Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 **May/June 2017**

2 hours 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

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.

This document consists of **22** printed pages and **2** blank pages.

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CAMBRIDGE International Examinations

Section A

Answer **all** the questions.

1 **(a)** The photograph shows wind turbines.

(i) Describe the landscape in the photograph where the wind turbines are located.

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..... [3]

(ii) State what is unusual about the location of these wind turbines. Give a reason for your answer.

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.....[2]

(iii) Suggest advantages and disadvantages of the area shown in the photograph for the location of a nuclear power station.

advantages .....

.....

.....

.....

disadvantages .....

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.....
[3]

(b) Describe features of a climate that are beneficial to hydro-electric power production.

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.....

.....[2]

2 **(a)** The information in the box is about floods.

> In 1975 a cyclone in China caused heavy rain and flooding, resulting in the collapse of a dam. A total of 231 000 people died, 145 000 of whom died as a result of diseases caused by the flooding.
>
> Cyclones can also cause deaths from flooding in coastal areas, as strong winds drive seawater onshore, especially during high tides. The low air pressure in cyclones allows the sea surface to rise, often by several metres.
>
> Sudden snow melt can also cause disastrous floods.

(i) Use the information to calculate how many people died as a result of causes other than disease.

.....[1]

(ii) Use the information to state the cause of flooding in spring and early summer.

.....[1]

(iii) Use the information to describe how cyclones sometimes cause flooding by seawater.

.....

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.....

.....[2]

(iv) Explain why flooding causes an increase in disease in the weeks after a flood begins.

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.....[3]

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(b) Suggest how the collapse of a dam could affect an economy.

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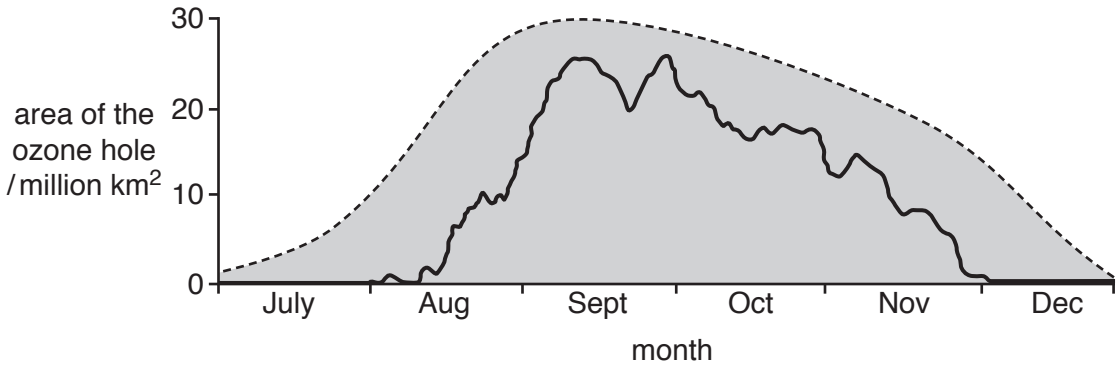
.....[3]

3 The graph shows how the ozone hole over Antarctica in 2014 differed from its largest area recorded for the months July to December.



Key

—— area of the ozone hole in 2014

- - - - - largest recorded area of the ozone hole

(a) **(i)** State the month when the ozone hole covered the largest recorded area.

…….. [1]

(ii) Compare the length of time that the ozone hole lasted in 2014 with that of the largest recorded area.

.....

.....

.....

.....[2]

(b) **(i)** Explain the importance of ozone in the atmosphere.

.....

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.....

.....[3]

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(ii) Name an atmospheric pollutant that destroys ozone.

.....[1]

(c) In 1987 many governments agreed to ban the use of chemicals that destroy ozone.

Suggest why the ozone hole over Antarctica is likely to exist for many years despite this ban.

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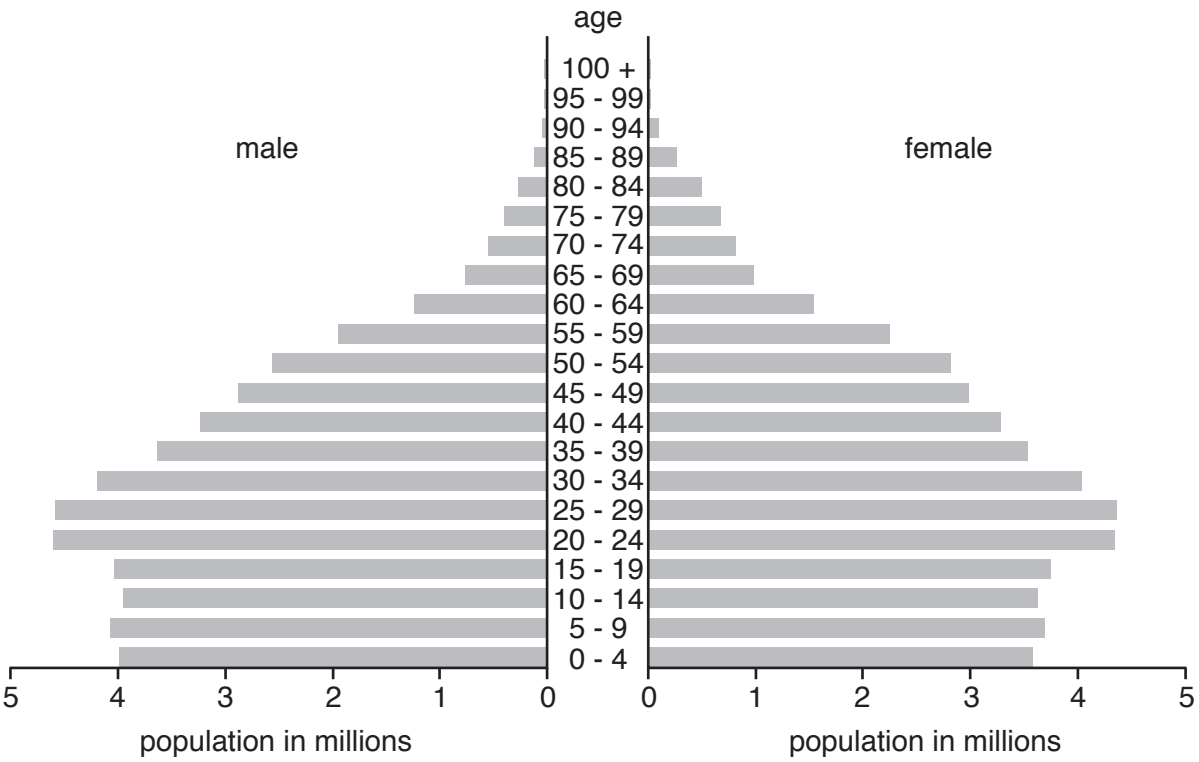
.....[3]

4 **(a)** The graph shows the population pyramid for Vietnam in 2014.



(i) State the number of females aged 30 to 34 in Vietnam in 2014.

.....[1]

(ii) The government of Vietnam started a policy to reduce the birth rate. Approximately how many years before 2014 was this policy started? Circle your answer.

10 **20** **30** **40** [1]

(iii) Explain why the government of Vietnam decided a birth control policy was needed at this time.

.....

.....[1]

(b) Describe ways in which some governments encourage their populations to have fewer children.

.....

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.....[4]

(c) The number of people aged 60 and over in Vietnam is likely to increase over the next 40 years.

Suggest why.

.....

.....

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.....[3]

Section B

Answer **both** questions.

5 **(a)** Name the types of rock formed by each of the following:

heat and/or pressure deep in the Earth's crust .....

magma or lava cooling and solidifying .....

the deposition of rock fragments, usually beneath the sea. .....
[3]

(b) **(i)** Describe how a mineral, such as iron ore, is extracted from an open-pit (opencast) mine.

.....

.....

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.....

.....[3]

(ii) Describe how the land can be restored after open-pit mining.

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.....[3]

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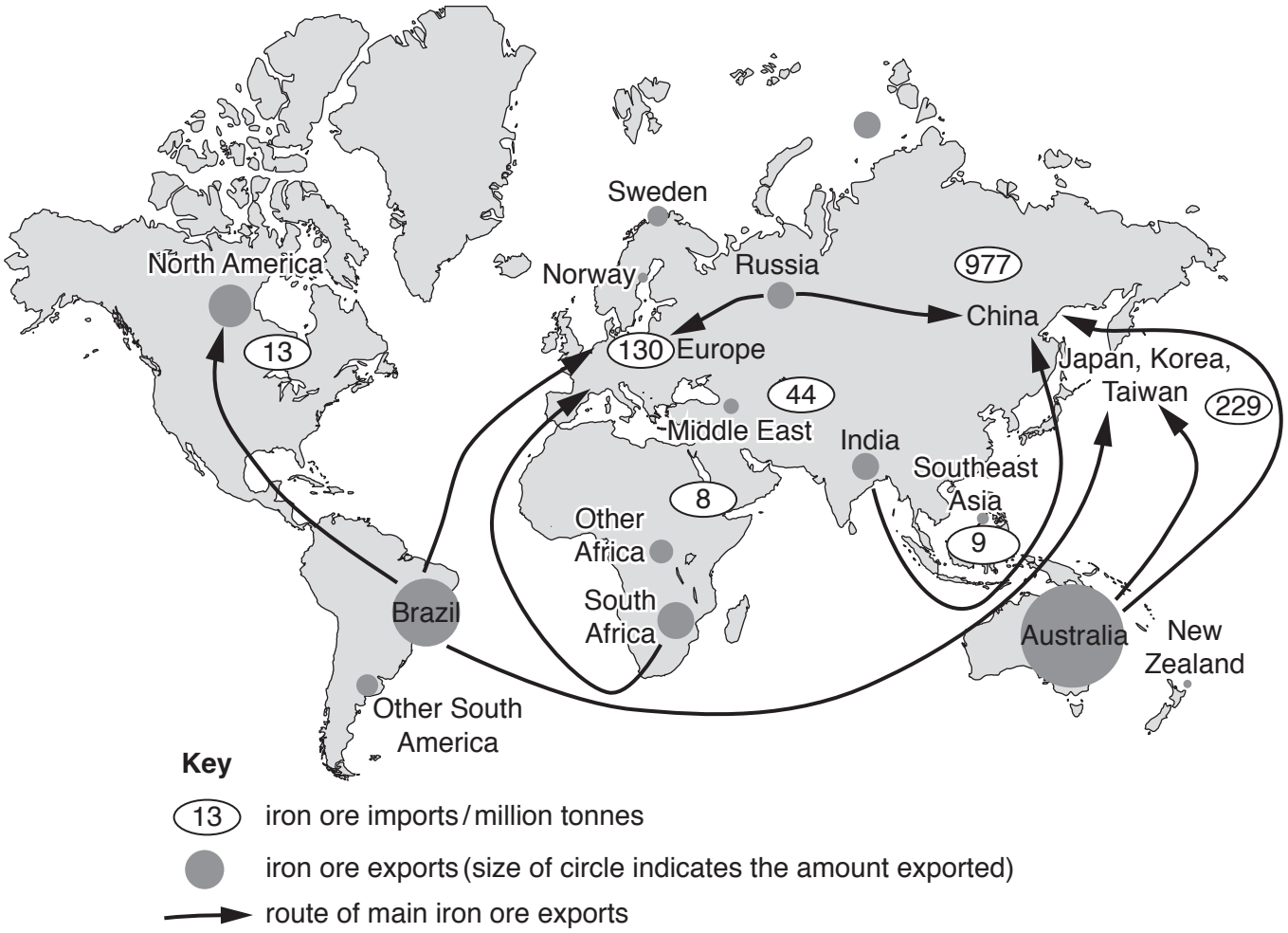
(c) The map shows recent iron ore exports, transport routes and imports for one year.



Using the map:

(i) name the country which exported the most iron ore.

..... [1]

(ii) name the country which imported the most iron ore and state how much it imported.

name .....

quantity imported ..... million tonnes

[2]

(iii) Suggest why Japan, Korea and Taiwan imported such large quantities of iron ore.

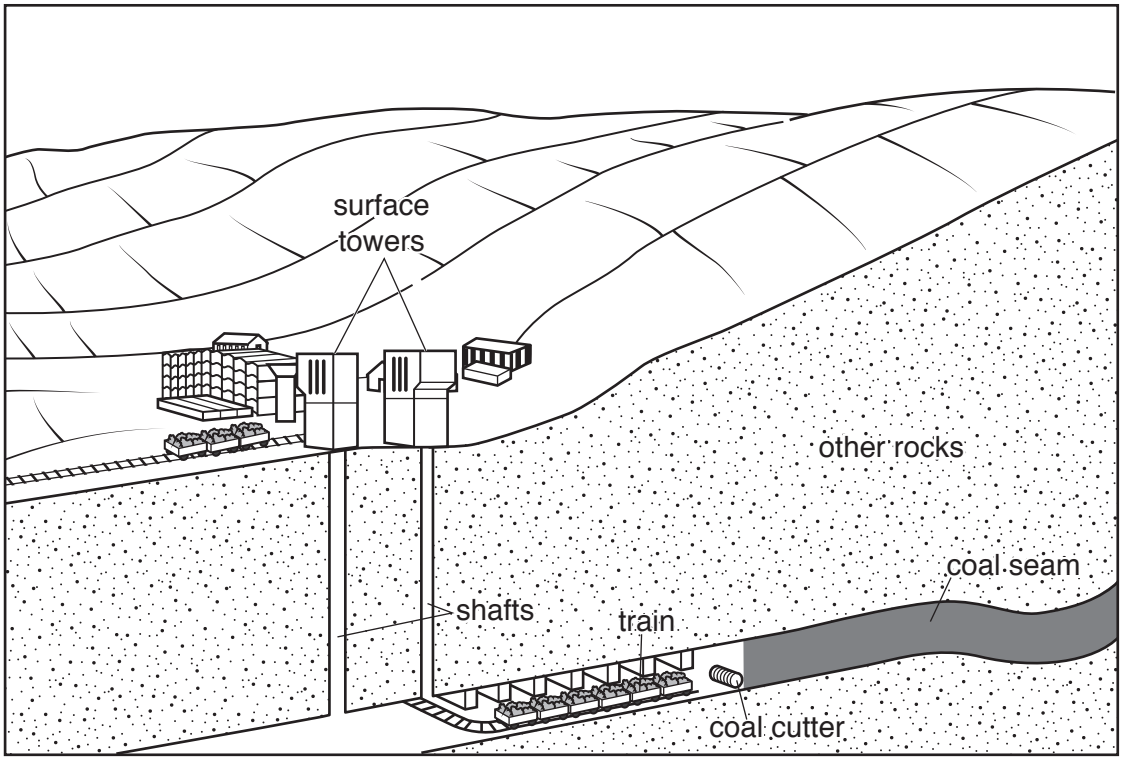
.....

.....

.....

.....[2]

(d) The diagram shows a deep coal mine.



not to scale

(i) Describe how the coal shown in the diagram was formed.

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.....[3]

(ii) Using the diagram, describe how the coal is mined.

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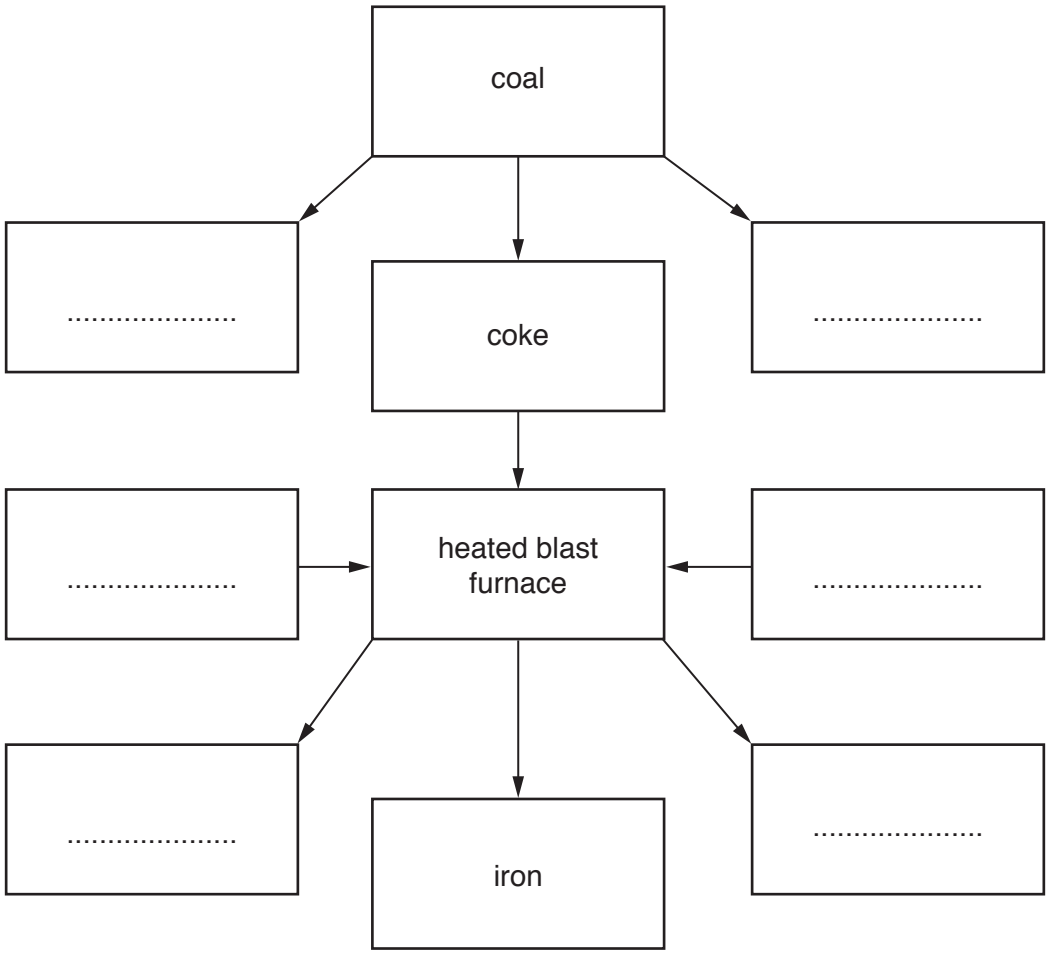
.....[3]

(e) The information describes a method for producing iron from iron ore.

Firstly, coal is converted to coke, which is almost pure carbon. This process also produces some gases such as sulfur dioxide and nitrogen oxides. Iron ore, coke and limestone are loaded into a blast furnace and heated to a high temperature. The coke and limestone convert iron ore into iron. The waste materials from the blast furnace are carbon dioxide and a solid waste known as slag.

(i) Use the information above to complete the boxes in the flow diagram.



[3]

(ii) Explain how producing iron in a blast furnace contributes to acid rain.

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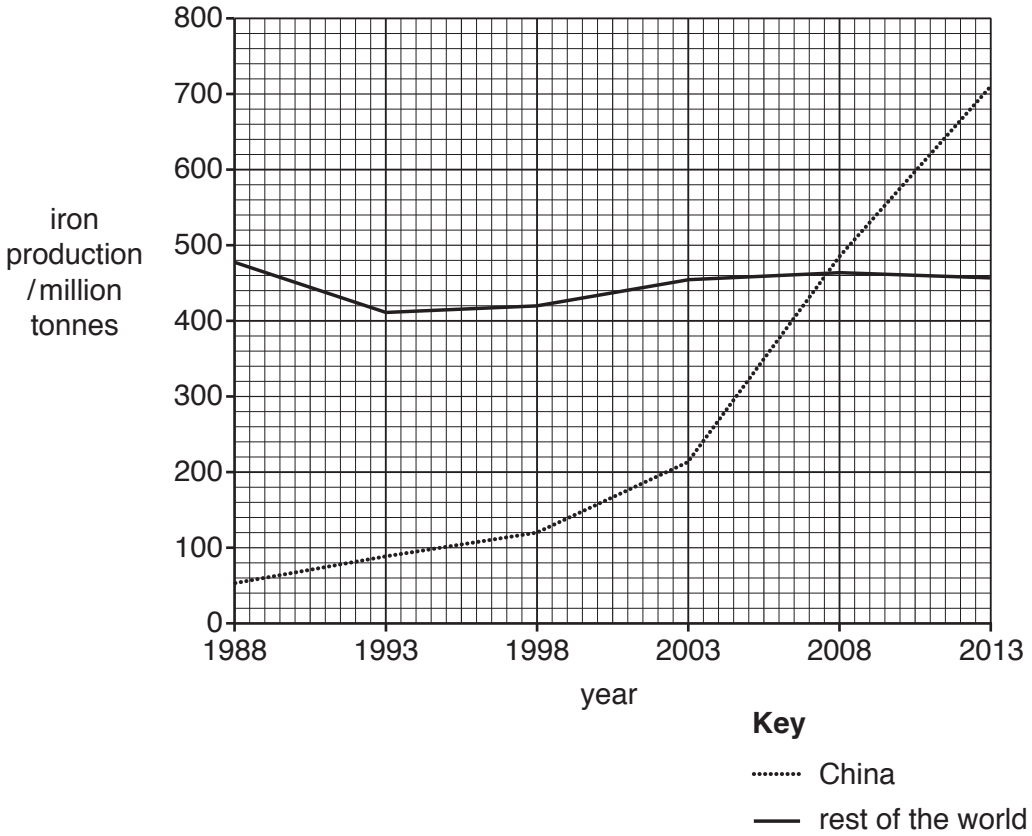
.....[4]

(f) The graph shows iron production for China and the rest of the world from 1988 to 2013.



(i) Calculate the total world iron production in 1988.

Show your working.

..... million tonnes [2]

(ii) State the year when China and the rest of the world produced equal quantities of iron.

..... [1]

(iii) Compare the quantity of iron produced in China with the quantity produced in the rest of the world from 1988 to 2013.

.....

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.....[3]

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(iv) Suggest how the air quality in China may have changed between 1998 and 2013.

.....

.....[1]

(v) Can economic development take place without causing air pollution?

Explain your answer.

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.....[6]

6 **(a)** The table shows climate data for five different climates.

climate	average maximum temperature / °C	average minimum temperature / °C	average annual precipitation / mm	number of months with precipitation
A	34	19	120	5
B	34	24	550	8
C	10	–28	230	12
D	29	27	1850	12
E	18	–12	590	12

(i) Calculate the range of temperature for climate **E**.

..... °C [1]

(ii) State which climate, **A**, **B**, **C**, **D** or **E**, has:

the highest average annual precipitation

.....

the lowest average minimum temperature.

.....

[2]

(iii) Complete the table below by writing in the names of each climate. Choose from:

cool temperate interior **desert** **equatorial** **savanna** **tundra**

climate	average maximum temperature / °C	average minimum temperature / °C	average annual precipitation / mm	number of months with precipitation	name of climate
A	34	19	120	5	.....
B	34	24	550	8	.....
C	10	–28	230	12	.....
D	29	27	1850	12	.....
E	18	–12	590	12	.....

[4]

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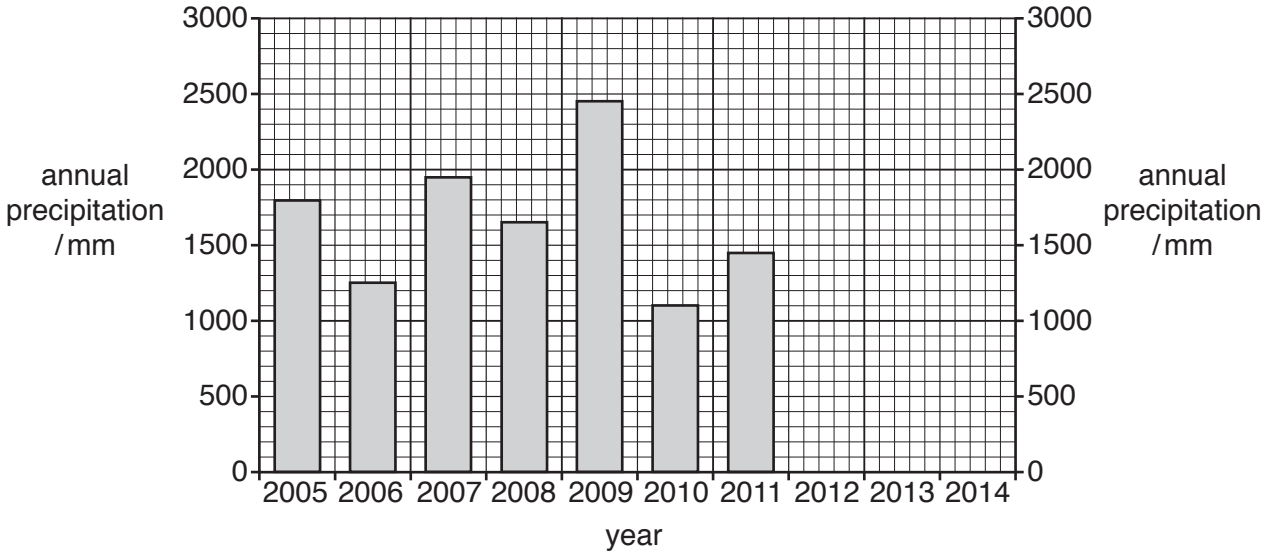
(b) The bar graph shows annual precipitation for a weather station in a rural area in the tropics.



(i) Complete the bar graph using data in the table.

year	annual precipitation / mm
2012	900
2013	1400
2014	2050

[2]

(ii) The average annual precipitation for the ten years shown was 1600 mm.

State how many years had below average precipitation.

..... years [1]

(iii) Suggest **two** problems that people living in this rural area may have faced during the years 2010 to 2013.

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.....

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.....[2]

(iv) Suggest ways of overcoming the problems of irregular rainfall.

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.....[3]

(c) The photograph shows part of a monsoon forest during the dry season.

(i) Describe the vegetation shown in the photograph.

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.....[2]

(ii) Suggest how the area would look during the wet season.

.....

.....[1]

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(iii) State **three** differences between monsoon forest vegetation and tropical rainforest vegetation.

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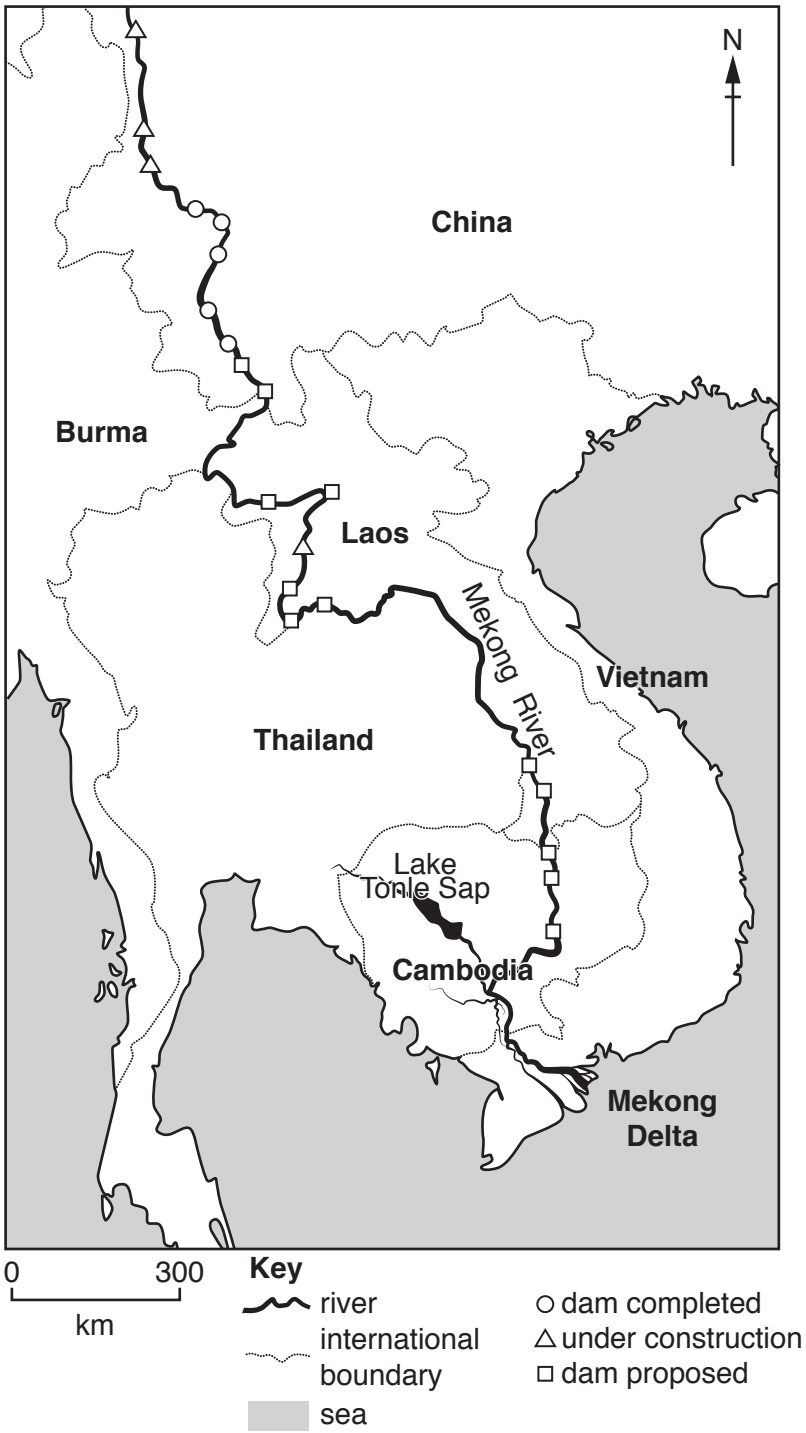
.....[3]

(d) The fact sheet shows information about the Mekong River in Southeast Asia.



The Mekong River and the livelihoods of the people who live near it are under threat from the building of large numbers of dams for hydroelectric power (HEP). The river is the largest freshwater fishery in the world, with many fish species migrating over 1000 km upstream to breed. The area has a monsoon climate and the regular floods provide silt and irrigation water to the fields. Annual floods provide a unique wetland for a large number of plant and animal species.

(i) State the direction of flow of the Mekong River.

.....[1]

(ii) State the number of completed dams and the country in which they are located.

number of completed dams .....

country .....

[2]

(iii) Describe the distribution of proposed dams along the Mekong River.

.....

.....

.....

.....[2]

(iv) Explain how the construction of dams on the Mekong River might affect farmers and fishermen.

farmers .....

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fishermen .....

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[5]

(v) Suggest economic reasons why so many hydroelectric dams are being built on this river.

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.....[3]

(e) 'The availability of fresh water will always be a problem for some countries.'

How far do you agree with this statement? Give reasons for your answer.

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.....[6]

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