer: 2 marks sea wall, 2 marks tetrapods Seawall : concrete wall build along the coast absorb wave energy Serves as a barrier protecting the coast , wall will reflect the waves away from the coast, preventing the sea water from eroding the coast Rip raps or tetrapods	

			Interlocking structures placed at the base of the sea wall prevent the waves which are reflected from the sea wall from eroding the beach in front or eroding the base of the sea wall causing the sea wall to weaken and collapse	
	(c)		The conservation of coastal ecosystems outweighs the economic benefits of removing them for coastal development. How far do you agree with this statement?	[8]
			Answer : Conservation of coastal ecosystems like mangroves and corals are protected from being destroyed. Mangrove and coral ecosystems protect the coast from wave erosion Coral reefs, mangroves and other ecosystems are important for fisheries and fish nurseries, which provide people with a key source of protein as well as livelihood opportunities. Coastal ecosystems and their services have economic as well as social value. They directly contribute to a number of economic sectors, including tourism, commercial fisheries. Many countries clear mangroves and coral reefs from their coastline to make way for coastal development such as construction of settlements, manufacturing industries, sea ports for shipping and trade to take place. Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks) Disagreement/ Negative impacts OR Agreement/Positive impacts will be supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other	

			evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks) At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.	
3	(a)		Fig. 2 shows the percentage change in world tourism from 2015 to 2017	
			Percentage Change in International Tourist Arrivals	

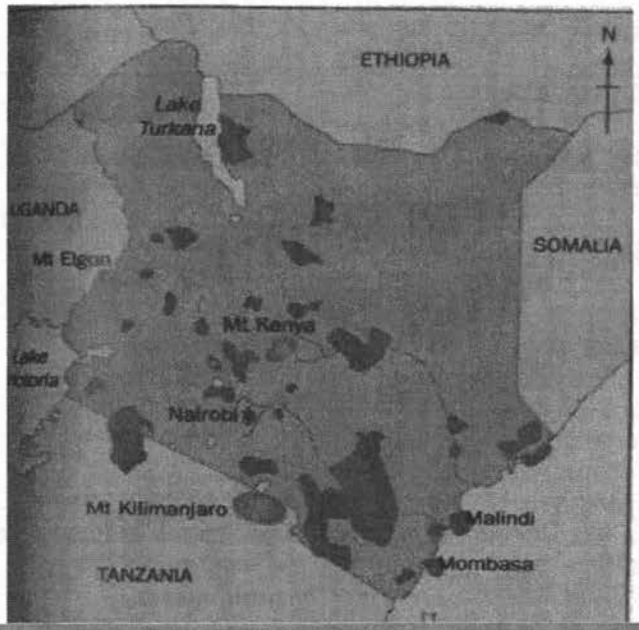


Source: World Tourism Organization (UNWTO) ©

Fig 2

		(i)	Describe the changes in international tourism arrivals from 2015 to 2017 years.	[4]
			Answer : All regions of the world show increase in international tourist from 2015 to 2017 Middle East is the only region with a negative decrease in % growth of -2.4 % in 2015-2016 Asia & the Pacific and Americas has dipped in the % increase.	

		(ii)	Explain why world tourism is growing and yet some regions experience negative or slow growth.	[6]
			Why world tourism is growing Economic growth – increase in income , disposable income a) Rise in disposable incomes more money spent on leisure as people become more affluent b) Leisure time – no work commitments/time for relaxation c)Changing Lifestyle lifestyle – the way a person chooses to live For the Young - fast paced lifestyle & work - stress of modem living – reason for people to travel & relax Transport Technology 1)long-haul fuel efficient aeroplanes such as Airbus A380 or Boeing 747 planes . Bigger capacity passenger planes – carry up to 500-800 passengers per plane. 2) Short haul budget airlines to new regional destinations at low cost. 3) Information Communication Technology : Convenience of Internet online booking of airlines & holidays. Why negative or slow growth Economic – strong currency in a country – expensive to visit, Strong US dollar	
	(b)		Fig. 3 shows the National Parks for safari holidays and the coastal resort of Mombasa in Kenya, Africa.	
			Location of National Parks in Kenya	



Legend:

National Parks of Kenya (dark green)

The coastal resort of Mombasa

Fig .3

		(i)	Describe the beach at the coastal resort of Mombasa seen in Fig 5 and explain how it is formed.	[4]
			Answer: Wide sandy beach Gentle gradient from back shore to edge of sea Constructive waves approach shallow seabed, Friction slows down and loses energy Wave breaks Swash carries sediments up the coast deposit sediments	

		(ii)	Describe the distribution National Parks in Kenya.	[3]
			Answer: National parks located throughout Kenya North – next to Lake Turkana Central are around Mt Kenya region Larger National Parks in the south of Kenya	
	(c)		Assess the role that groups of people play to ensure that National Parks created in many countries achieve sustainable tourism.	[8]
			1) GOVERNMENT set up National Parks or developed Govt – implement & enforce laws that prohibit hunting, poaching & deforestation in National Parks 2) BUSINESSES – Tour companies must limit the number of tourists they take into National Parks. Tour operators must include education – share with tourists the value of flora & fauna. Educational tours in their itinerary Business tour operators do not enforce visitor quota because they want to earn more income - reluctant to enforce correct behaviour on tourists 3) TOURISTS to co-operate & abide by rules, laws & regulations about protecting environment and not littering. Tourists must realise that they play a big role to protect the environment 4) Local Communities can work with Foreign Investors to develop eco-friendly lodges /accommodations	
			Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks)	

			Disagreement/ Negative impacts OR Agreement/Positive impacts will be supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks) At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.	

TANJONG KATONG SECONDARY
Pure Geography Prelims Paper 2
Answer Scheme

Section A

Choose **one** question from this section

1 The San Francisco Bay Area in California, USA is an area which expert geologists warn will experience an imminent earthquake of high magnitude.
Fig. 1 shows the numerous faults in the area and the percentage probability of a major earthquake occurring along the various faults.
Fig. 2 shows the predicted ground shaking and damage that will occur in the event of a major earthquake.

Faults and Percentage Probability of Earthquake in the next 30 Years

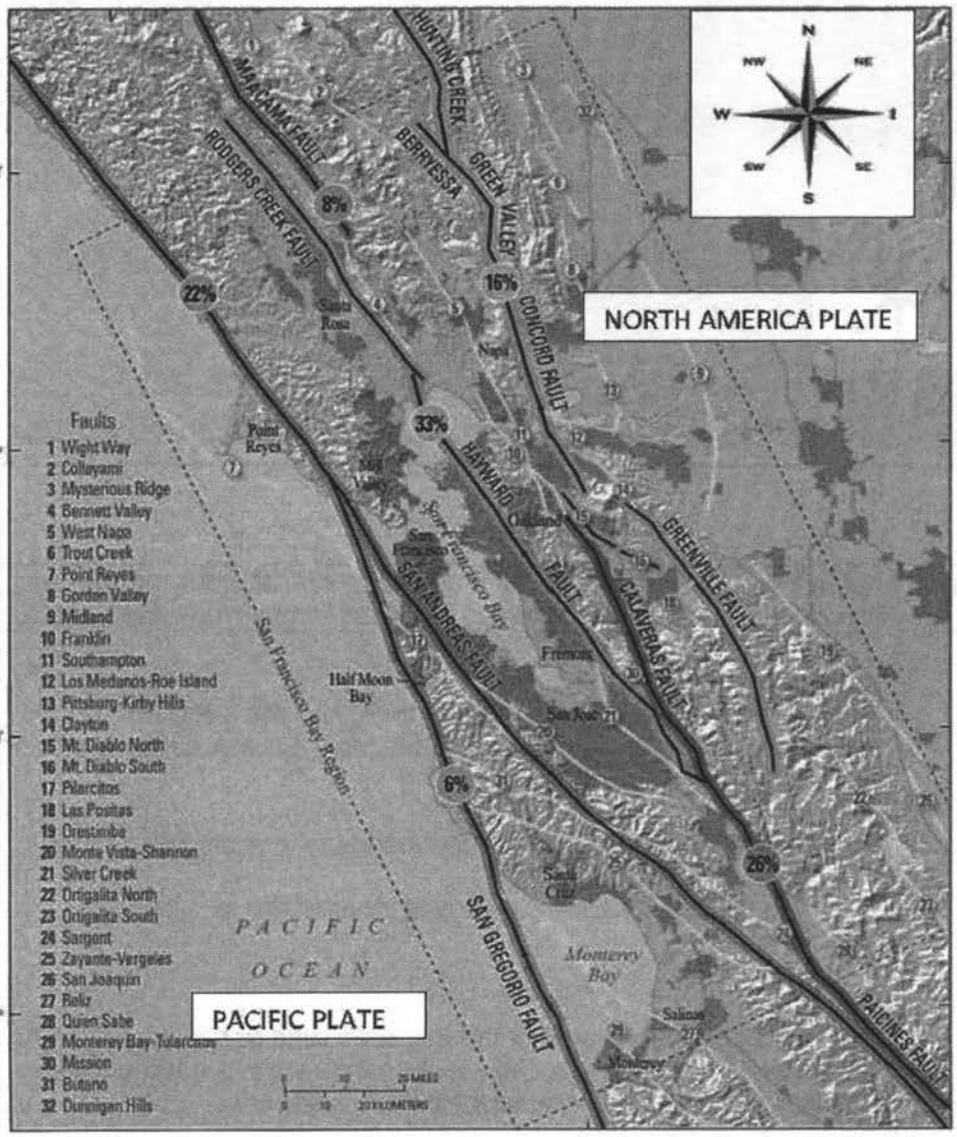


Fig. 1

Fig. 1

Predicted Shaking and Damage from a major earthquake in the area

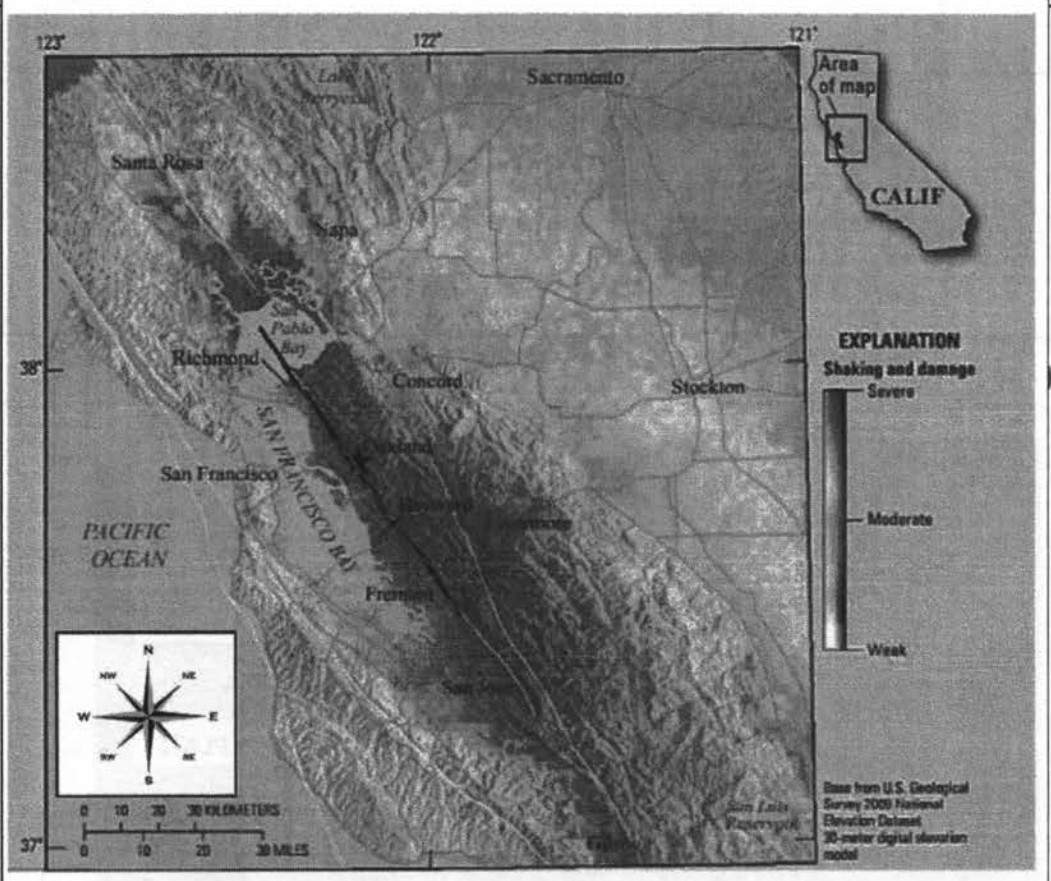


Fig. 2

(a)	(i)	Using Fig. 1 and Fig. 2, describe the distribution of predicted shaking and damage in the San Francisco Bay Area from a major earthquake.	[5]

Answer:
The Hayward Fault running from NW to SE has the highest percentage of 33% probability of earthquake . It is the same region predicted to have most severe shaking .

There is a 22% probability of a major earthquake along San Andreas Fault
That region is also predicted to have a moderate to slightly severe shaking
Faults towards

Faults in the northeast area of the Bay area such as Concord Fault & Greenville fault with a 16% chance of earthquake is predicted to have slight greater than moderate shaking and damage

The north of the San Francisco Bay region is expected to experience moderate shaking

(ii) Explain the reasons why expert geologists are warning of an imminent earthquake in the San Francisco Bay Area in California, USA. [4]

Answer:

The Pacific Plate and the North American plate are sliding past each other
Friction results in building of stress in the crust
Energy released in a form of seismic waves will result in vibrations of the earth and predicted severe earthquake in the region

(b) Fig. 3 shows information about the most powerful earthquake in each year from 2003 to 2012.

Year	Magnitude (Richter Scale)	Number of Deaths	Depth of Focus (km)
2003	8.3	0	27
2004	9.1	227 898	30
2005	8.6	1313	30
2006	8.3	0	10
2007	8.5	25	34
2008	7.9	87 587	19
2009	8.1	192	18
2010	8.8	547	35
2011	9.0	20 896	29
2012	8.6	0	23

Fig. 3

Fig. 4 describes the depth of earthquake focus

Depth of Focus (km)	Description
0 - 50km	shallow
50.1 - 300km	medium
300.1 – 670km	deep

Fig 4

(i) With reference to Fig. 3 and Fig. 4, compare the earthquakes and variation of deaths from 2003 to 2012 as shown in Fig 3. [4]

Answer:
From 2003 to 2012 – earthquakes with magnitude 8 and above. All earthquakes had shallow focus
Some major earthquakes of 8.3 and 8.6 magnitude results in 0 deaths while
In 2008, a 7.9 magnitude , lowest magnitude among the earthquakes resulted in second highest number of deaths at 87 587

			Earthquakes of magnitude 9 and above caused large number of deaths All earthquake focus are classified as shallow from 2003 to 2012, a slightly deeper earthquake of 30 km deep resulted in the highest death toll in 2004. There seems to be no relationship between depth of focus and the number of deaths in earthquakes	
		(ii)	Besides the information given in Fig. 3 what are the likely reasons for the variation in number of deaths.	[4]
			Answer : Population density – higher the population density , the higher the casualties or death rate Constructing earthquake proof buildings which will not collapse so easily during major earthquakes will prevent high number of deaths.	
	(c)		'Temperature of a city throughout the year is largely influenced by how far the city is located from the equator'. Discuss how far you agree. Give evidence to support your answer.	[8]
			Answer : Apply factor of latitude Other factors affecting temperature Altitude Distance from the sea Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks) Explain one other factor supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks) Explain 2 factors : At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places	

			in the answer. Examples or other evidence to support answers will be extensive.	
2	(a)		Study Fig. 5 which shows an area affected by an earthquake in 2010, and Fig. 6 which shows an area affected by volcanic eruption in 2006.	

Fig. 5

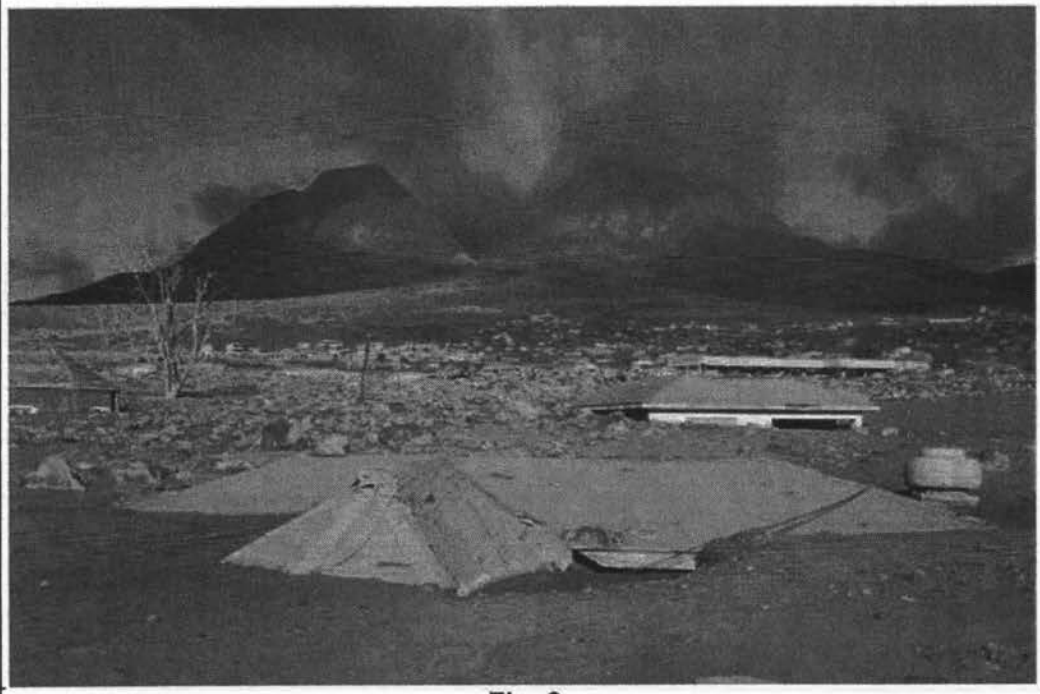


Fig. 6

			Compare the immediate effects from the natural disasters shown in Fig. 5 and Fig. 6.	[4]

Answer:

Both large scale or wide spread destruction seen in the area
Earthquakes destroy buildings, cause them to collapse into a rubble while volcanic eruption houses are buried by lahar or volcanic ash or lava.

(b) Study Fig. 7 which shows a map of how global surface temperature might change by 2070.

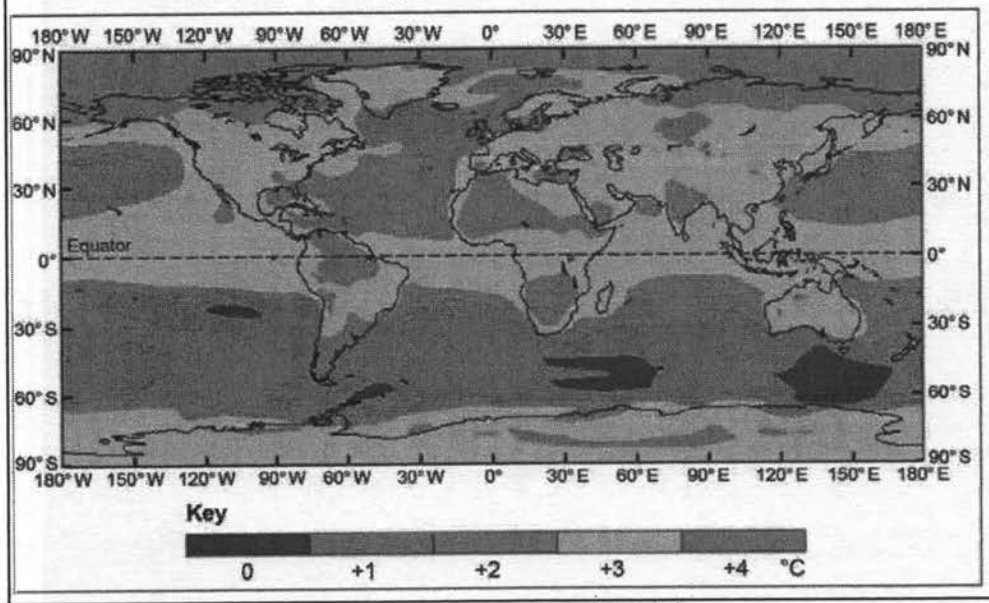


Fig. 7

(i) Describe the variation in temperature changes in the world by 2070. [4]

Answer :

The arctic and Antarctic more serious warming
Antarctica increase by +3 and Arctic increase by +4

Continents in the tropics like South America , Africa and South Asia also has large increase of temperature - +4

Rest of continents in temperate regions increase by +3 e.g Australia, Europe, North America and Asia

(ii) Explain the major causes for the projected significant increase in global temperatures by 2070. [5]

Answer:

Role of Human/ Anthropogenic Causes
Human activities leading to the enhanced greenhouse effect

- Burning of fossil fuel
- Urbanisation

- Agriculture
- Industries

Level 1: (0-3marks)
At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer

Level 2 : (4-6 marks)
Explain one other factor supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer.

Level 3 : (7-8marks)
Explain 2 other factors. At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and welll supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.

(c) Fig. 8 shows the path of Hurricane Katrina which hit USA in 2005 and Fig. 9 shows a satellite image of the hurricane the changes in weather conditions as the hurricane approaches a city.

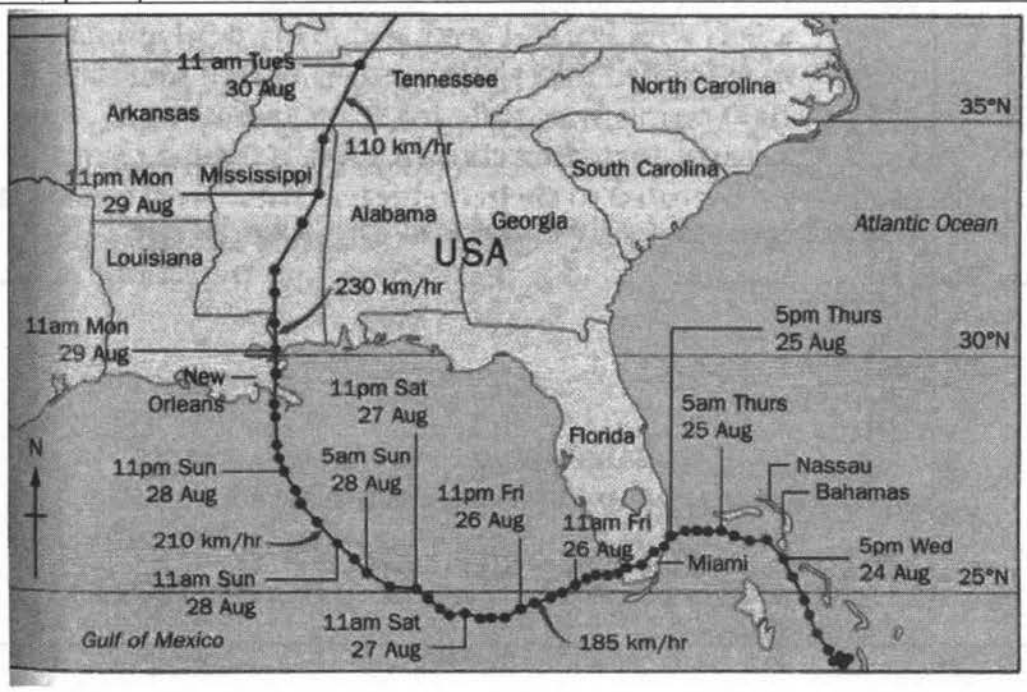
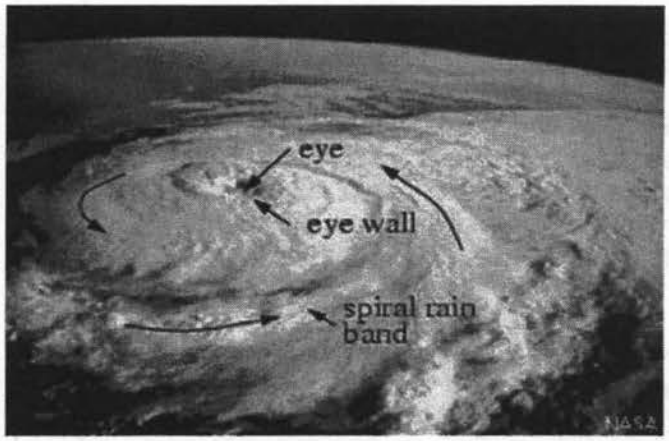


Fig. 8



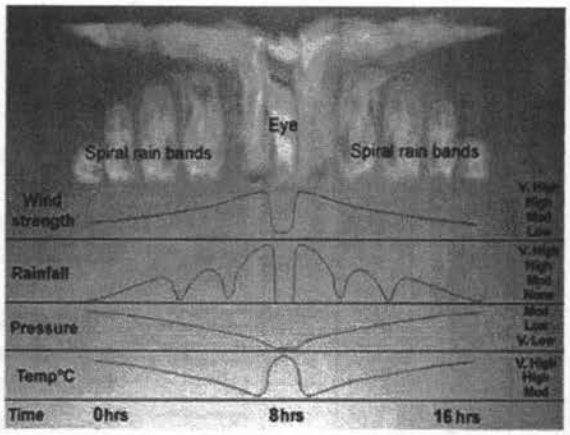
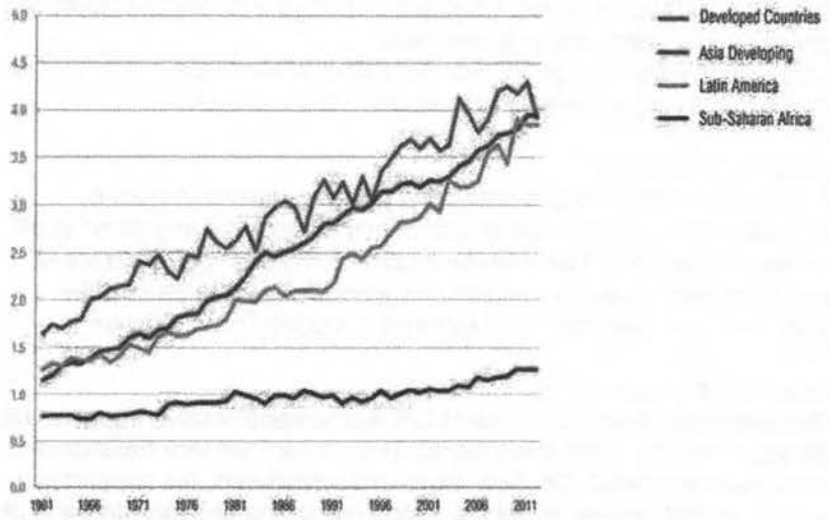


Fig. 9

			Using Fig 8 and Fig 9, describe the path of Hurricane Katrina from 26 August to 29 August and the changes in weather conditions as the hurricane sweeps over a city like New Orleans.	[4]
			Answer: From 26 Aug, hurricane move south west before turning to head north towards New Orleans in USA Before hurricane arrives Temperature and pressure falls, wind picks up speed and there is intermittent rain bands. In the eye of the hurricane Wind & rainfall dies down Pressure falls to its lowest and temperature rises After the eye has passed over the city Wind becomes very strong again. Rain is heavy again Pressure and temperature starts to rise again as the hurricane moves away.	
	(d)		'The hazards associated with tropical cyclones can be effectively mitigated.' How far do you agree with the statement? Explain your answer.	[8]
			Answer : Mitigation measures Land use zoning Sea wall Tropical storm tracking and warning Building of stronger houses to withstand tropical storms Why not always effective especially in LDC? Lack of financial resources to build sea walls or having tropical storm warning systems	

			Poor evacuation plans in many LDC Path of tropical storms might suddenly change & hit another town or city not under instructions to evacuate Large cities with huge population take time to evacuate There might be people who are reluctant to evacuate Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks) Disagreement/ Negative impacts OR Agreement/Positive impacts will be supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks) At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.	
			Section B Choose **one** question from this section	
3	(a)		Fig. 10 shows trend in crop yield in the various regions, Fig .11 shows world population growth from 2012 to 2050 and Fig. 12 shows the world hunger map for 2013.	

Cereal Yields (in metric tons per hectare)

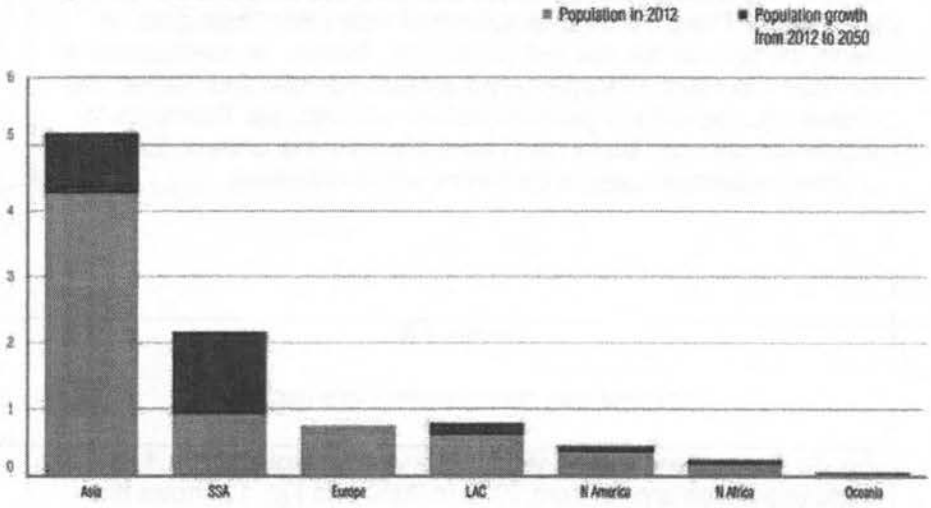


WORLD RESOURCES INSTITUTE

Sources: http://ow.ly/rpfMII

Fig. 10

Projected Population Growth (in billions)



Note: "SSA" = Sub-Saharan Africa, including Sudan. "LAC" = Latin America and Caribbean. "N America" = North America. "N Africa" = Rest of Africa.

Fig. 11

World Hunger Map

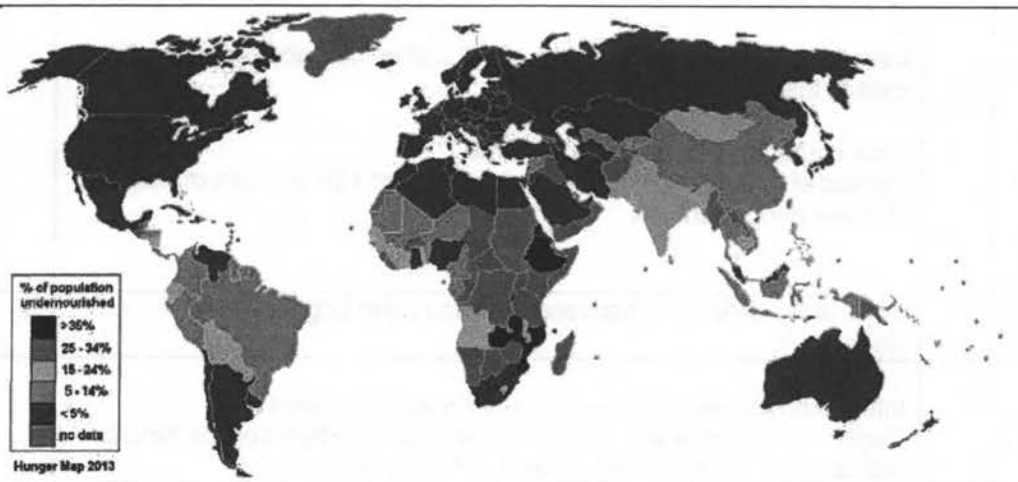


Fig.12

		(i)	Use information from Fig. 10 and Fig. 11 to explain the distribution of countries with more than 15% of total population who are malnourished in 2013 as shown in Fig. 12.	[6]
			Answer : High % of population with more than 15% undernourished are largely seen in the continent of Africa India and Mongolia have 15% to 24% of undernourished and some countries in South-east Asia High Population in Asia and Africa. Asia has the largest population of 4.1 billion in 2012 while Africa has nearly 1 billion in population. This creates demand for food, yet these countries do not produce sufficient food for its population The growing of cereal is also very low in Africa. Shows low productivity in this region. The increase in food production for Asia is at 3.9 million metric tons /hectare of cereal production	
		(ii)	With reference to Fig 10, what are the possible reasons for the difference in the trend of crop yield in Asia and Africa?	[4]
			Answer : Possible reasons – Adoption of HYV and technology in food production in Asia has led to increase productivity Africa – Environmental reasons – prolonged drought in Africa – crop failure.	
	(b)		Explain the correlation between a country's development, economic wealth & life expectancy.	[5]
			Answer: DC higher average life expectancy	

			Better living conditions - less spread of infectious disease therefore longer life span Greater economic wealth – can afford better food and better health care in these countries Poor countries – people live in slums Spread of infectious disease like Malaria and HIV kills lots of people in these poor countries	
	(c)		What is the difference between infectious and degenerative diseases?	[2]
			Infectious disease – virus and bacteria spread disease Degenerative disease - gradual breakdown of physiological function with age or due to genetic causes and lifestyle choice.	
	(d)		'Malaria is an infectious disease that can be prevented.' With reference to examples discuss if this **statement** is true.	[8]
			Answer : Thermal fogging – clear breeding grounds Anti-malaria medication Use of chemically treated mosquito nets Ensure clean living environment with no stagnant water. Difficult in preventing : Poverty: Slums – ideal breeding ground Climate change – global warming Rainy season – accumulation of stagnant water – breeding ground for mosquitoes . Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks) Explain one other factor supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks)	

			Explain 2 other factors. At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.	
4			Fig. 13 shows the relationship between HIV infection in the world and income per person.	

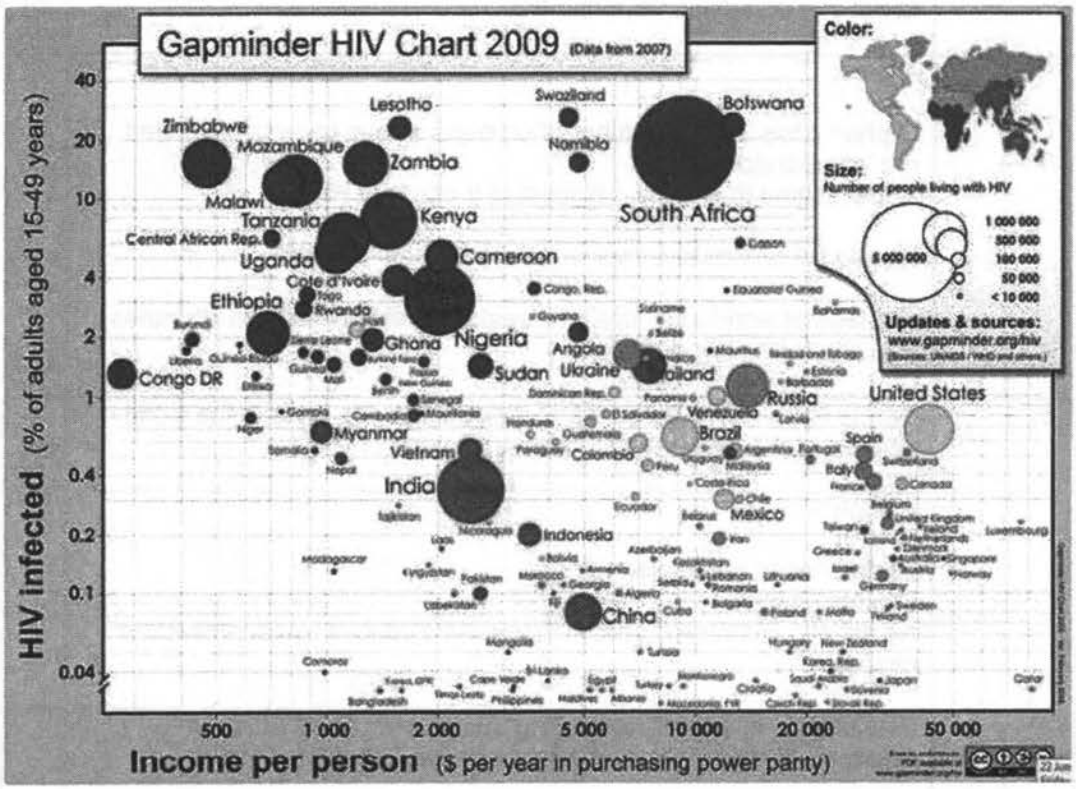


			Fig 13	
	(a)	(i)	Describe the distribution of the number of people aged 15-49 years living with HIV in the world in 2009.	[4]
			Answer : Large number of HIV are living in Africa. In Asia – 3 countries with more HIV + adults. In North and South America, USA and Brazil has larger number of HIV Russia has more HIV sufferers. Rest of Europe has lesser population that are HIV positive	

		(ii)	Account for the relationship between percentages of adults aged 15 - 49 years infected with HIV and income per person.	[3]
			Answer : Poverty – women enter sex trade – spread HIV in the young adults Not enough money to get tested and treated for HIV continue to spread the disease through their life style or job.	
	(b)		Over 70% of the world's 40 million people living with HIV/AIDS are in Africa. Explain why HIV/AIDS has a profound effect on Africa's social and economic development.	[6]
			Answer: Orphan crisis – large number of orphans whose parents have died are left abandoned Social stigma in society – outcast of those with HIV People fall sick easily, cant work and earn an income shortage of workforce, foreign investors avoid investing in countries with shortage of work force	
	(c)		Why is there a re-emergence of malaria in some parts of the world where malaria where it had been eradicated?	[4]
			Answer: Resistance to anti-malaria drugs Climate change Air travel – increase mobility , disease introduced by carriers into a new country	
	(d)		'The main challenge in controlling the spread of HIV/AIDS in Southern Africa is the reluctance to be tested for the disease.' Do you consider this statement to be true? Explain your answer.	[8]
			Answer : Agree: Social Stigma Become outcast from community Fatalistic approach Not enough money for medical testing and treatment Ignorance about how deadly the disease can be to one's health Other point of view Lifestyle choice Mobility Poverty still drives women into sex trade	

			Level 1: (0-3marks) At this level, answer lacks detail and may be general in nature. Answer will be generalised or with minimal support if any given at all. A basic answer that has little development. Reasoning rather weak and expression may be unclear. Answers lack examples or other evidence, or is sketchy that it adds little support to the answer Level 2 : (4-6 marks) Explain one other factor supported by appropriate detail. The content will lack balance and some relevant detail. Or. Both sides are considered, but support is patchy so that answer is not full. Good reasoning and logic in parts of the answer with good expression in places. Assessment may be given but may be general in nature. Some examples or other evidence will be presented to support answers in at least one place in the answer. Level 3 : (7-8marks) Explain 2 other factors. At this level answers will be comprehensive and supported by sound knowledge. There will be assessment of both views, both point of views are considered and well supported. There is an assessment of the extent to which strategies are successful or effective. Reasoning is clear and logical with good expression of language. Examples to support answer can be found in most places in the answer. Examples or other evidence to support answers will be extensive.	