UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 **October/November 2013**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Ruler
Protractor

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Write your answers in the spaces provided on the Question Paper.
All questions in Section A carry 10 marks.
Both questions in Section B carry 40 marks.

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.

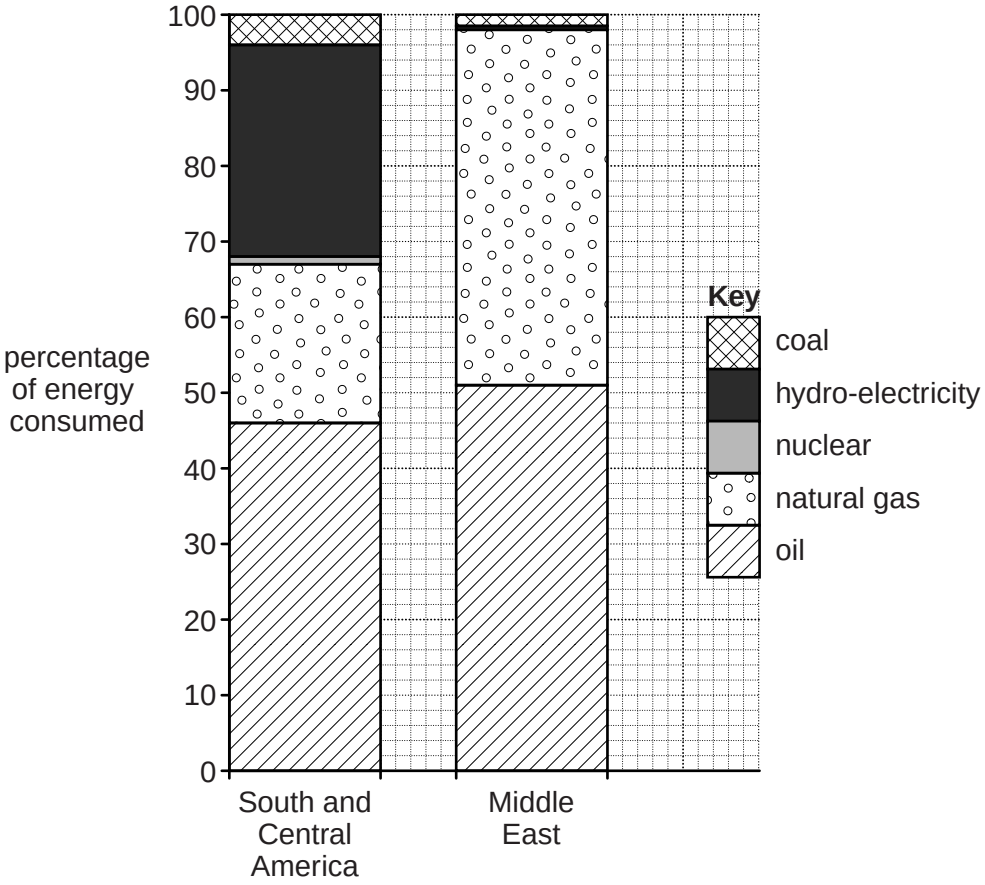
For Examiner's Use	
1	
2	
3	
4	
5	
6	
Total	

This document consists of **26** printed pages and **2** blank pages.

Section A

For Examiner's Use

1 **(a)** Look at the graphs showing types of energy consumption in **two** regions of the world.



(i) Describe the differences in the types of energy consumption between the **two** regions.

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.....[3]

For Examiner's Use

(ii) Suggest reasons why the consumption of hydro-electric power in South and Central America differs from that in the Middle East.

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.....[3]

(b) Describe the impacts of the consumption of oil and natural gas on:

(i) the environment

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(ii) the economy in the future

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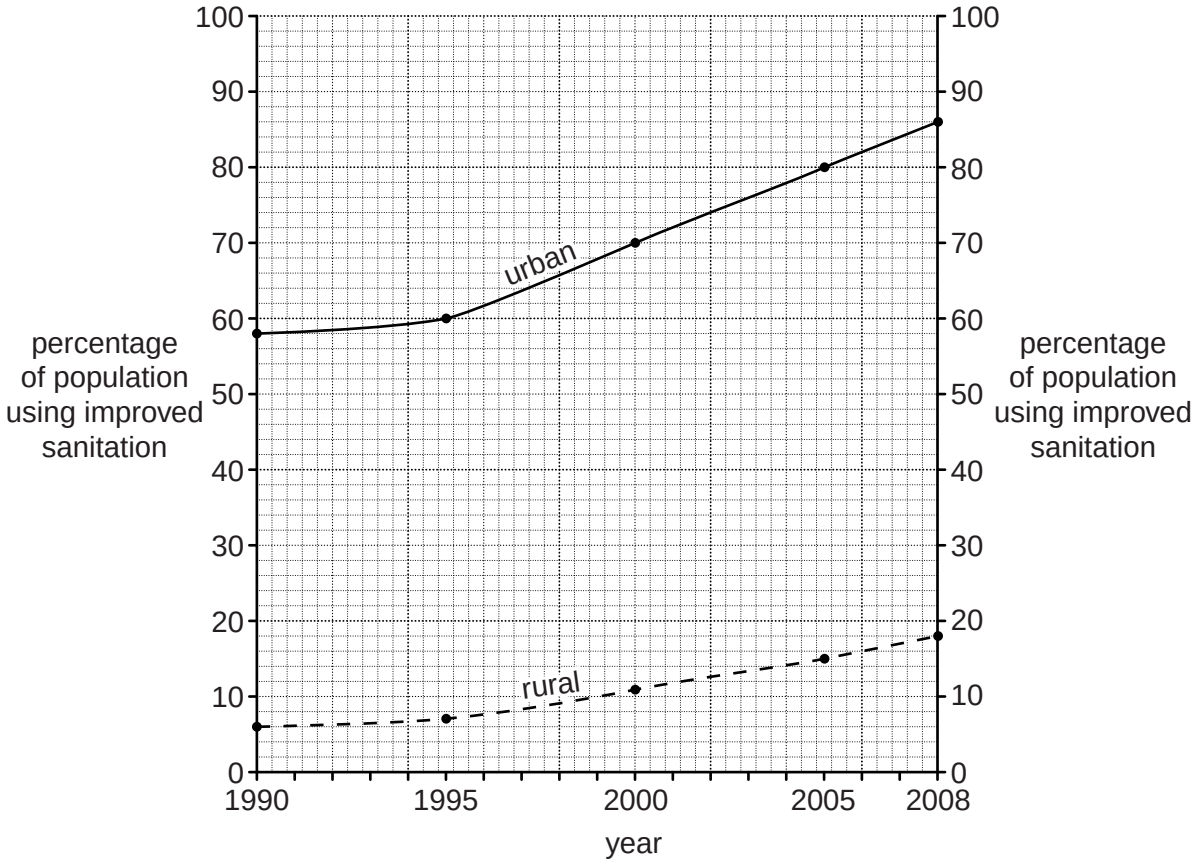
.....[4]

[Total: 10]

2 **(a)** Look at the graph showing changes between 1990 and 2008 in the percentages of the populations with improved sanitation in rural and urban areas of Angola in Africa.

For Examiner's Use



(i) State the percentage of people in rural areas of Angola with access to improved sanitation in

1990 .....% 2008 .....% [1]

(ii) State the difference in the percentage of the population with access to improved sanitation in urban areas compared with rural areas in 2008.

.....% [1]

(iii) Describe what the graph shows about the differences between the urban and rural areas between 1990 and 2008.

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.....[2]

(b) Describe **different** reasons for the difficulties of improving sanitation in:

For Examiner's Use

(i) rural areas

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(ii) squatter settlements on the edge of towns and cities

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.....[3]

(c) Explain why African countries, such as Angola, have outbreaks of cholera from time to time.

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.....[3]

[Total: 10]

For Examiner's Use

3 (a) (i) Name the instrument used to measure rainfall.

.....[1]

(ii) Why should this instrument be partly buried in the ground where possible?

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.....[1]

(iii) Explain why this instrument is placed away from trees and buildings. Give a different reason for each.

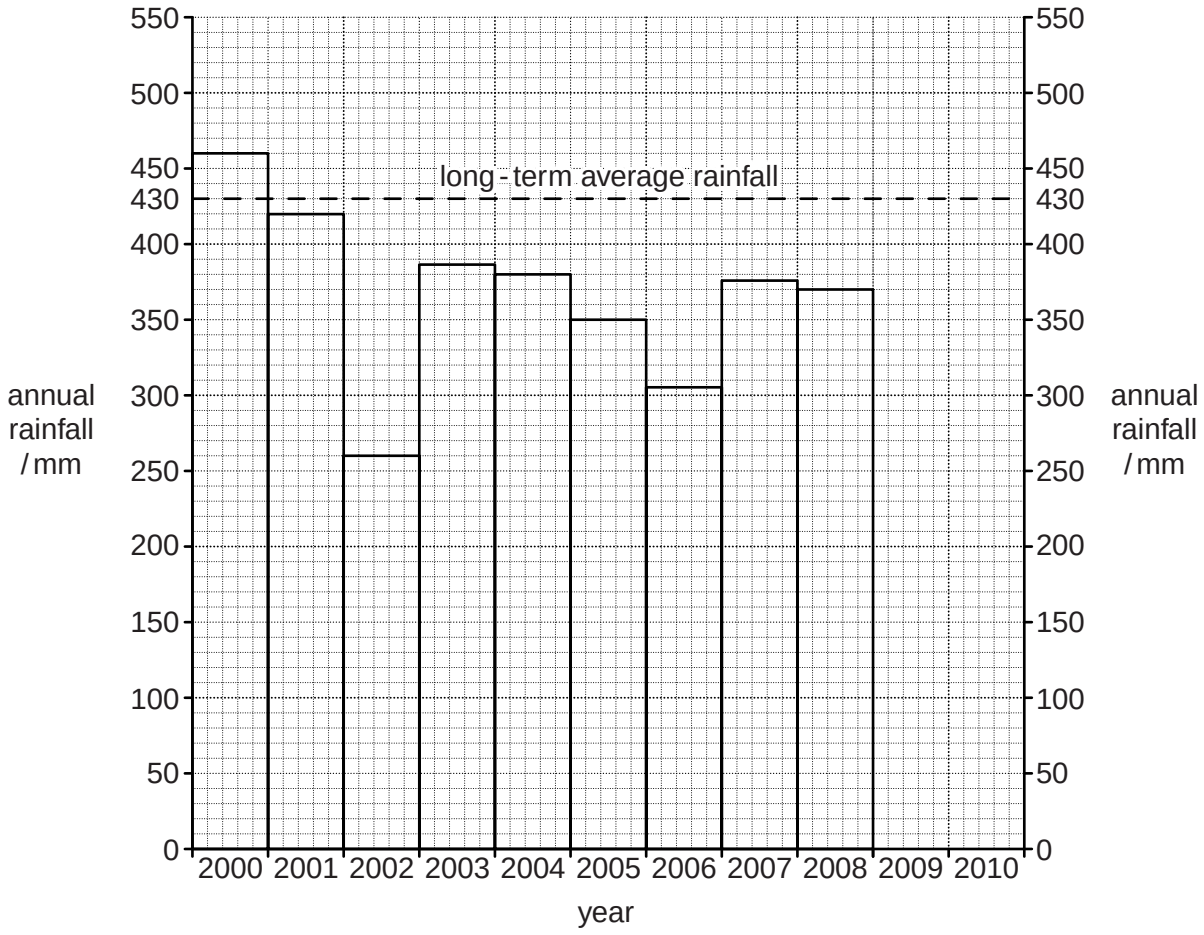
away from trees .....

.....

away from buildings .....

.....[2]

(b) Look at the bar graph of annual rainfall for a weather station in south east Australia from 2000 to 2010. The long-term average for the weather station is 430 mm a year.



For Examiner's Use

(i) Complete the graph by plotting the information in the table.

year	annual rainfall / mm
2009	349
2010	540

[1]

(ii) Describe how the rainfall during the eleven years from 2000 to 2010 compares with the long-term average.

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.....[2]

(iii) Describe the problems that livestock farmers were likely to face in south east Australia between 2000 and 2010.

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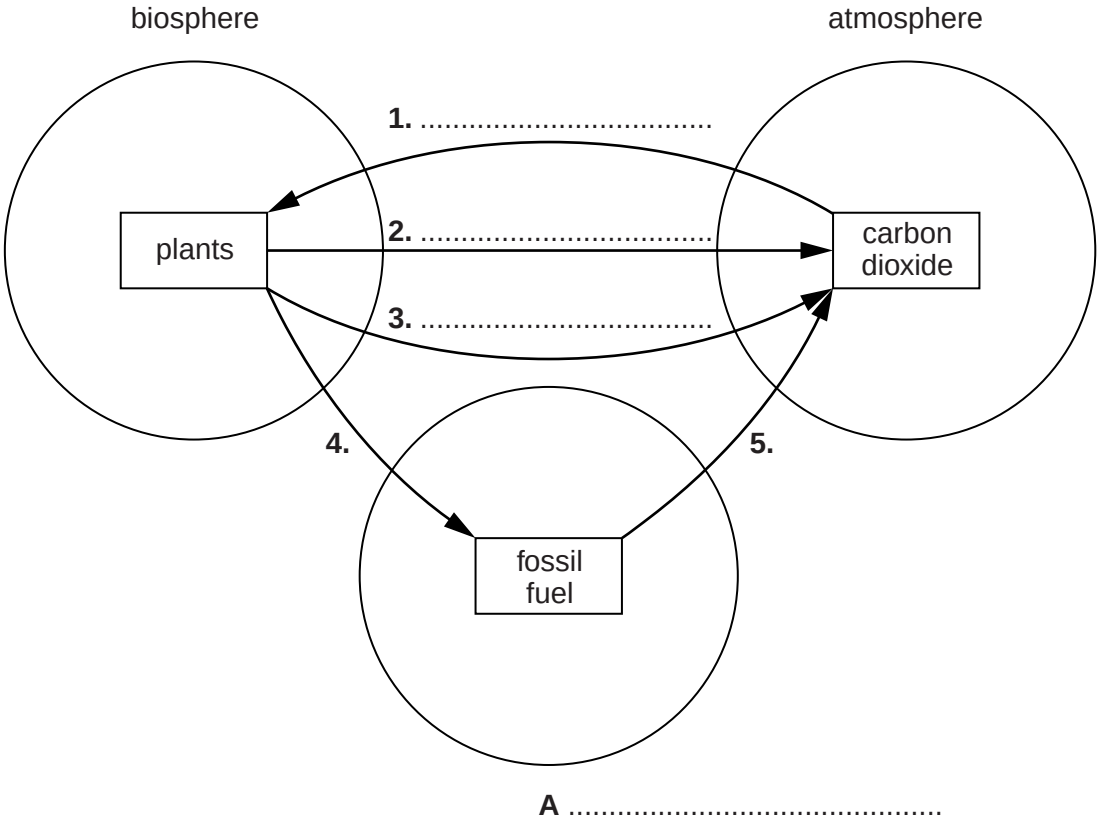
[Total: 10]

For Examiner's Use

4 **(a)** Look at the diagram of part of the carbon cycle.



Complete the diagram by:

(i) naming the processes numbered **1.**, **2.** and **3.** [3]

(ii) naming the sphere labelled **A**. [1]

(iii) Name and describe the **two** processes represented by links **4.** and **5.**

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.....[3]

(b) A number of world biosphere reserves have been set up.

Describe the benefits of these reserves.

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.....[3]

[Total: 10]

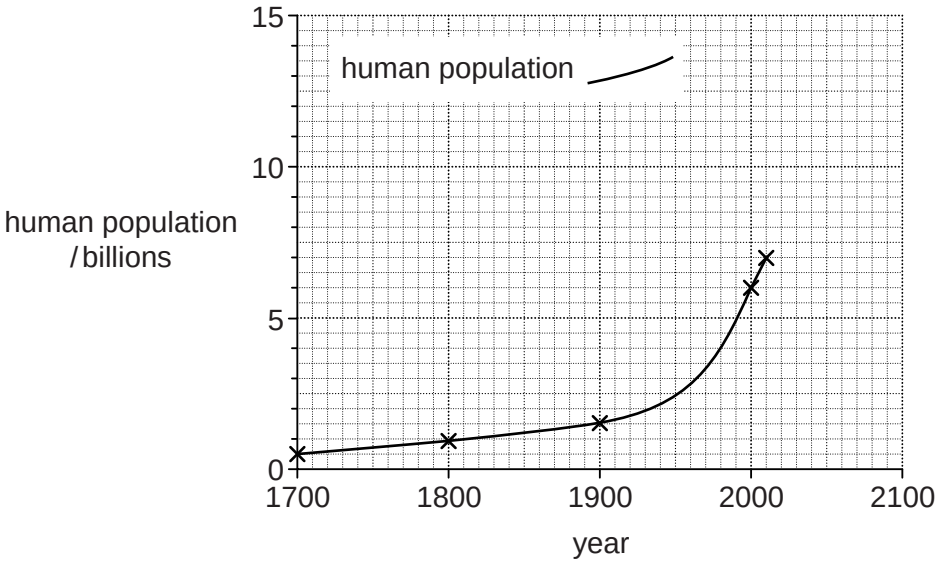
For Examiner's Use

Section B

For Examiner's Use

Answer **both** questions

5 **(a)** The United Nations estimated that by October 31st 2011 total world population had reached seven billion.
Look at the graph of world population growth from 1700–2011.



(i) Around which date did total world population reach 1 billion?

.....[1]

(ii) Describe what the graph shows about population growth since 1700.

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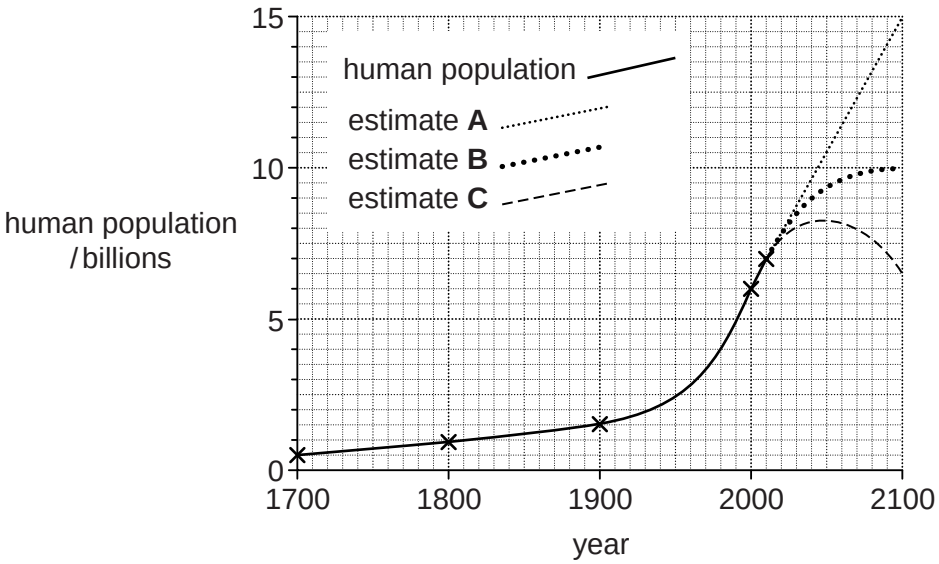
(b) Look at the graph showing estimates made in 2011 for future population growth.

For Examiner's Use



(i) Describe what each of the three estimates shows about future population growth up to 2100.

A .....

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B .....

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C .....

.....[3]

(ii) Suggest reasons for the wide variations between the three estimates of future world population growth.

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.....[3]

(iii) State which estimate, in your view, is most likely. .....

Explain the reasons for your view. .....

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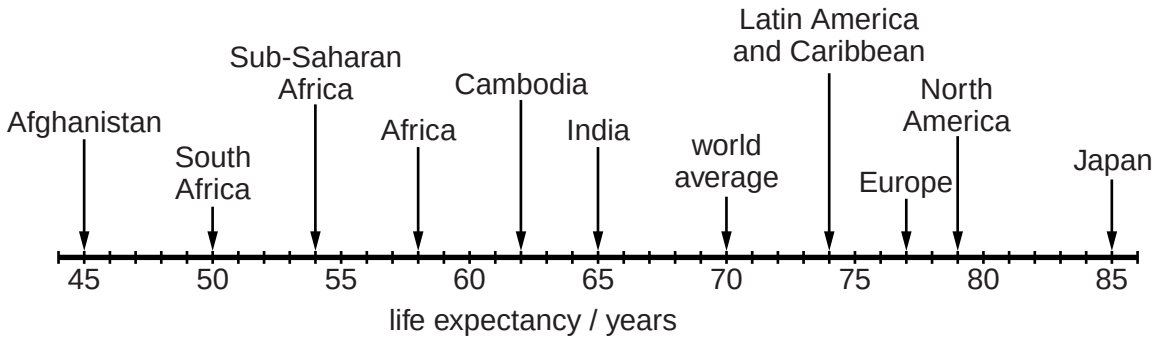
.....[2]

(c) One reason for world population growth is increasing life expectancy.

Look at the graph showing examples of life expectancy in 2011 for some countries, world regions and continents.

life expectancy 2011 by country, world region and continent



(i) How big is the difference in years between the countries with the highest and the lowest life expectancies?

.....[1]

(ii) Suggest what is the most important reason for differences in life expectancy between countries, world regions and continents like the ones shown in the graph. Explain your answer.

For Examiner's Use

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.....[2]

(iii) Describe other, additional causes of very low life expectancies (below 60) in some countries.

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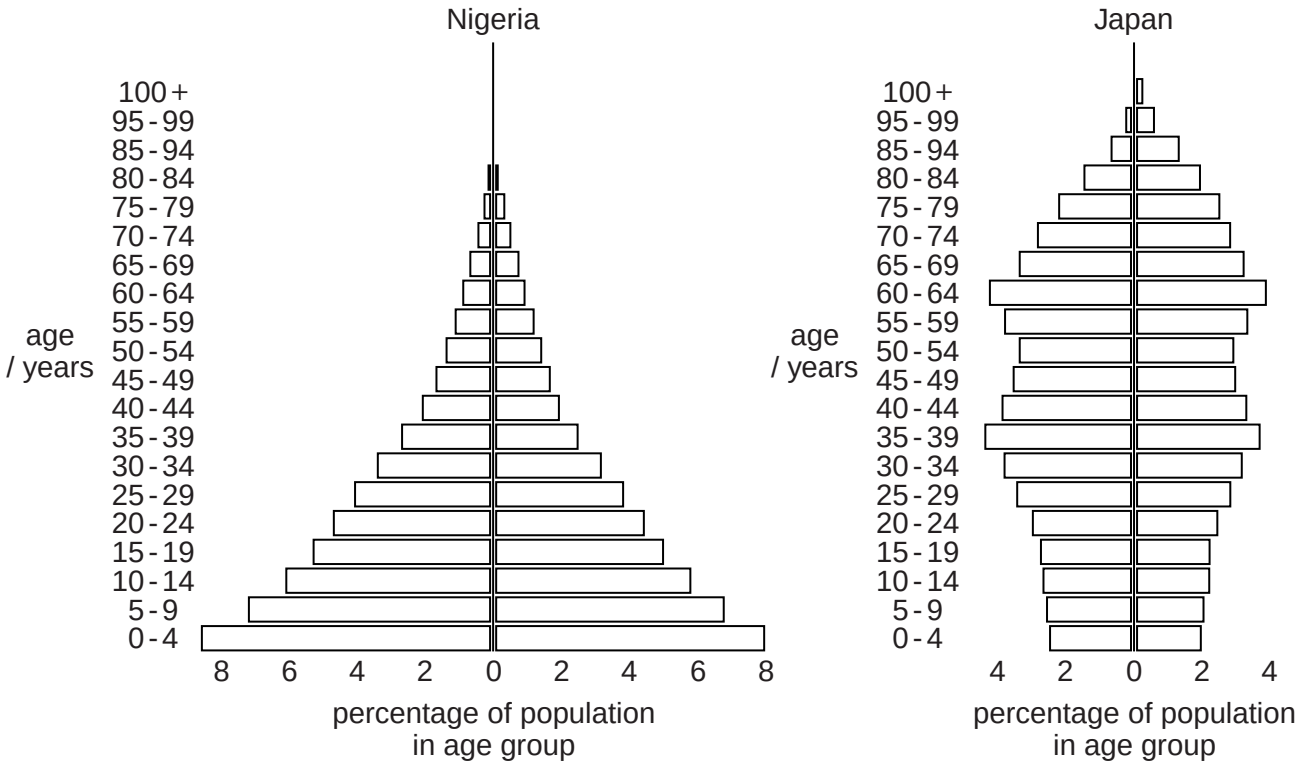
.....[3]

(d) Look at the population pyramids for Nigeria (West Africa) and Japan (East Asia).

For Examiner's Use

population structure in Nigeria and Japan (2010)



(i) State **two** differences in shape between the population pyramids for Nigeria and Japan.

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.....[2]

(ii) On the graphs, shade in:

- the part of the population under 15 years old in Nigeria
- the part of the population 65 years old and over in Japan. [1]

For Examiner's Use

(iii) The part of the population aged between 15 and 64 years old makes an important contribution to a country.

Explain what is different about this part of the population which enables them to make an important contribution to a country, compared with the two groups you shaded on the graph.

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.....[2]

(iv) What is the percentage of total population below 15 years old in Nigeria?
Circle one answer.

16% **22%** **31%** **42%** [1]

(v) Describe some of the disadvantages **and** advantages for a country of having a young population structure, as shown for Nigeria.

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.....[4]

(vi) Explain if, in your view, the disadvantages of having a young population in a country are greater than the advantages.

your view .....

explanation .....

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.....[2]

(e) (i) The pyramid for Japan shows that it has an ageing population. Explain what is meant by an ageing population.

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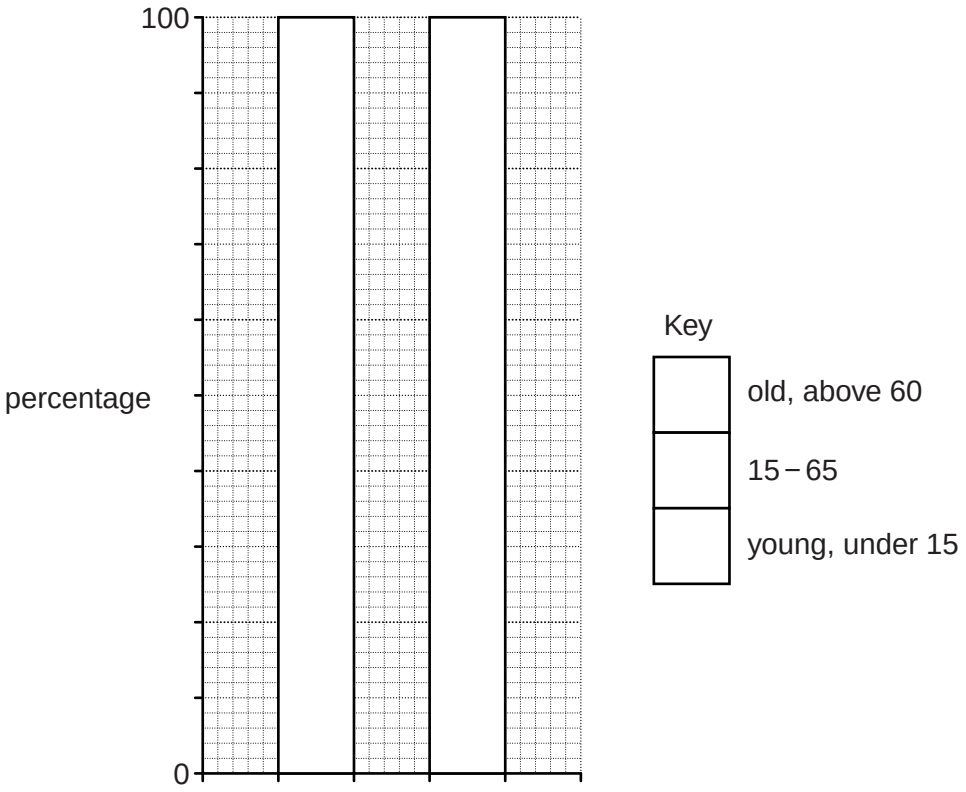
..... [1]

(ii) The table shows information about population structure and fertility in Japan and the UK for 2010.

population data (2010)

	population structure			fertility	
	under 15	15 – 60	above 60	children per woman	birth rate per 1000
Japan	13%	64%	23%	1.3	8.2
UK	17%	60%	23%	1.8	12.2



Complete the divided bar graphs, axes and key on the grid above, to show the population structures for Japan and the UK. [3]

For Examiner's Use

(iii) What are the main economic problems for governments in countries with ageing populations?

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.....[3]

(iv) The population data in the table suggests that the economic problems of an ageing population will be worse in one of the countries than in the other in 15 years time.

Which country is likely to have greater economic problems? Explain your choice.

the country likely to have greater economic problems .....

explanation .....

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.....[3]

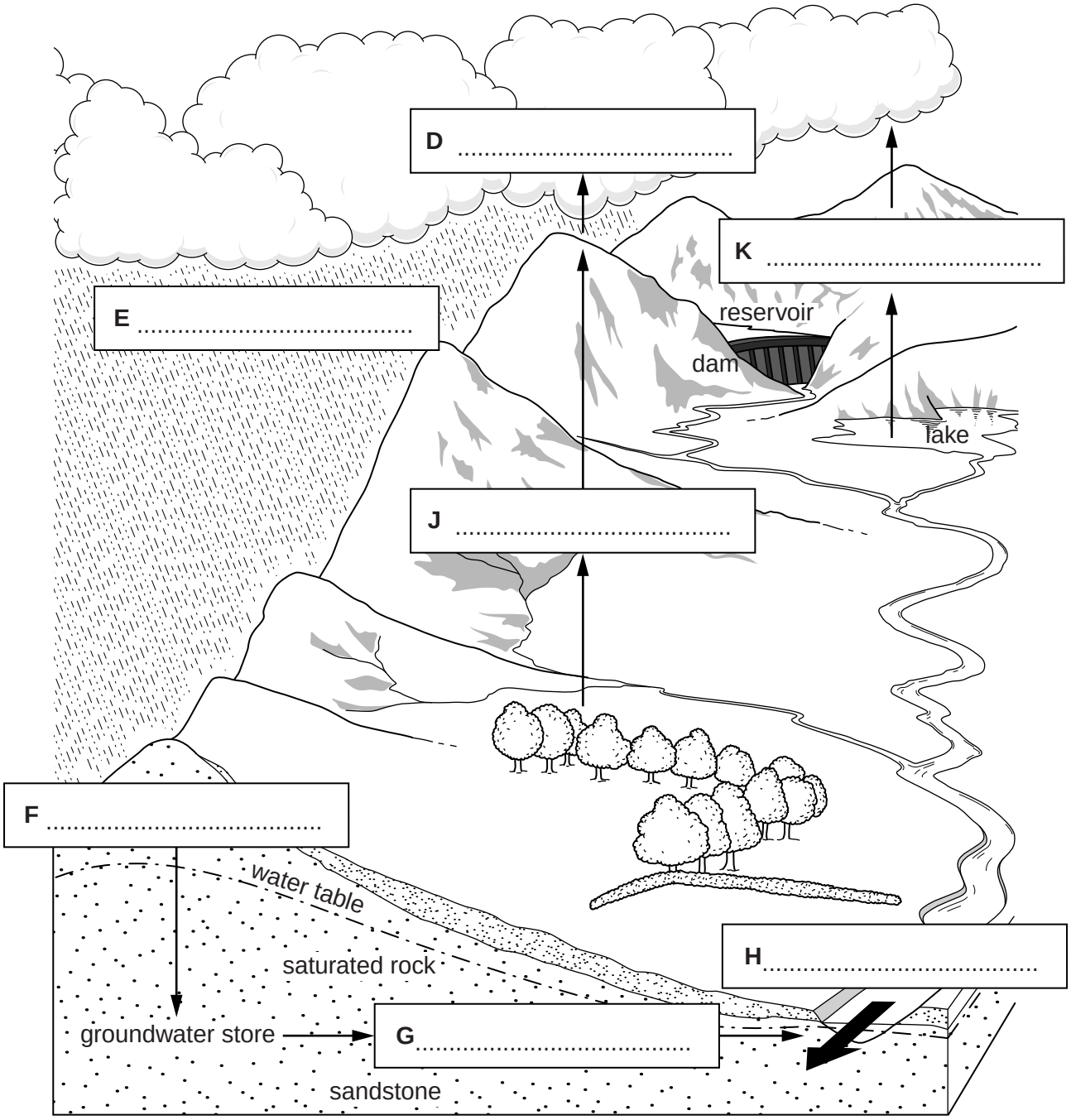
[Total: 40]

For Examiner's Use

6 **(a)** Look at the water cycle diagram. Letters **D**, **E**, **F**, **G**, **H**, **J** and **K** refer to seven water cycle processes listed below.

condensation **evaporation** **groundwater flow** **percolation**

precipitation **surface run-off** **transpiration**



(i) In the spaces on the diagram, name the seven water cycle processes shown. [3]

(ii) The position of the water table is shown on the diagram.

Explain why the level of the water table can be important to people.

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.....[2]

(iii) State the source of the water which fills the groundwater store.

.....[1]

(iv) Explain why the location chosen for the dam on the diagram was considered to be the best place for siting a dam and reservoir.

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.....[2]

(b) There are at least 45,000 large dams in the world. Nearly half of the world's largest rivers have at least one large dam on them.

(i) Name an example of a large dam and state its location.

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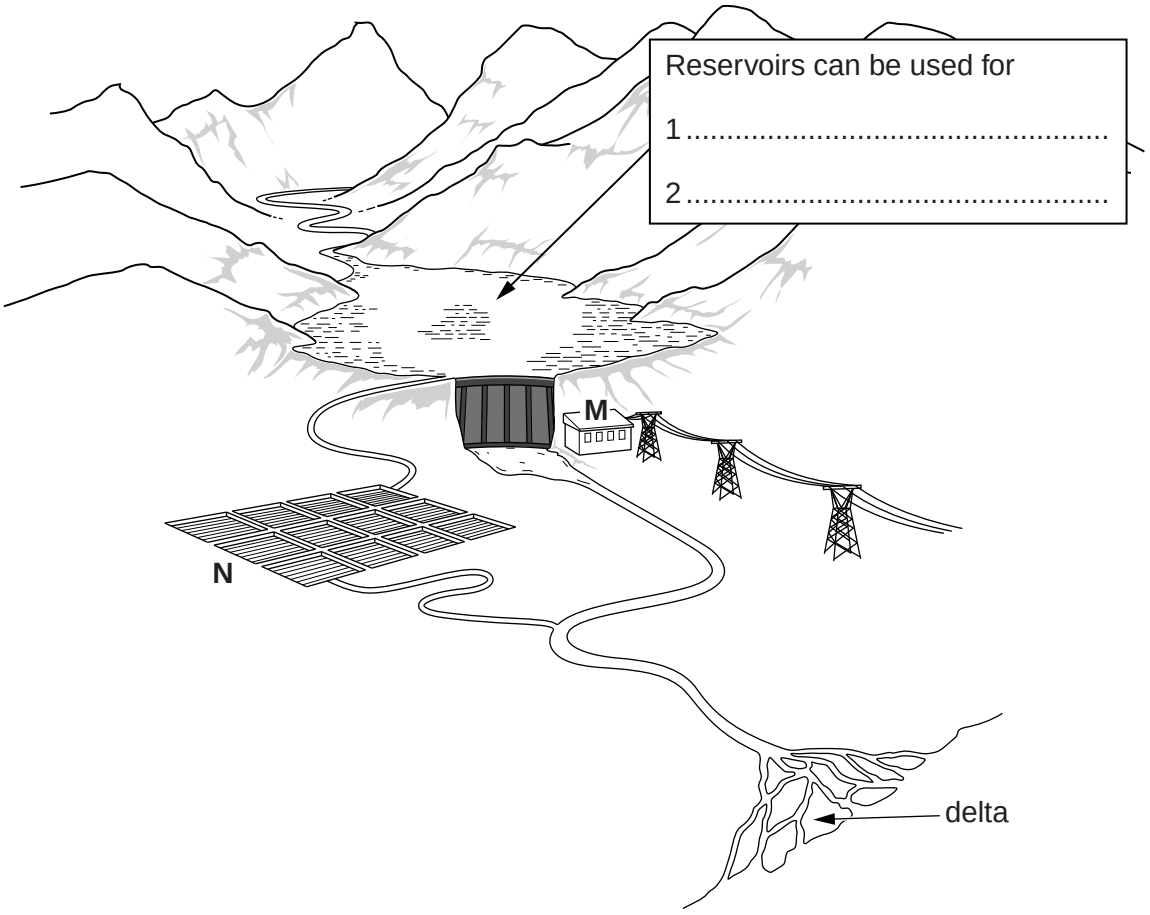
.....[1]

For Examiner's Use

(ii) Most large dams are described as multi-purpose dams, because they have many different uses. Look at the diagram below.

a large dam and some of its uses



In the box on the diagram, write in **two** different uses of reservoirs for people living in the area around it. [2]

(iii) What is being made at **M** on the diagram?

.....[1]

(iv) Describe how the water from the reservoir is being used at **N**.

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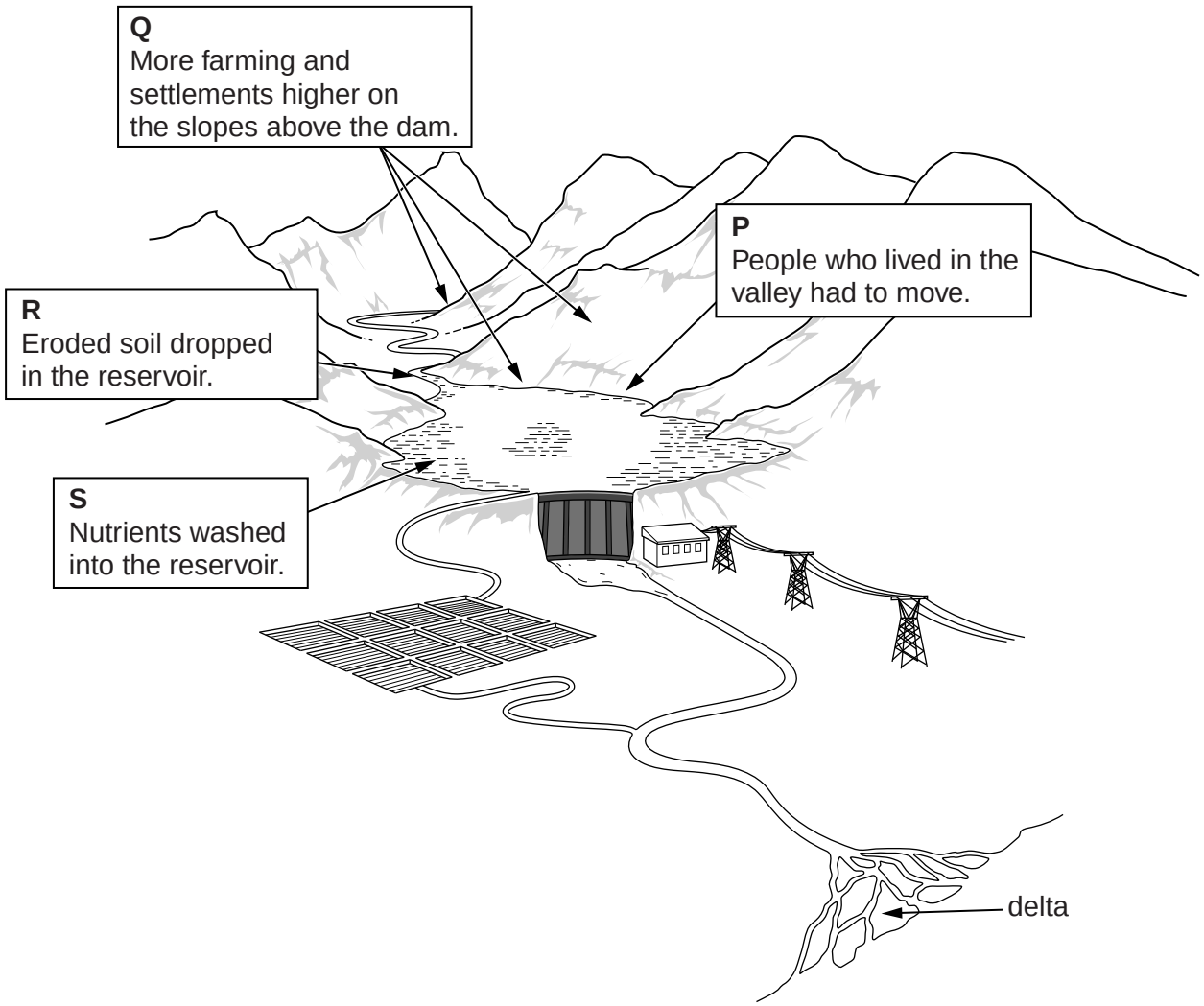
.....[2]

QUESTION 6(c) STARTS ON PAGE 22

(c) Large dams can also cause problems. Look at the diagram below.

For Examiner's Use

a large dam and some of its problems



(i) Describe some of the social and economic problems caused by the building of the dam, for the people referred to in box **P**.

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..... [3]

(ii) One problem can lead to another. Explain how the problem given in box **P** may lead to environmental problems caused by the changes stated in boxes **Q**, **R** and **S**.

For Examiner's Use

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.....[3]

(iii) Explain why the usefulness of all large dams decreases over the years.

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(d) Building large dams on rivers can also cause problems for people living further downstream in the river delta.

What has happened in the Indus delta in Pakistan is one example. Over the years more and more of the water in the river Indus and its tributaries has been trapped behind dams in northern Pakistan. The water is taken out mainly for agriculture, but also to supply Pakistan's rapidly growing big cities.

Look at the information for a small town located in the Indus delta, comparing what it was like in 1980 with 2010.

small town in the Indus delta of Pakistan

	1980	**2010**
River Indus	5 km width of river channels	One channel 200 metres wide
view from a river bridge	Dominated by water – the mighty Indus River	Dominated by sand – the Indus looks like a canal in one small river channel
land	Fertile silt, renewed every year by the summer floods	Without fresh silt deposits, the sea is eroding the delta land and many soils are now 'brackish' (salt affected) and useless for farming
economy	Main income from river fishing and shrimp collecting	River fishing has collapsed; the few fishermen still working go out to sea to catch crabs
	Also farming – bananas, coconuts, grapes using irrigation water pumped from the Indus	Collecting firewood is now more important than farming; river levels have dropped so low that the old water pumps cannot work
population	15 000	3000

(i) Describe the environmental and economic problems caused in this delta town by so much water being taken out of the River Indus in northern Pakistan.

environmental.....

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economic.....

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.....[4]

(ii) What is the evidence for out-migration from this delta town?

.....[1]

For Examiner's Use

(iii) Push and pull factors can be used to explain why people migrate from rural to urban areas in developing countries such as Pakistan.
To explain migration from this town in the Indus delta, which is likely to be stronger – push factors or pull factors? Explain your view.

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.....[3]

(iv) Suggest how likely it is that the town's population will continue to decline after 2010.

Explain your answer.

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.....[2]

(e) Most people who migrate from rural areas in Pakistan go to the big cities, such as Karachi. Karachi is the world's 10th biggest city with at least 13 million inhabitants. It has many urban problems, including housing.

(i) Describe the housing problems found in most big cities of the developing world.

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.....[3]

(ii) Choose one city in the developing world. What strategies are being used to manage its housing problems and how successful have they been?

For Examiner's Use

name of city.....

strategies and their success.....

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.....[5]

[Total: 40]

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