Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 **May/June 2015**

2 hours 15 minutes

Candidates answer on the Question Paper.

Additional Materials: Insert

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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, 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.

The Insert is **not** required by the Examiner.

This document consists of **23** printed pages, **1** blank page and **1** Insert.

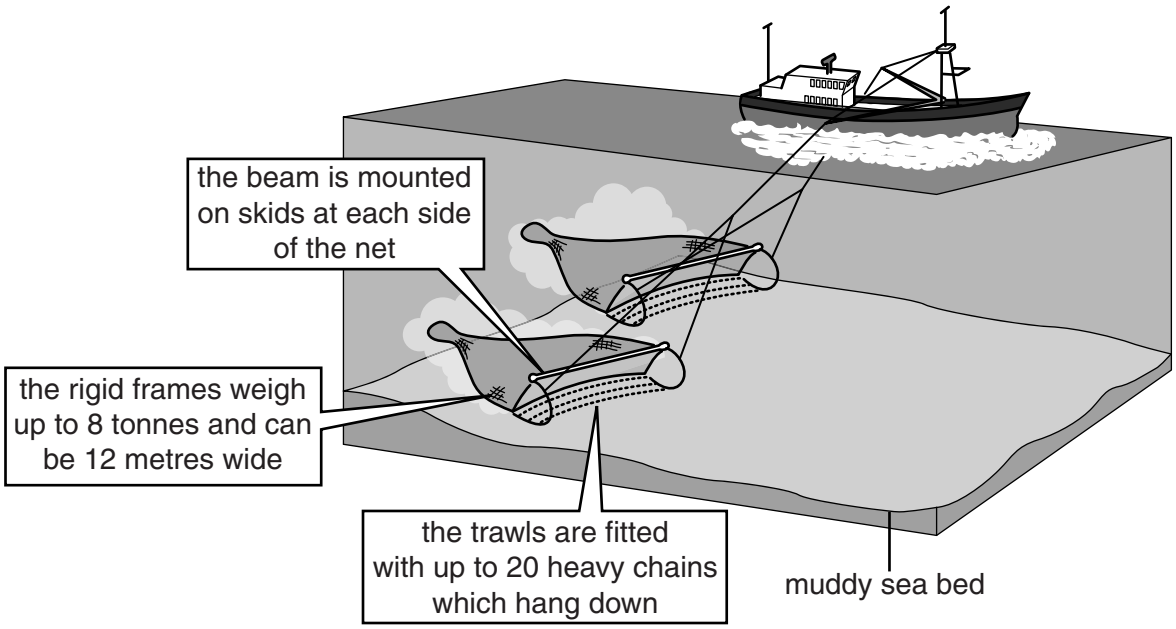
CAMBRIDGE International Examinations

[Turn over

Section A

Answer **all** the questions.

1 **(a)** Look at the diagram, which shows one of the most destructive methods of fishing. Use the diagram and your own knowledge to answer the questions that follow.



(i) Explain why this method of fishing damages the sea bed.

.....

.....

.....

..... [2]

(ii) The fishing method shown in the diagram is often used to catch flat fish that live on the sea bed. Explain why a lot of other types of fish and sea creatures are also caught.

.....

..... [1]

(b) Explain the problems caused to the environment and people by overfishing.

environment .....

.....

.....

.....

.....

.....

people .....

.....

.....

.....

.....

.....

[4]

(c) Suggest why attempts to make fishing sustainable have had only limited success.

.....

.....

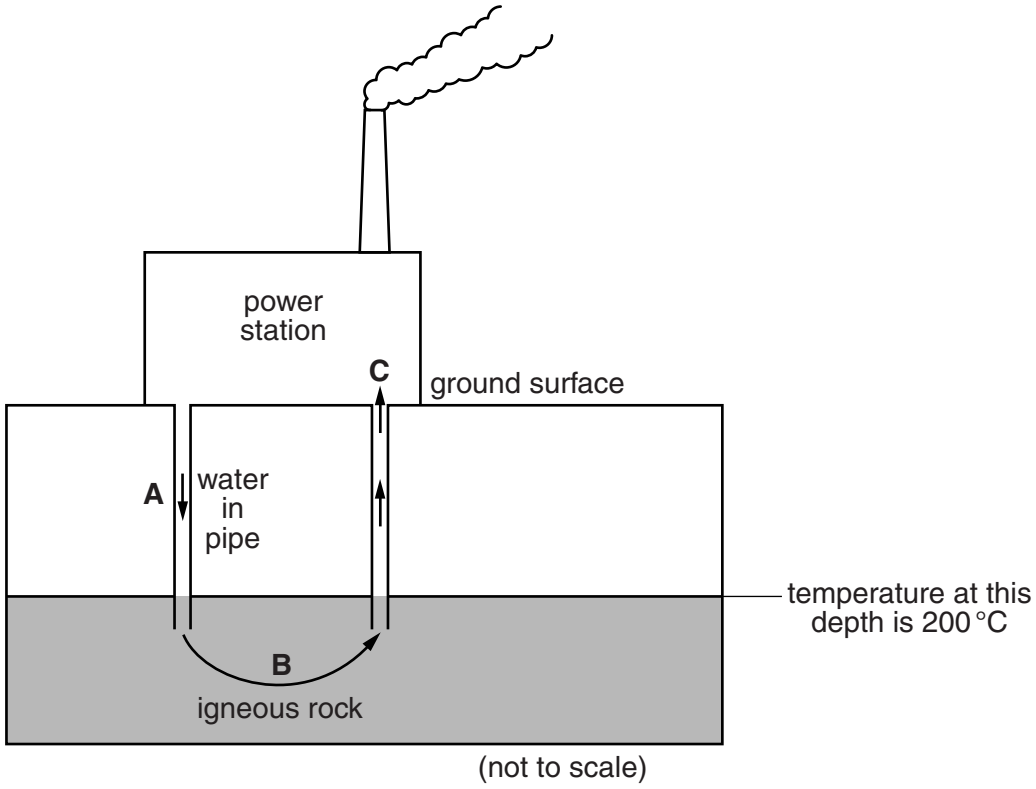
.....

.....

.....

.....[3]

2 **(a)** Look at the diagram, which shows some processes involved in electricity produc of power station.



(i) State how the temperature of the rocks in the diagram changes with depth.

.....

.....[1]

(ii) With the help of the diagram, explain what happens to the water pumped down at **A** to enable electricity to be generated at **C**.

.....

.....

.....

.....[2]

(iii) State the name of the alternative energy source shown in the diagram.

.....[1]

(iv) State **two** advantages of the method of electricity production shown in the d

1 .....

.....

2 .....

.....[2]

(v) Suggest why this type of electricity cannot be generated in all countries.

.....

.....[1]

(vi) Identify which type of hazard is most likely to occur in areas with this type of power station. Circle **one** answer below.

cyclone **drought** **earthquake** **flood** [1]

(b) Explain how igneous rocks form.

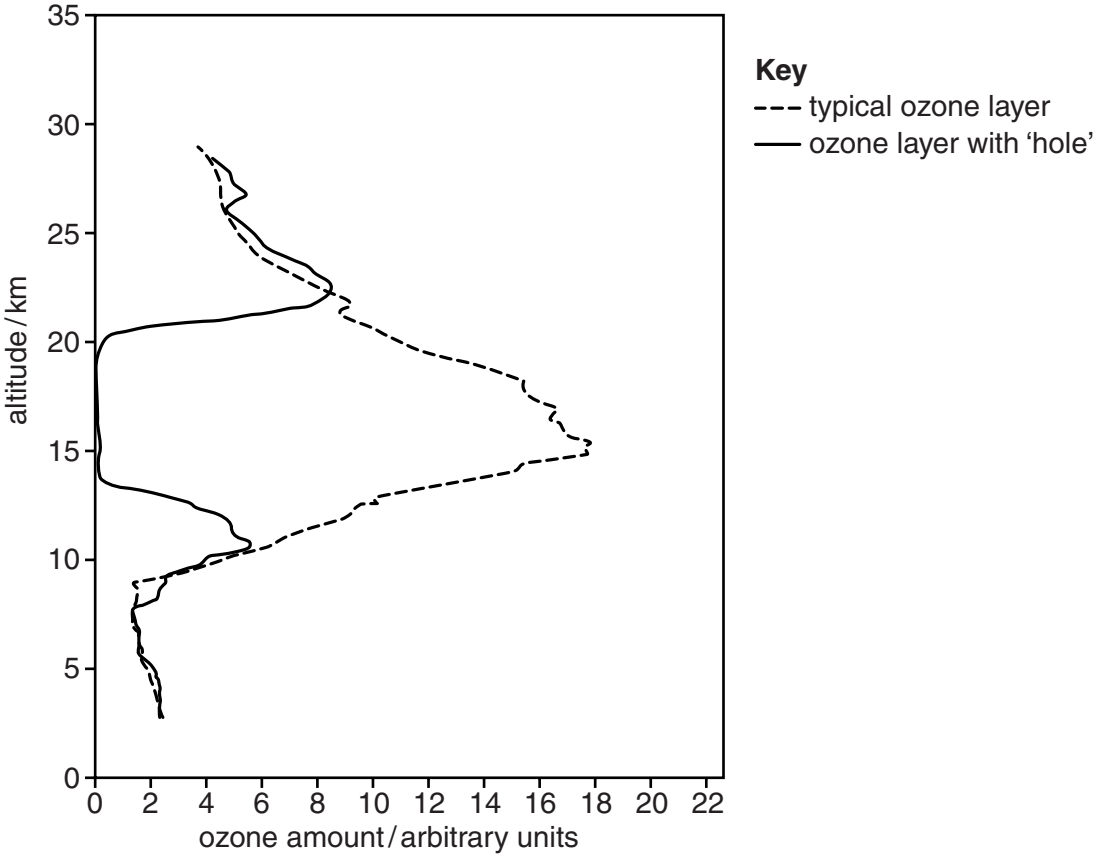
.....

.....

.....[2]

3 **(a)** Look at the diagram which shows ozone amounts in the atmosphere over Ant[illegible]. readings were taken on two days, three months apart, in the same year. One day h[illegible] ozone levels for the location and time of year, while the other has an ozone 'hole'.

Use the graph to answer the questions that follow.



(i) Describe the main changes in the typical ozone amount in the atmosphere between 10 kilometres and 27 kilometres above the surface of the Earth.

.....

.....

.....

.....[2]

(ii) On the day with the ozone 'hole', approximately how high above the Earth d… 'hole' extend?

between ..... and ..... kilometres above the Earth's surface

(b) Explain how human activity has reduced ozone amount in the upper atmosphere.

.....

.....

.....

.....

.....

.....[3]

(c) **(i)** The ozone 'hole' is greatest over the Antarctic, where there is little human activity. Explain why human activity elsewhere can affect the atmosphere above the Antarctic.

.....

.....[1]

(ii) The production of chemicals that destroyed ozone stopped by 2000. Suggest why ozone amount is not expected to recover for many years.

.....

.....[1]

(iii) Circle **two** health problems which are most likely to be caused by reduced ozone amount.

asthma **bilharzia** **brain damage** **cataracts** **skin cancer** [2]

4 **(a)** Look at the population pyramid for Namibia in 2013.

(i) Complete the population pyramid by inserting a bar to show that there were 60 000 females in the 35 to 39 age group in 2013. [1]

(ii) Identify a five-year age group above 30 years old in which there were more females than males.

.....[1]

(iii) Calculate the total number of children who were in the 0 to 4 age group.

.....[1]

(iv) What does the population pyramid suggest happened to the birth rate in the 15 years before 2013?

.....[1]

(v) Suggest **two** problems that the government of Namibia will face as a result of the population structure shown on the diagram.

1 .....

.....

2 .....

.....[2]

(b) Describe the different ways in which governments attempt to reduce population g

.....

.....

.....

.....

.....

.....

.....

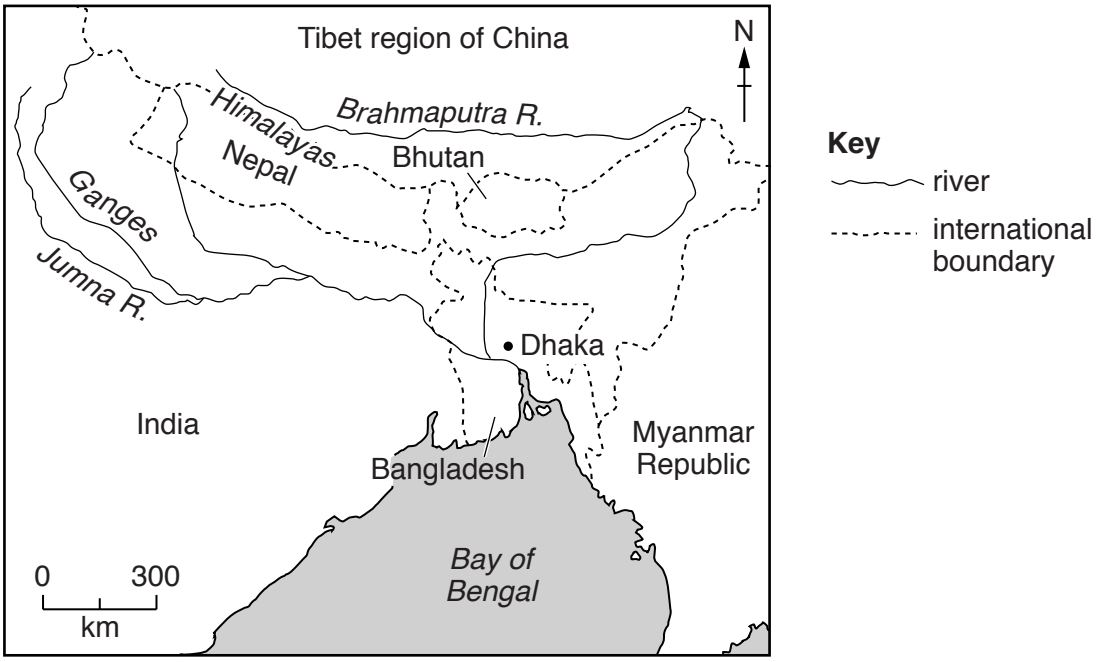
.....[4]

Section B

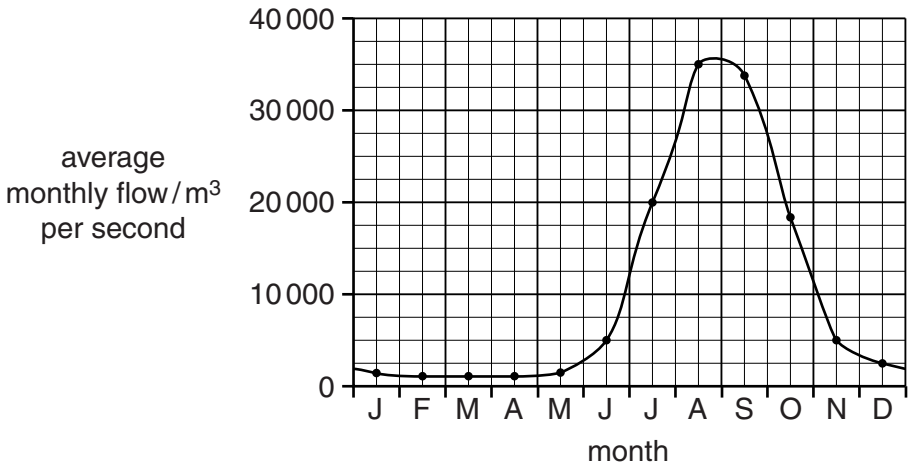
Answer **both** questions.

5 **(a)** Look at the information about the River Ganges and the country of Bangladesh.

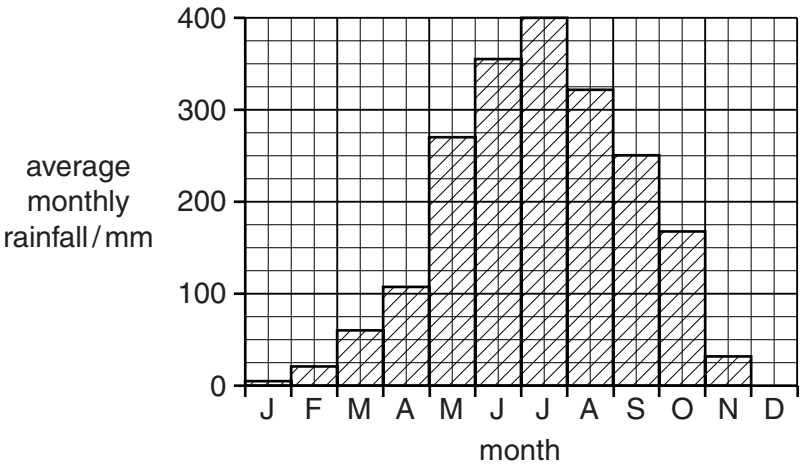
the Ganges River basin



average monthly flow of the River Ganges near Dhaka in Bangladesh



average monthly rainfall in Dhaka, the capital of Bangladesh



The River Ganges is joined by the River Brahmaputra in Bangladesh before it reaches the sea. These rivers have created a large, low-lying area that covers much of southern Bangladesh. Bangladesh is a developing country with a large population, many of whom are poor subsistence farmers.

(i) Describe the pattern of flow of the River Ganges throughout the year.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) Describe the relationship between rainfall and the amount of water flowing in the River Ganges.

.....

.....

.....

..... [2]

(iii) When the average monthly flow is greater than 25 000 m^3 per second, the river often floods. State when flooding is likely to occur.

.....

..... [2]

(iv) Describe the problems for people when rivers flood.

.....

.....

.....

.....

.....

.....

.....

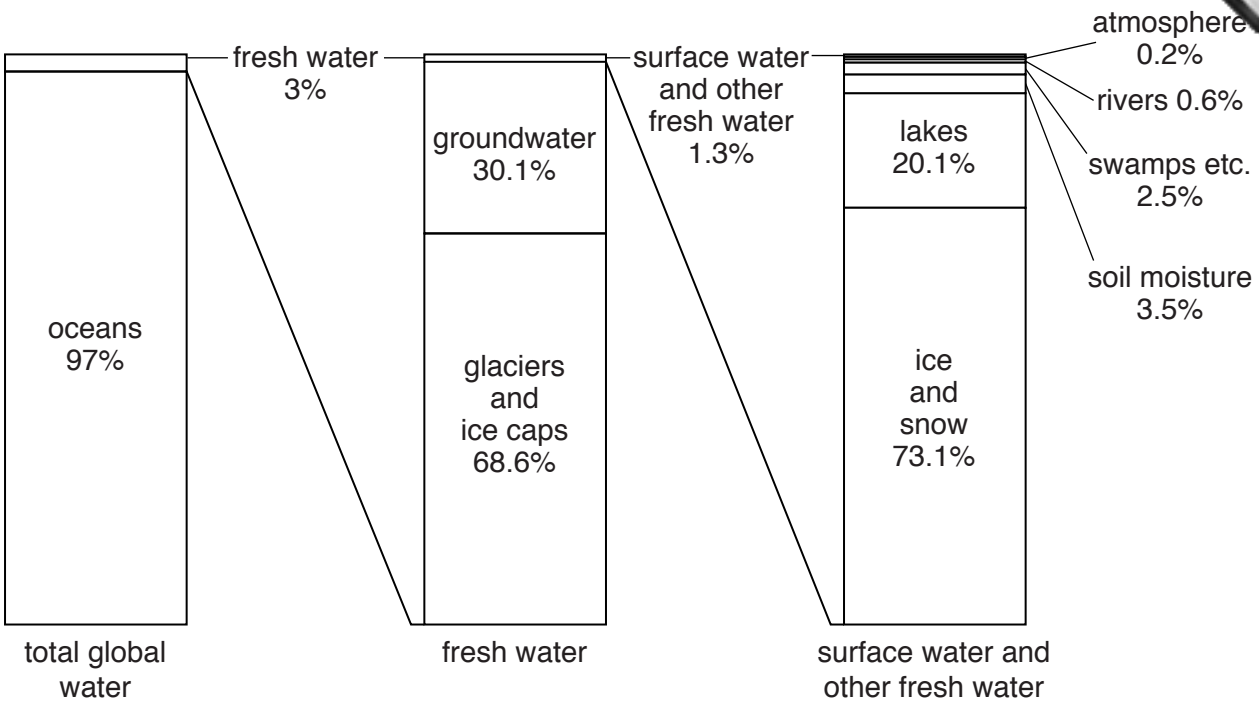
.....

.....

..... [5]

(b) Look at the diagram showing the distribution of water on Earth.

distribution of Earth's water



(i) State what percentage of the Earth's water is fresh water.

..... % [1]

(ii) It is estimated that there are 1390 million km^3 of water on Earth. Calculate how many million km^3 of water is fresh water.

Space for working.

..... km^3 [2]

(iii) Explain why water shortage is a problem in many parts of the world when there is so much fresh water on Earth.

.....

.....

.....

.....

.....

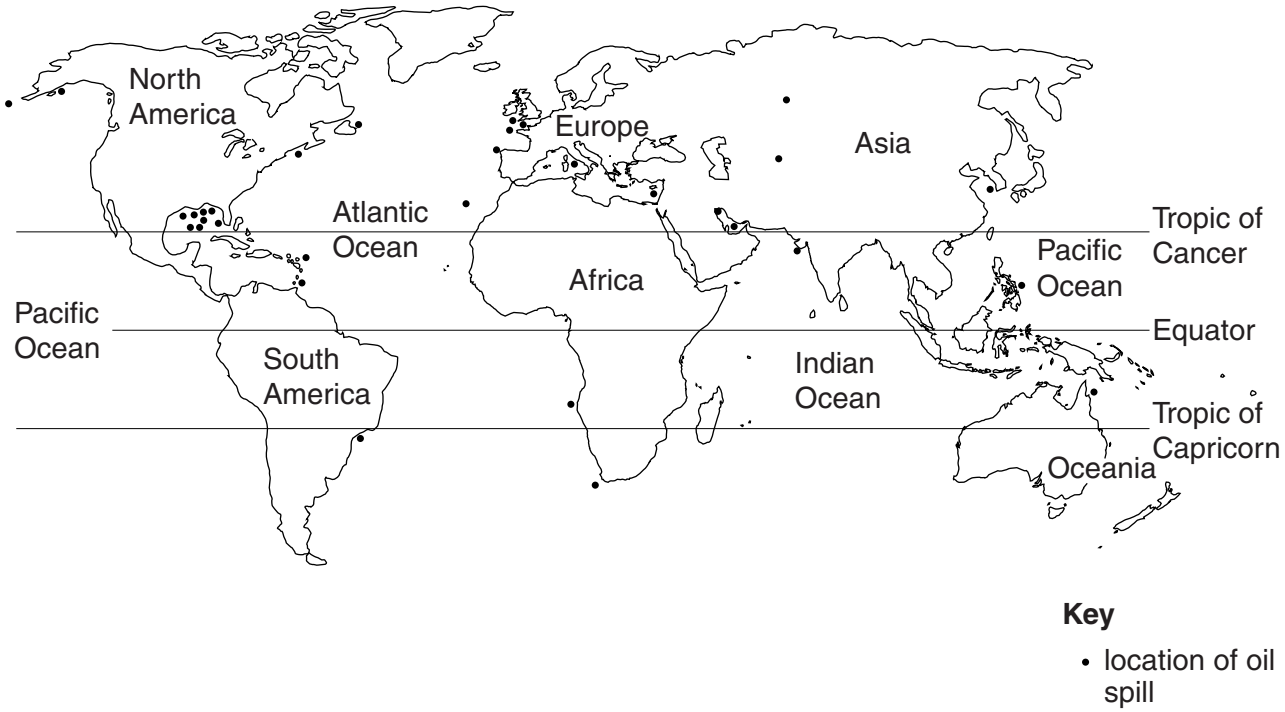
.....

.....

..... [4]

(c) Look at the map which shows major oil spills in the last thirty years.

major oil spills in the last 30 years



(i) State how many major oil spills occurred on land in the last thirty years.

..... [1]

(ii) Describe the distribution of marine oil spills.

.....

.....

.....

.....

.....

..... [3]

(iii) Suggest reasons why more marine oil spills have occurred in some parts of the oceans than in others.

.....

.....

.....

.....

.....

..... [3]

(iv) Describe the impact of a major oil spill on the marine ecosystem.

.....

.....

.....

.....

.....

.....

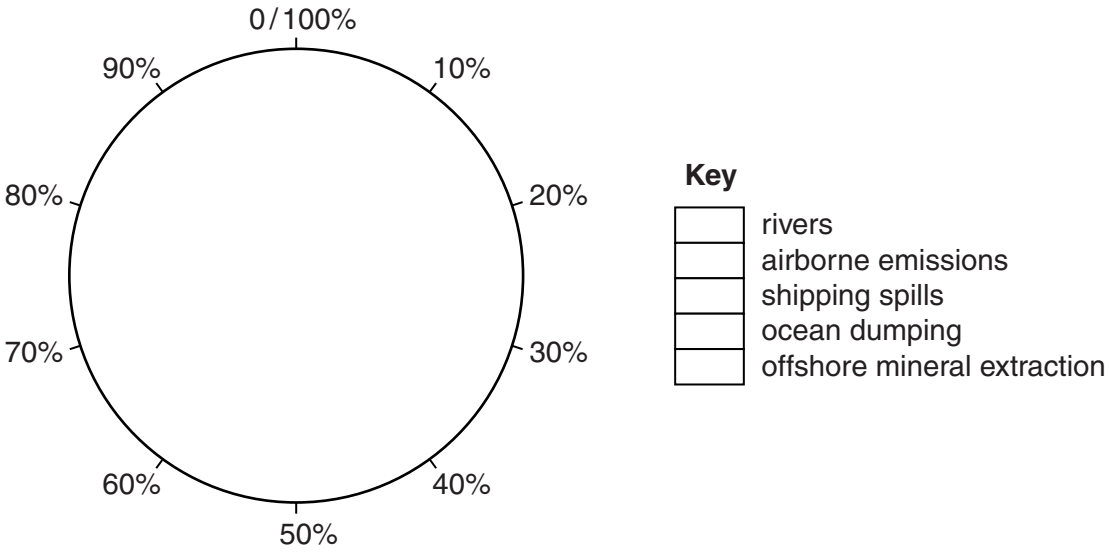
.....

..... [4]

(d) Look at the table below, which shows sources of marine pollution.

marine pollution source	examples	percentage of marine pollution / %
rivers	nutrients bacteria heavy metals	44
airborne emissions	mercury nitrous oxides	33
shipping spills	oil	12
ocean dumping	sewage rubbish	10
offshore mineral extraction	oil gas	1

Draw a pie graph in the circle below to show the sources of marine pollution and complete the key. [3]



(e) Explain why international co-operation is important in controlling marine pollution.

.....

.....

.....

.....

.....

.....

.....

.....

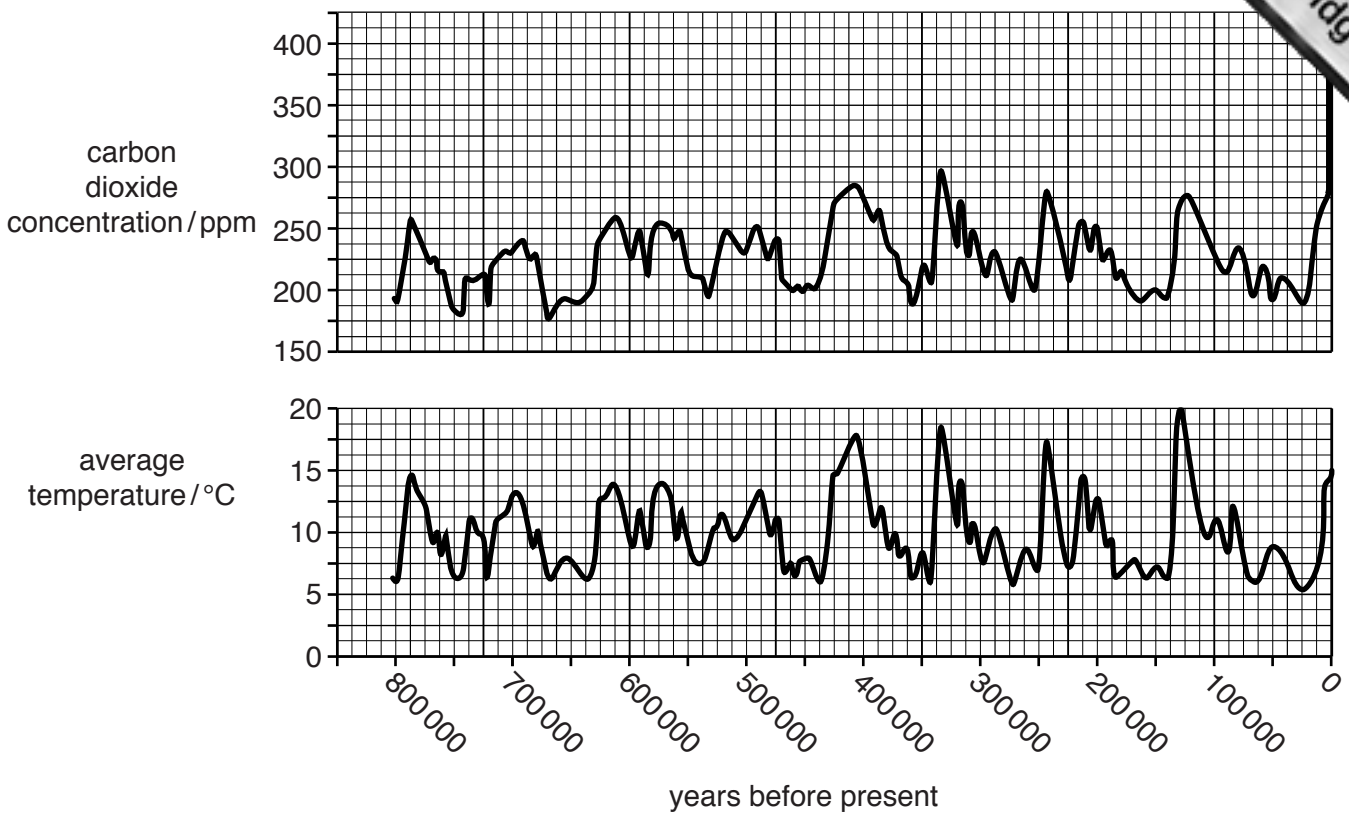
.....

.....

.....

..... [6]

6 **(a)** Study the graph which shows atmospheric carbon dioxide concentrations and av[illegible] temperatures for the past 800 000 years.



(i) State the highest carbon dioxide concentration in the last 800 000 years.

.....ppm [1]

(ii) State the highest temperature in the last 800 000 years and how long ago it occurred.

temperature .....°C

how long ago it occurred ..... years ago [2]

(iii) Compare the trend in carbon dioxide concentrations with that of world temperatures.

.....

.....

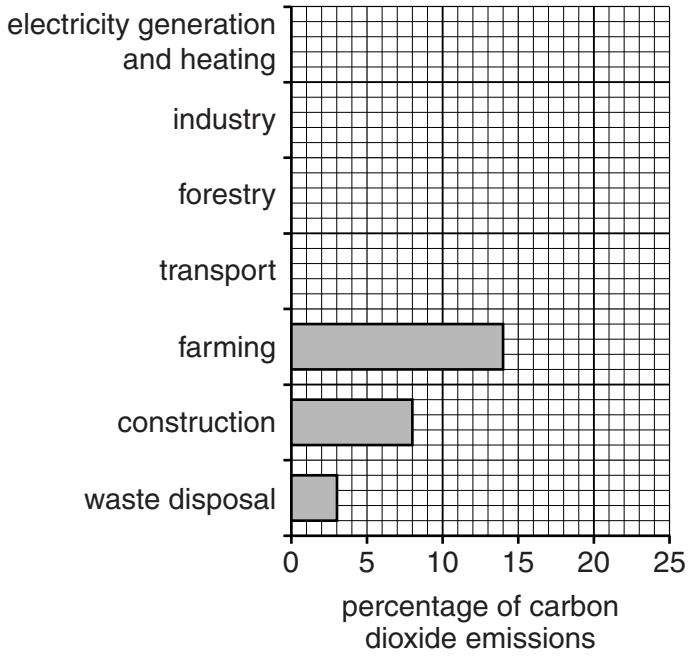
.....

..... [2]

(b) (i) Look at the table which shows sources of carbon dioxide emissions from hum

sources of carbon dioxide emissions from human activities	percentage /%
electricity generation and heating	24
industry	19
forestry	17
transport	15
farming	14
construction	8
waste disposal	3

Use the data to complete the bar graph. [2]



(ii) Explain why electricity generation, heating, industry and transport produce large quantities of carbon dioxide.

.....

.....

.....

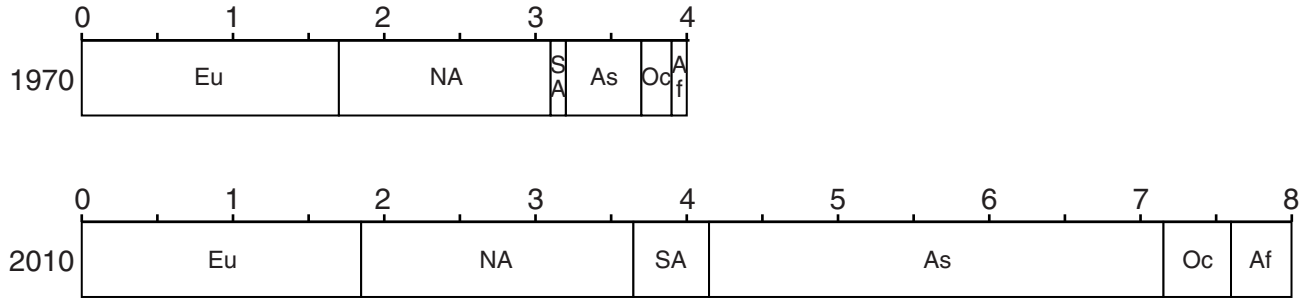
.....

.....

..... [3]

(c) Look at the divided bar graphs showing carbon dioxide emissions in 1970 a... continent.

billion tonnes of carbon dioxide emissions



Key

Eu = Europe	As = Asia
NA = North America	Oc = Oceania
SA = South and Central America	Af = Africa

(i) Calculate how much the total emissions of carbon dioxide have increased from 1970 to 2010.

..... [1]

(ii) Describe the changes in the amounts of carbon dioxide emissions from these continents between 1970 and 2010.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(iii) Describe strategies to reduce carbon dioxide emissions.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) (i) Explain what is meant by the term *fossil fuel*.

.....

.....

.....

..... [2]

(ii) Name **two** fossil fuels.

.....

..... [1]

(e) Look at the photograph (Insert) of an open-pit (cast) coal mine.

(i) Explain how mineral deposits are removed from an open-pit (cast) mine.

.....

.....

.....

..... [2]

(ii) Using the photograph (Insert) and your own knowledge, describe the environmental impacts of open-pit (cast) mining.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(f) Read the comments for and against the use of nuclear power rather than fossil fuels to generate electricity.

Fossil fuels will run out and we need a reliable source of power when that happens. Fossil fuels will become very expensive as they become scarce. There is probably enough uranium ore to last more than 1000 years.

Nuclear power stations produce large amounts of radioactive waste that we cannot dispose of safely.

Nuclear waste remains dangerous for thousands of years.

Nuclear power does not produce carbon dioxide, unlike fossil fuels.

Radiation is natural; it is all around us. Nuclear power does not increase the amount of radioactivity to any great extent.

Coal, oil and gas-fired power stations are only one source of greenhouse gases. Even if nuclear power was used to produce all the world's electricity it would not stop an increase in greenhouse gases in the atmosphere.

Nuclear power doesn't need vast amounts of raw materials to be transported to the power station.

Nuclear accidents happen – Chernobyl, Fukushima, Three Mile Island – they will happen again.

(i) State **two** environmental reasons in favour of nuclear power.

.....

.....

.....

..... [2]

(ii) Suggest why a person living near a nuclear power station may be both in favour of **and** against nuclear power.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(g) Is nuclear power the best way to meet future energy needs? Explain your answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

BLANK PAGE