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Other names

**Pearson Edexcel Certificate**  
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**International GCSE**

Centre Number

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Candidate Number

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# Geography

**Unit: KGE0 4GE0**

**Paper: 01**

Tuesday 24 May 2016 – Afternoon

**Time: 3 hours**

Paper Reference

**KGE0/01**  
**4GE0/01**

**You must have:**

Ruler, pencil and pen

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **seven** questions
  - Answer **two** questions in Section A
  - Answer **two** questions in Section B
  - Answer **two** questions in Section C – **either** Question 7 **or** 8 **AND either** Question 9 **or** 10
  - Answer **one** question in Section D.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

## Information

- The total mark for this paper is **180**.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- The following abbreviations are used:
  - LIC – Low-income country
  - HIC – High-income country
  - NIC – Newly-industrialised country
  - CBD – Central Business District.

## Advice

- Write your answers neatly and in good English.
- Check your answers if you have time at the end.

Turn over ►

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P 4 5 5 0 7 R A 0 1 6 4

**PEARSON**

SECTION A – THE NATURAL ENVIRONMENT AND PEOPLE

Answer TWO questions only from this section.

Indicate which question you are answering by marking a cross . If you change your mind, put a line through the box  and then indicate your new question with a cross .

If you answer Question 1 put a cross in the box .

1 River environments

(a) Study Figure 1 which shows storm hydrographs for rivers A and B.

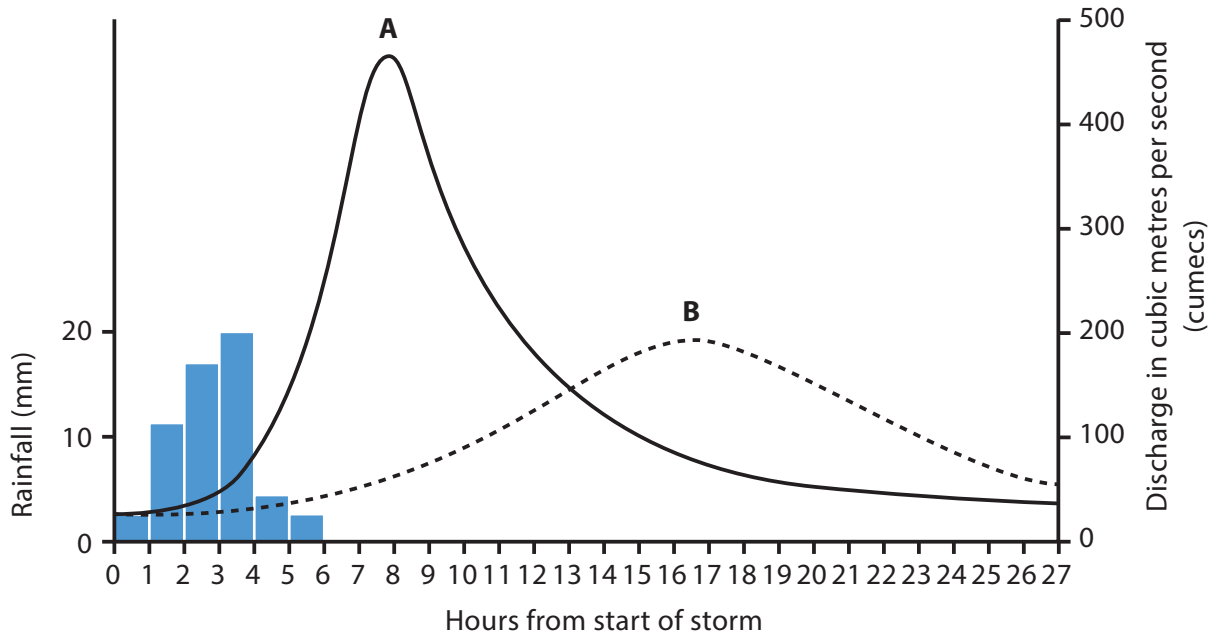


Figure 1

(i) What was the lag time for river A?

(1)

(ii) Identify **one** way in which rivers A and B differ in terms of:

(2)

lag time

peak discharge





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(c) Explain the formation of landforms in the upper course of a river.

Annotated diagrams may help your answer.

(6)

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If you answer Question 2 put a cross in the box  .

## 2 Coastal environments

(a) Study Figure 2 which shows options for the management of a stretch of retreating coastline.





Method	Cost per metre
<b>Hard engineering methods</b>	
	Rock armour £1250 plus £10 per year maintenance
	Sea wall £3000 plus £120 per year maintenance
<b>Soft engineering methods</b>	
	Beach replenishment £80 plus £50 per year maintenance
	Planting on mudflats to create salt marshes £200 plus £20 per year maintenance

Figure 2

(i) Which method has the highest total cost per metre? (1)

(ii) Which **one** of the following is the purpose of hard engineering along a retreating coastline? (1)

- A To advance the coastline
- B To hold the coastline
- C To allow the coastline to retreat
- D To improve the coastline's appearance



(iii) Identify **one** difference between hard and soft engineering in terms of:

(2)

cost

environmental impact

(b) The coast is a natural system.

(i) What is meant by the term **natural system**?

(2)

(ii) Outline **two** physical processes that affect the coast.

(4)

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If you answer Question 3 put a cross in the box  .

### 3 Hazardous environments

(a) Study Figure 3 which shows how weather varies across a hurricane.

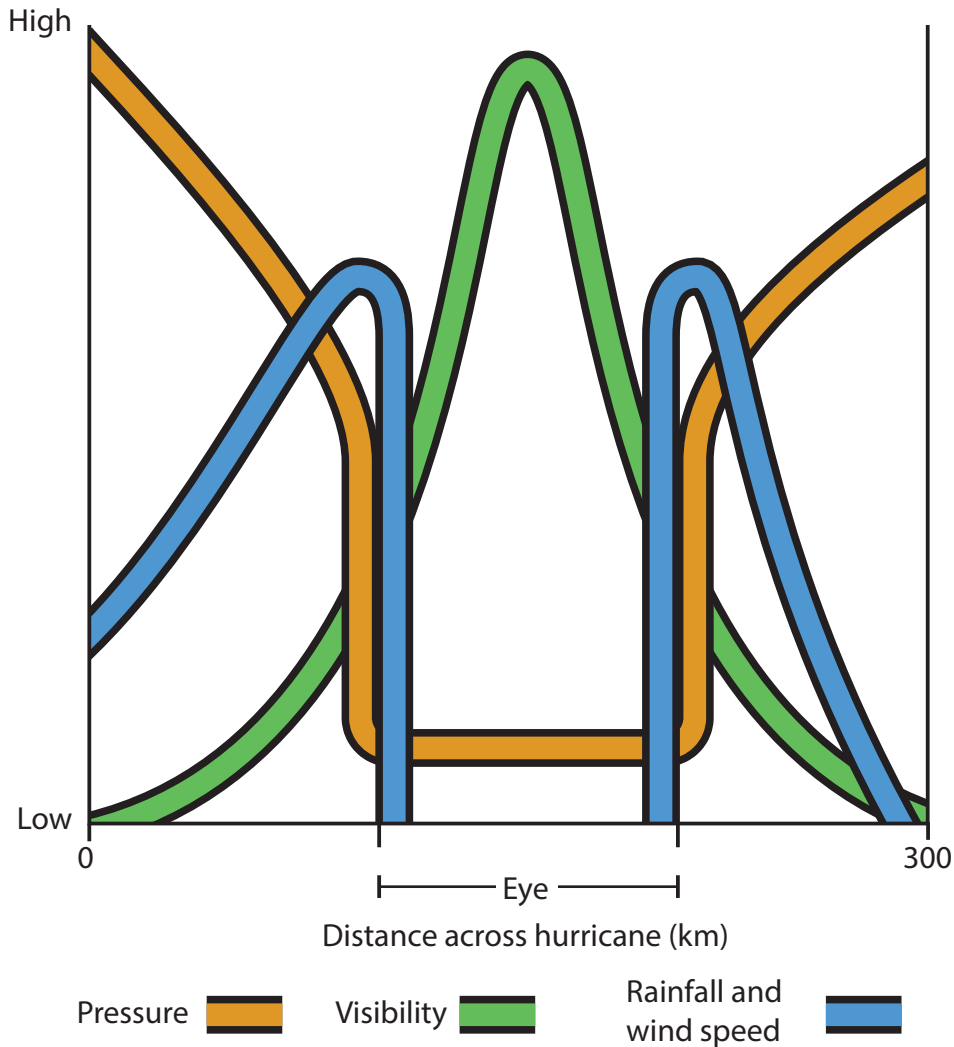


Figure 3

(i) Identify the area of lowest pressure.

(1)

(ii) Which **one** of the following is the greatest hazard to people during the passage of a hurricane?

(1)

- A high pressure
- B high wind
- C low visibility
- D low rainfall



(iii) Identify **one** way in which the following features change with pressure:

(2)

visibility

rainfall and wind speed

(b) (i) What is meant by the term **earthquake**?

(2)

(ii) Outline **two** ways in which earthquake damage can be mitigated.

(4)

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(c) Explain the causes of volcanoes.

(6)

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**SECTION B – PEOPLE AND THEIR ENVIRONMENTS**

**Answer TWO questions only from this section.**

**If you answer Question 4 put a cross in the box  .**

**4 Economic activity and energy**

(a) Study Figure 4 which shows a high-tech industrial estate and its surrounding area.



**Figure 4**

(i) Which **one** of the following businesses would you be most likely to find in an area of high-tech industry?

(1)

- A** supermarket
- B** biotechnology firm
- C** builder's merchant
- D** biscuit factory

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If you answer Question 5 put a cross in the box  .

## 5 Ecosystems and rural environments

- (a) Study Figure 5 which shows a French village. 50 years ago its population was 470 whereas today it is only 270.



Figure 5

- (i) Identify **one** piece of evidence from Figure 5 that suggests the village has lost population. (1)

- (ii) Which **one** of the following terms is used to describe this population loss? (1)

- A counter-urbanisation
- B conservation
- C migration
- D rural depopulation

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(iii) Suggest **two** ways changes in farming might have contributed to this loss of population.

(2)

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(b) (i) What is meant by the term **national park**?

(2)

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(ii) Outline **two** reasons why national parks are established.

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If you answer Question 6 put a cross in the box  .

## 6 Urban environments

- (a) Study Figure 6 which shows the regeneration zone around Battersea power station in central London.



**Figure 6**

- (i) Identify **one** piece of evidence from Figure 6 that suggests the area around the power station is being regenerated. (1)

- (ii) Which **one** of the following best describes the term **urban regeneration**? (1)

- A** building a new town
- B** adding air conditioning to old offices
- C** improving an urban area through investment
- D** building on a greenfield site



(iii) Suggest **two** reasons why the regeneration zone in Figure 6 might be a suitable location for residential development.

(2)

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(b) (i) What is meant by the term **greenfield site**?

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(ii) Outline **two** reasons why greenfield sites are attractive to modern business.

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**SECTION C – PRACTICAL GEOGRAPHICAL ENQUIRY**

**Answer TWO questions from this section.**

**EITHER question 7 or 8 AND EITHER question 9 or 10.**

**If you answer Question 7 put a cross in the box .**

**7 River environments fieldwork**

- (a) Study Figure 7a which shows a fieldwork site recording sheet designed for use during a water quality investigation.

<b>Location:</b> <b>Grid reference:</b> <b>Distance from nearest:</b> factory farm sewage treatment plant power station recreational site	
<b>State of the river</b> How clear is the river water? What does the river smell like? Is there anything on the surface? eg. rubbish/vegetation/pollution. Identification of any water plants on bank, surface and river bed. Type of bedload: eg. boulders/gravel/sand/silt.	
<b>Freshwater invertebrates</b> Species and number:	
<b>pH assessment</b> Acid or alkali?	

**Figure 7a**

- (i) Why are freshwater invertebrates identified as part of this investigation?

(1)

- A** fish only live in unpolluted water
- B** invertebrates can be indicators of pollution levels
- C** there are no invertebrates in polluted water
- D** some fish live in polluted water

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(b) Study Figure 7b which shows some of the results of a water quality investigation at three of the sites along a river.

Site	State of river	pH value	Number of freshwater invertebrates					
			Cased caddis	Mayfly	Rat-tailed maggot	Snail	Shrimp	Blood worm
1	River bed clearly visible	7.8	7	5	0	3	2	0
3	Clear water with plants and mixed bedload	6.9	10	15	0	1	6	1
7	River bed not visible at all	5.1	0	0	5	0	1	6

Acidity increases as pH gets lower (7 = neutral).

**Figure 7b**

(i) Suggest a method that could be used to identify pH values.

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(ii) Explain how ICT could be used in this investigation.

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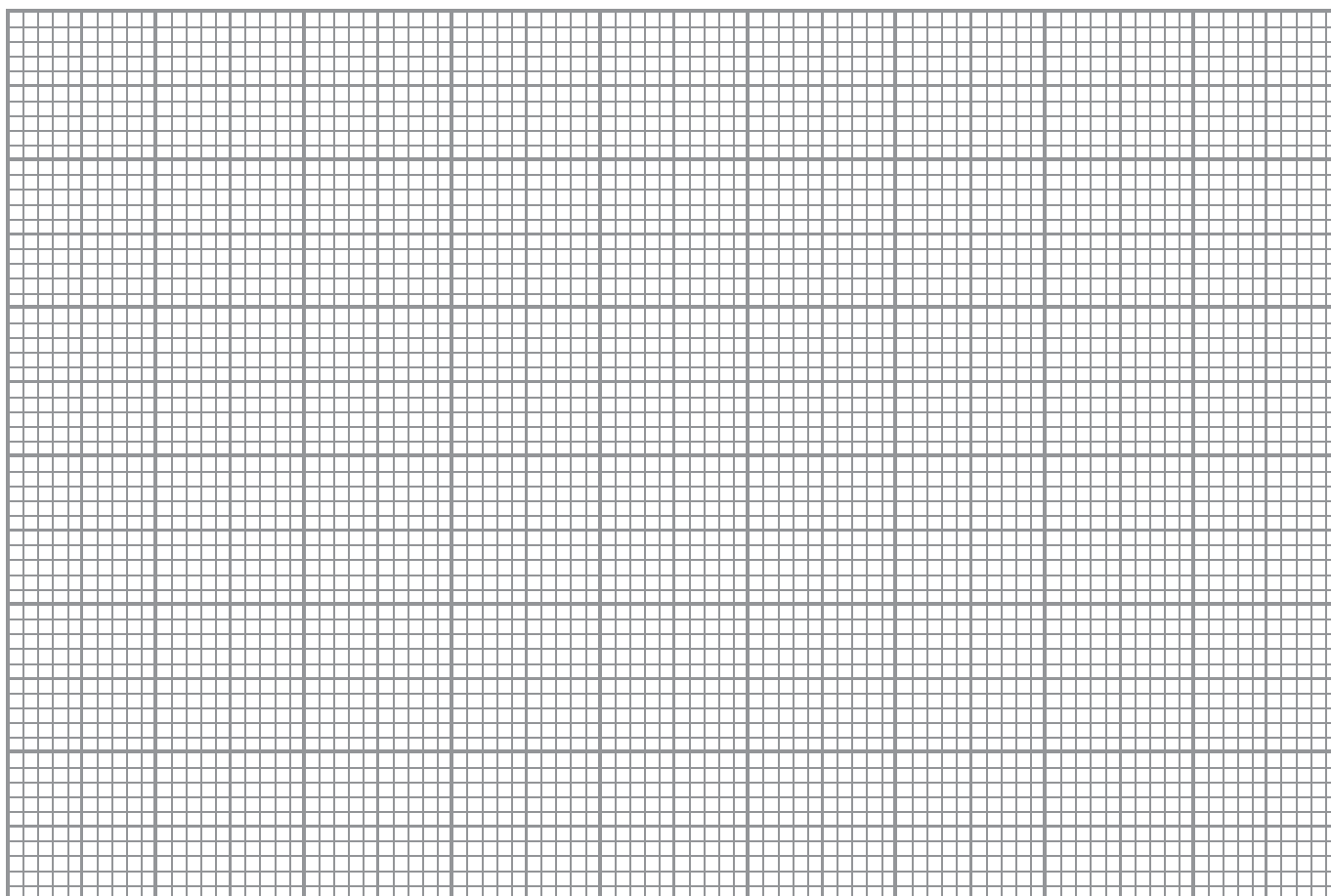
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(iii) On Figure 7c draw a diagram to represent the data for mayfly, rat-tailed maggot and blood worm at sites 3 and 7.

(4)



**Figure 7c**





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**QUESTION 8 BEGINS ON THE NEXT PAGE.**



If you answer Question 8 put a cross in the box  .

## 8 Hazardous environments fieldwork

- (a) Study Figure 8a which shows a fieldwork recording sheet designed for use in a hazard management investigation.

<b>Location of interview:</b> <b>Distance from hazard event:</b> <b>Grid reference:</b>	
<b>What was the hazard event?</b>	
<b>What were the main impacts of the hazard event?</b>	
<b>Who was responsible for managing the impacts of the hazard event?</b>	
<b>What did they do?</b>  Before the event  During the event  After the event	
<b>How well was the hazard event managed? (well/medium/poorly/no opinion)</b>  Before the event  During the event  After the event	
<b>What more could have been done?</b>	

Figure 8a

- (i) Why does the interviewer distinguish between actions before, during and after the hazard event?

(1)

- A** Because actions after the event are all that matter.
- B** Because hazard events always bring disaster.
- C** Because there are opportunities for action at all three stages.
- D** Because the investigation is about people's views.





(ii) What fieldwork equipment would be required for this investigation?

(3)

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(iii) Outline **two** sources of secondary data that could be researched before collecting fieldwork data for this investigation.

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(b) Study Figure 8b which shows the views of 20 people at each of two locations about how a particular hazard event was managed.

Distance from hazard event	Before event			During event			After event		
	Well managed	No opinion	Poorly managed	Well managed	No opinion	Poorly managed	Well managed	No opinion	Poorly managed
10 km	9	10	1	11	6	3	13	6	1
1 km	4	10	6	4	6	10	8	6	6

Some suggestions given for 'what more could have been done':

	Earlier warning should be given
	Wider area should have been evacuated
	Better defensive schemes should be used
	Better emergency supplies should be provided
	Evacuated people were homeless for too long

**Figure 8b**

(i) Suggest an appropriate method that could be used to collect this data on people's views.

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(ii) Explain how ICT could be used in this investigation.

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(iii) On Figure 8c draw a diagram to represent the data for the site 10km from the hazard event.

(4)

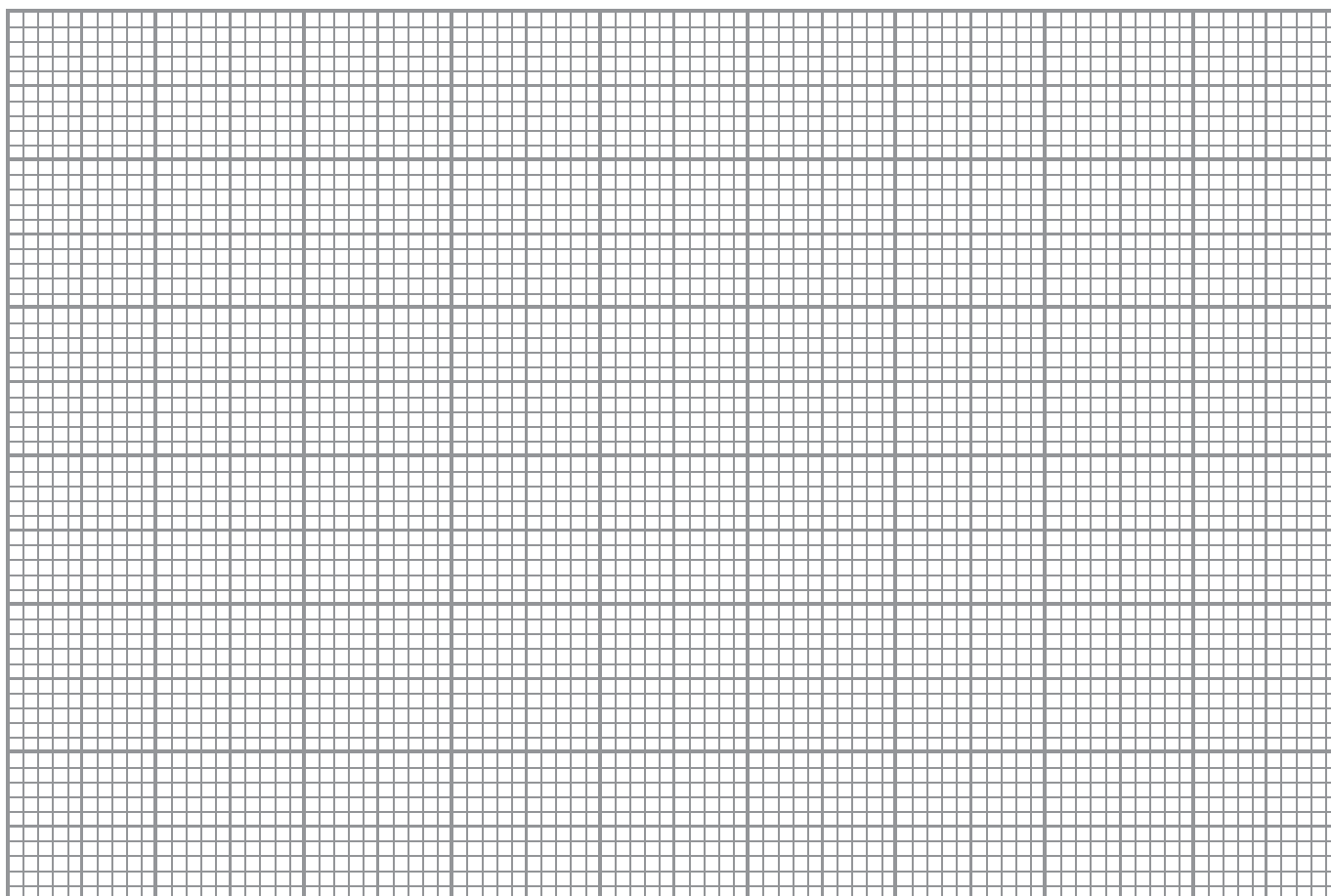


Figure 8c



(iv) What conclusions about people's views can be reached from an analysis of Figure 8b?

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**QUESTION 9 BEGINS ON THE NEXT PAGE.**



If you answer Question 9 put a cross in the box  .

**9 Ecosystems and rural environments fieldwork**

- (a) Study Figure 9a which shows a piece of fieldwork equipment used in the investigation of an ecosystem.



**Figure 9a**

- (i) Identify the piece of field equipment shown.

(1)

- A** calipers
- B** auger
- C** quadrat
- D** metre ruler

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(ii) Describe how this piece of equipment is used at a specific site in an ecosystem investigation.

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(iii) Outline a sampling strategy that could be used when collecting data about the components of an ecosystem.

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(b) Study Figure 9b which shows fieldwork data about an ecosystem at three sites.

Site	Abiotic components		Biotic components					
	Altitude /slope	Soil (depth & pH)	Plant species (% per m <sup>2</sup> )					
			Bilberry	Grass	Heather	Lichen	Bracken	Sphagnum moss
1	300m 1:30 slope	70 cm pH 6.0	10	40	10	25	15	0
2	400m 1:20 slope	50 cm pH 5.5	15	10	50	5	15	5
3	450m 1:50 slope	1m pH 4.0 (peat)	5	5	0	5	5	80

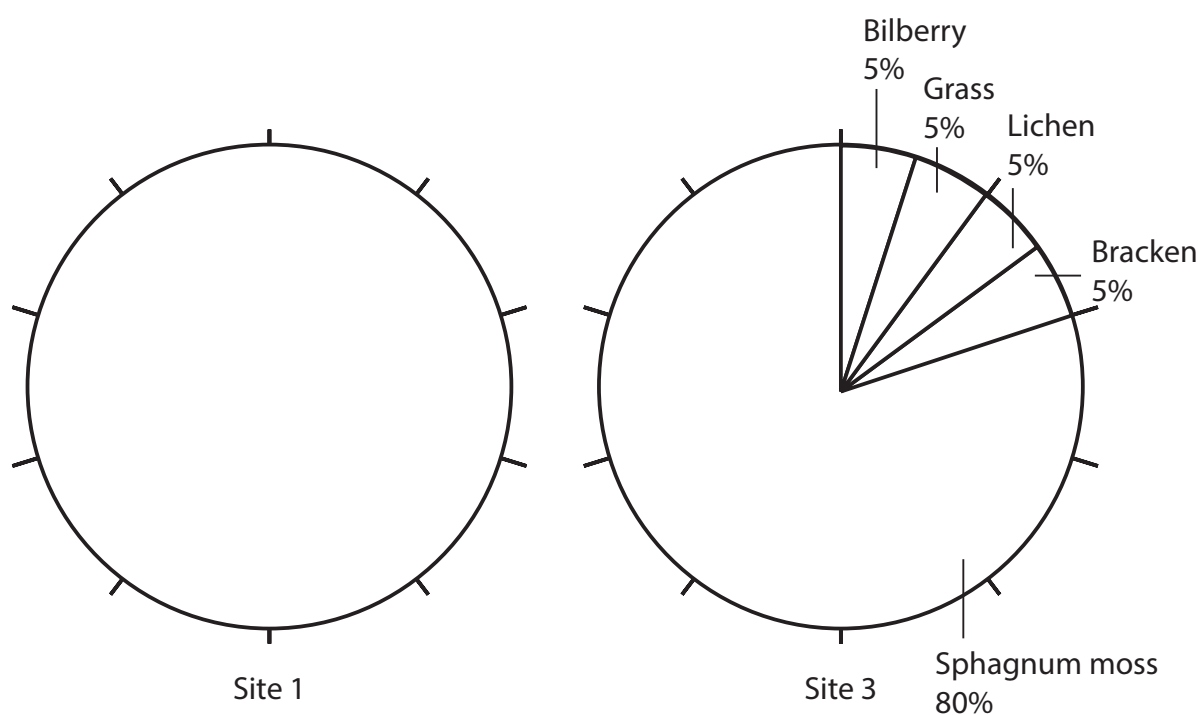
Acidity increases as pH gets lower (7 = neutral).

**Figure 9b**

- (i) Complete the pie chart in Figure 9c to represent the data for plant species at site 1.

The data for site 3 has been completed for you.

(4)



**Figure 9c**







(iv) Suggest how you might evaluate the accuracy of conclusions reached in an investigation such as this.

(4)

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(ii) Describe how this resource might be used in an environmental quality investigation.

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(iii) Outline a sampling strategy you could use when collecting data about environmental quality.

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(b) Study Figure 10b which shows environmental quality data collected at three sites in an urban area.

Site	Location	Environmental Quality Scores (score out of 7*)					Total score
		Cleanliness & tidiness	Noise level	Condition of buildings	Safety	Visual appeal	
1	CBD edge	1	4	3	2	4	14
2	Main shopping area (CBD)	6	3	7	6	6	28
3	Open-air market (suburbs)	2	6	3	4	5	20

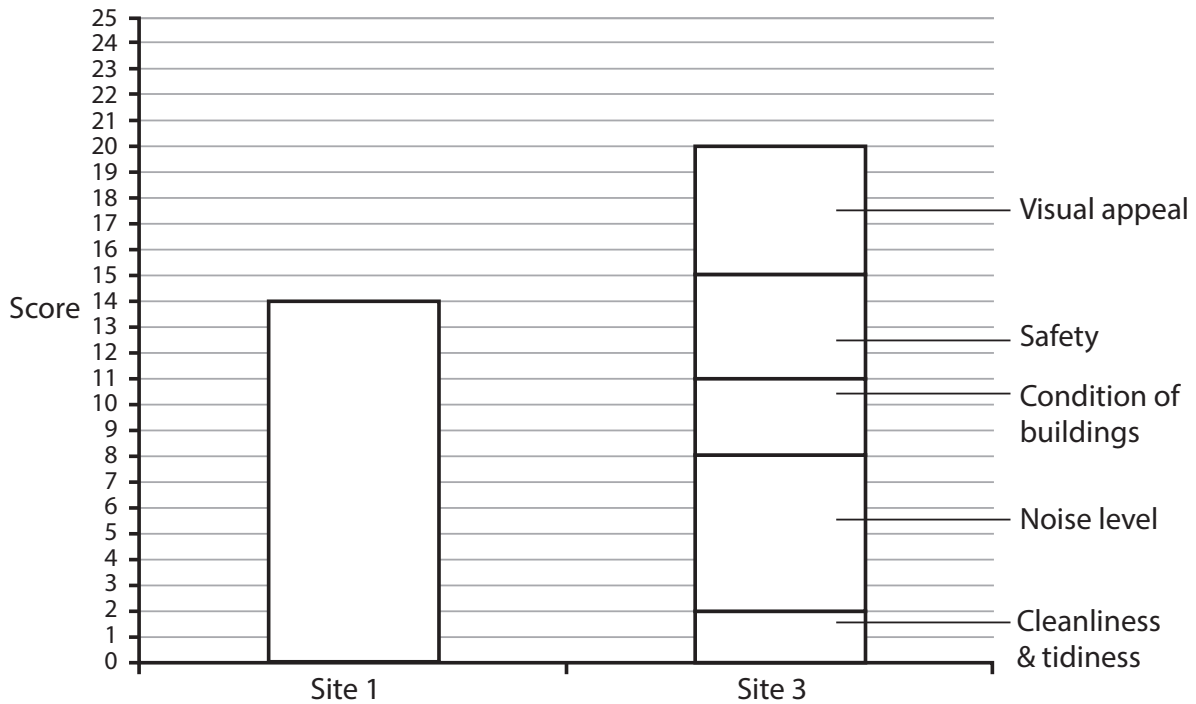
\* the lower the score the lower the perceived environmental quality.

**Figure 10b**

(i) Complete the compound bar chart in Figure 10c to represent the environmental quality data at site 1.

The data for site 3 has been plotted for you.

(4)



**Figure 10c**



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(iv) Suggest how you might evaluate the accuracy of conclusions reached in an investigation such as this.

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**(Total for Question 10 = 25 marks)**

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**TOTAL FOR SECTION C = 50 MARKS**

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SECTION D – GLOBAL ISSUES

Answer ONE question only from this section.

If you answer Question 11 put a cross in the box  .

11 Fragile environments

(a) Study Figure 11a which shows how annual rainfall has varied from the average rainfall in the Sahel region of Africa between 1951 and 2013.

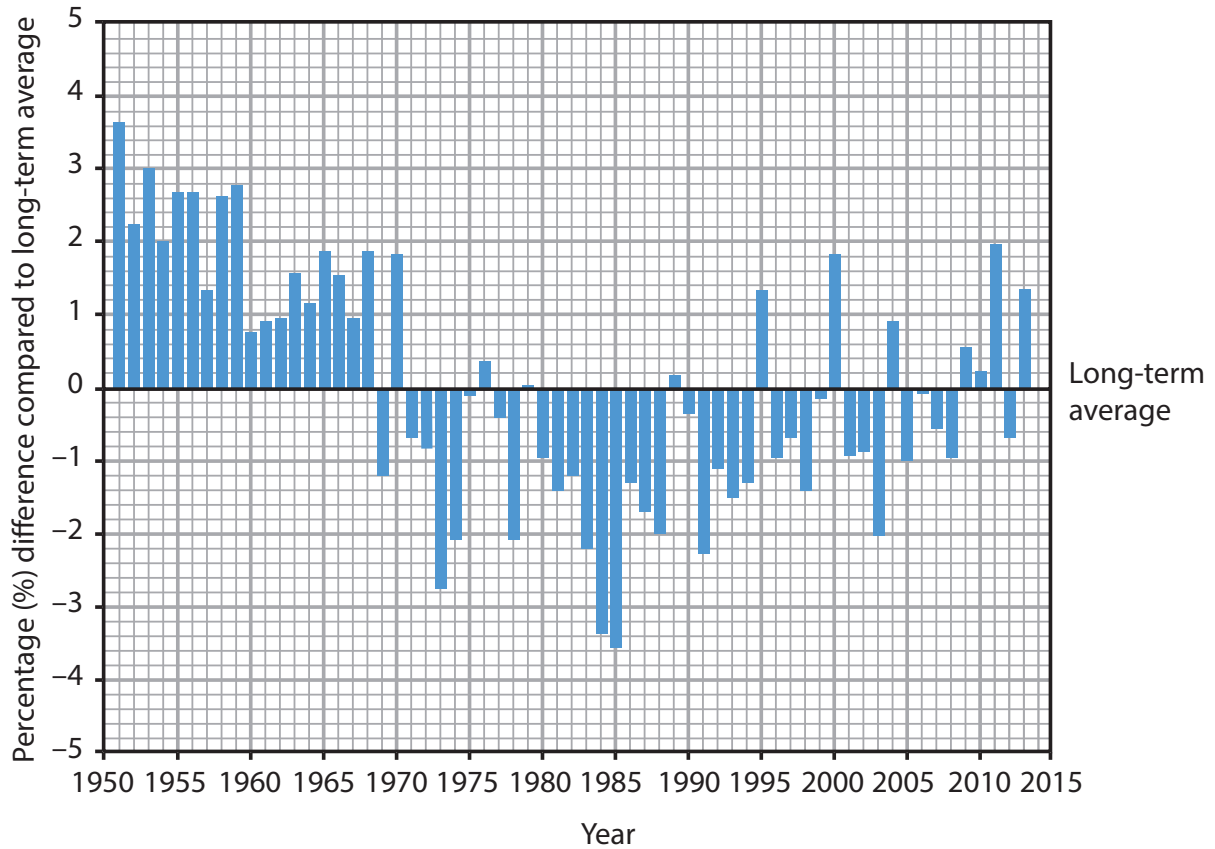


Figure 11a

(i) Which was the driest decade in the Sahel?

(1)

- A 1960s
- B 1970s
- C 1980s
- D 1990s





(ii) State **two** trends shown in Figure 11a.

(2)

1 .....

2 .....

(iii) Suggest how the rainfall since 1970 might have affected the environment of the Sahel.

(2)

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(b) (i) What is meant by the term **deforestation**?

(2)

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(ii) Outline **two** causes of deforestation.

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(iii) Suggest why sustainable forest management might be helped by international cooperation.

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(c) Study Figure 11b which shows information about global warming and climate change.

**TWO GREAT CHALLENGES FACE THE EARTH IN THE 21st CENTURY – One is climate change.**

A United Nations report on climate change states that:

- Global temperature has risen 0.8°C since 1900 and a further 1°C rise is likely this century.
- Leading scientists are 95% certain that human activities caused most of the global warming.
- Global warming may be irreversible within 30 years.
- Both human society and the Earth’s natural life-support systems are vulnerable to climate change.

**Figure 11b**

Explain why people and environments are threatened by continued global warming and climate change.

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(d) Discuss the international measures taken to limit global warming.

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**(Total for Question 11 = 30 marks)**

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**QUESTION 12 BEGINS ON THE NEXT PAGE.**



If you answer Question 12 put a cross in the box  .

## 12 Globalisation and migration

(a) Study Figure 12a which provides information about India's largest industrial corporation.

- Made up of over 100 companies in 7 business sectors:  
engineering; materials; communication and information systems; energy; services; consumer goods; chemicals.
- Operates in 150 countries.
- Employs 580 000 people. 170 000 of them work outside India as shown below:

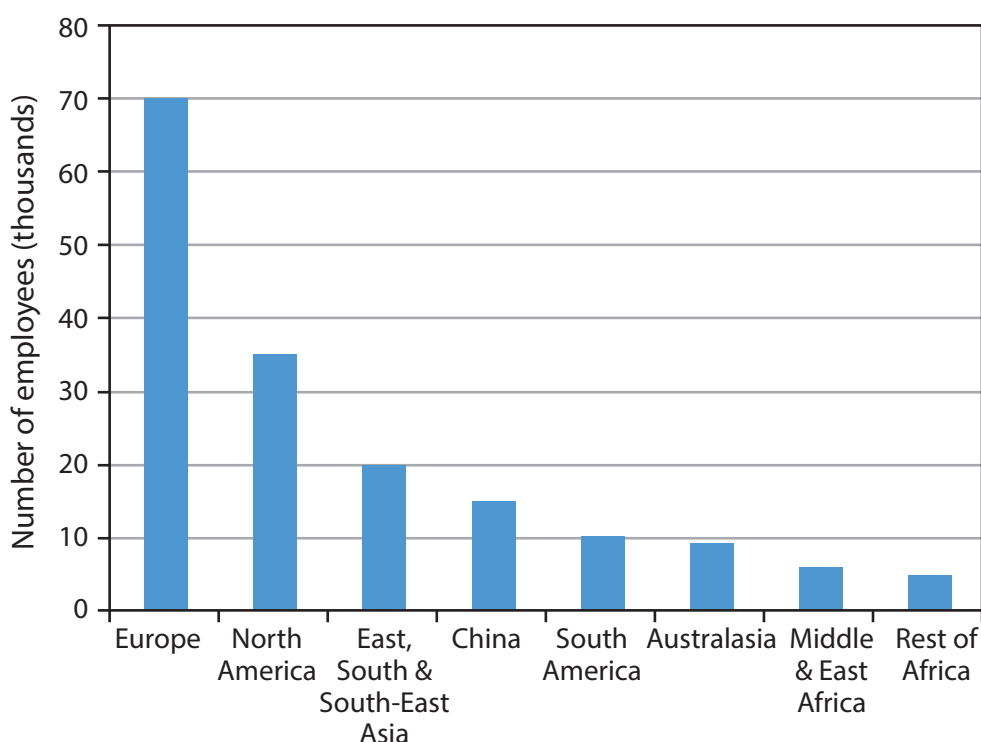


Figure 12a

(i) Outside India, where does the corporation employ the most people?

(1)



(ii) How many people does the corporation employ in India?

(1)

- A 110 000
- B 310 000
- C 410 000
- D 510 000

(iii) Identify **one** piece of evidence that the corporation is a TNC.

(1)

(iv) Suggest how this corporation is making a major contribution to the growth of the Indian economy.

(2)

(b) (i) What is meant by the term **ecotourism**?

(2)

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(ii) Describe the characteristics of **one** named ecotourism project.

(4)

Named ecotourism project .....

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(iii) Outline **two** reasons for the growth of global tourism.

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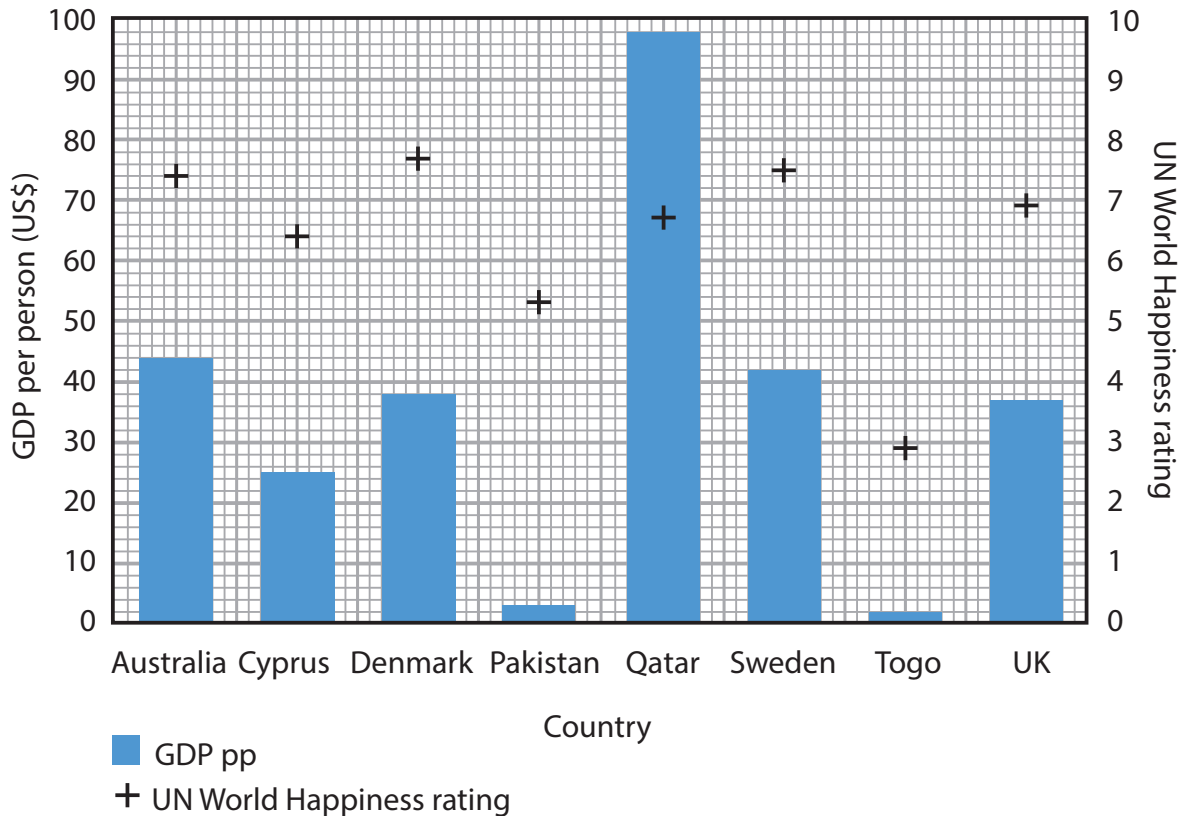
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**QUESTION 13 BEGINS ON THE NEXT PAGE.**



If you answer Question 13 put a cross in the box  .

### 13 Development and human welfare

(a) Study Figure 13a which shows Gross Domestic Product per person (GDP pp) and the United Nations (UN) World Happiness rating for eight countries.



UN World Happiness rating: the higher the score out of 10, the more people are satisfied with their lives and well-being.

**Figure 13a**

(i) Which country has the highest GDP pp?

(1)

(ii) Which **one** of the following best describes the relationship between GDP pp and the happiness rating?

(1)

- A** countries with lower GDP pp have higher happiness ratings
- B** countries with higher GDP pp usually have higher happiness ratings
- C** countries with very low GDP pp have the highest happiness ratings
- D** there is no relationship between GDP pp and happiness ratings



(iii) What evidence is there in Figure 13a that economic development does not always improve happiness rating? (2)

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(iv) The UN World Happiness rating is a way of measuring quality of life. Suggest **one** other indicator that might be used to measure quality of life. (1)

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(b) (i) What is meant by the term **intermediate technology**? (2)

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(ii) Describe how the use of intermediate technology is encouraging development in LICs. (4)

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(iii) Outline **two** other ways of encouraging development in LICs.

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(c) Study Figure 13b which shows information about world population.

**TWO GREAT CHALLENGES FACE THE EARTH IN THE 21st CENTURY –  
One is a huge and rapid increase in population.**

The world population was 3 billion in 1960. It is now 7.2 billion.

Experts say:

- There is an 80% probability that global population could increase to 12.3 billion by the end of this century.
- Fertility rates are likely to remain high in Sub-Saharan Africa.
- This population increase will exceed the Earth's carrying capacity and threaten natural life-support systems (ecosystems).

**Figure 13b**

Explain the consequences of rapid population growth on quality of life.

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(d) Discuss why there is a global development gap.

(9)

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**(Total for Question 13 = 30 marks)**

**TOTAL FOR SECTION D = 30 MARKS**  
**TOTAL FOR PAPER = 180 MARKS**

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