UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

ENVIRONMENTAL MANAGEMENT

Paper 2

0680/02

May/June 2005

1 hour 45 minutes

Candidates answer on the Question Paper.
Additional Materials: Ruler (cm/mm)

Candidate Name

Centre Number

Candidate Number

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 in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.
The number of marks is given in brackets [ ] at the end of each question or part question.

DO NOT WRITE IN THE BARCODE.

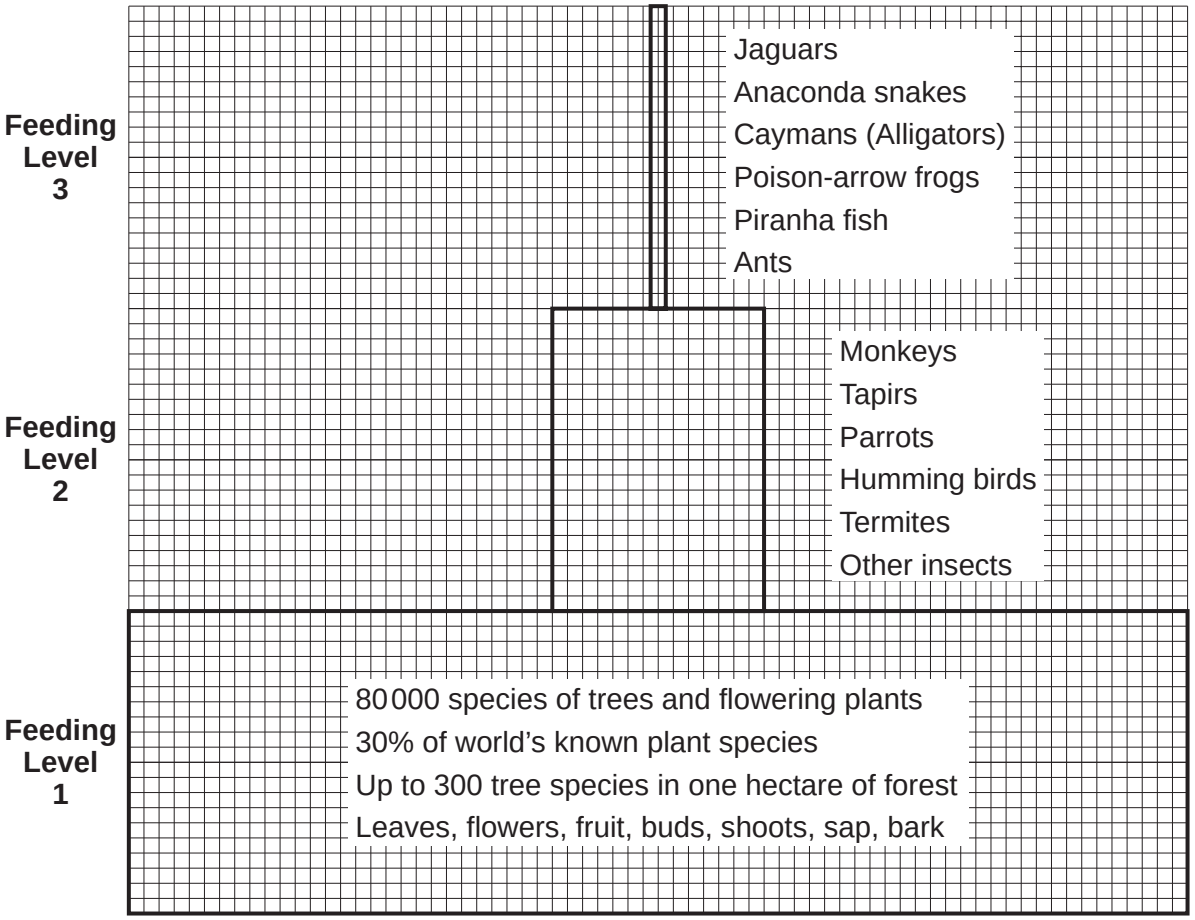
DO NOT WRITE IN THE GREY AREAS BETWEEN THE PAGES.

FOR EXAMINER'S USE	
1	
2	
TOTAL	

This document consists of **16** printed pages.

1 The diagram below contains information about the tropical rainforest in the Amazon Basin in Brazil.

For Examiner's Use



(a) (i) Choose **two** pieces of information from the diagram to show the great biodiversity of the Amazon rainforest.

1 .....

2 .....[2]

(ii) Describe **one** way in which biodiversity is a useful resource for people.

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.....[2]

(b) Three feeding levels are marked on the diagram.

(i) How are the organisms named in feeding level one different from those named in levels two and three?

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.....[2]

(ii) State **one** difference and **one** similarity between the organisms named in levels two and three.

Difference .....

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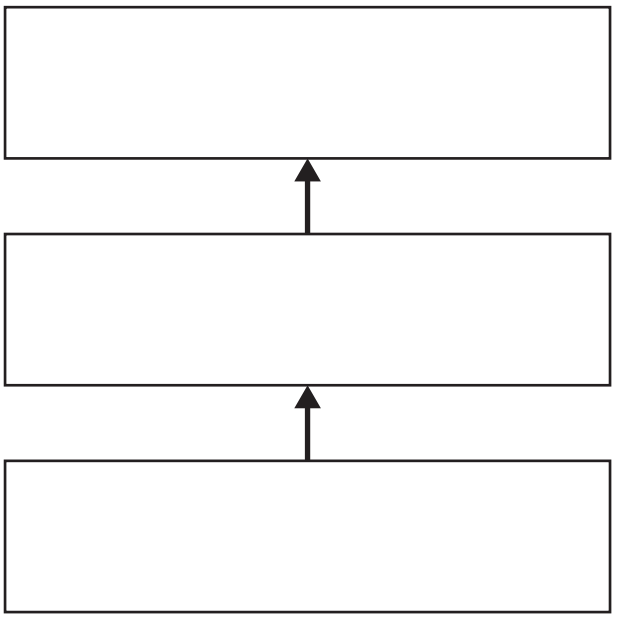
Similarity .....

.....[2]

(iii) Complete the diagram below to show one food chain in the Amazon rainforest.



[2]

(iv) How and why are amounts of biomass different at each feeding level?

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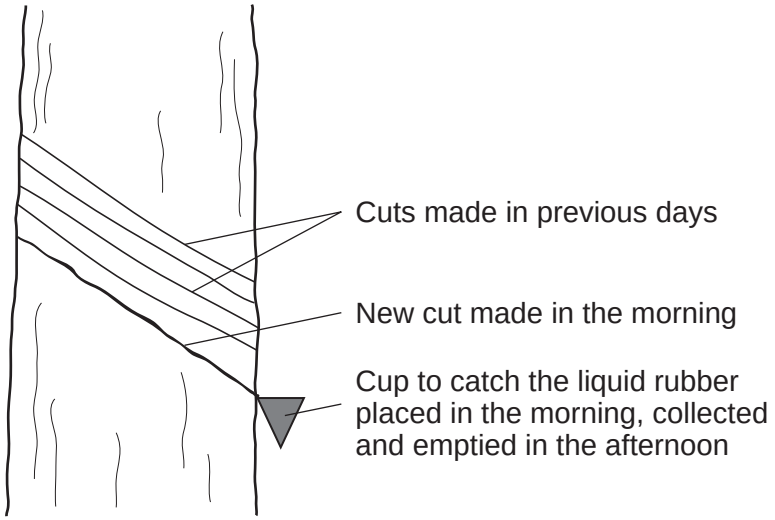
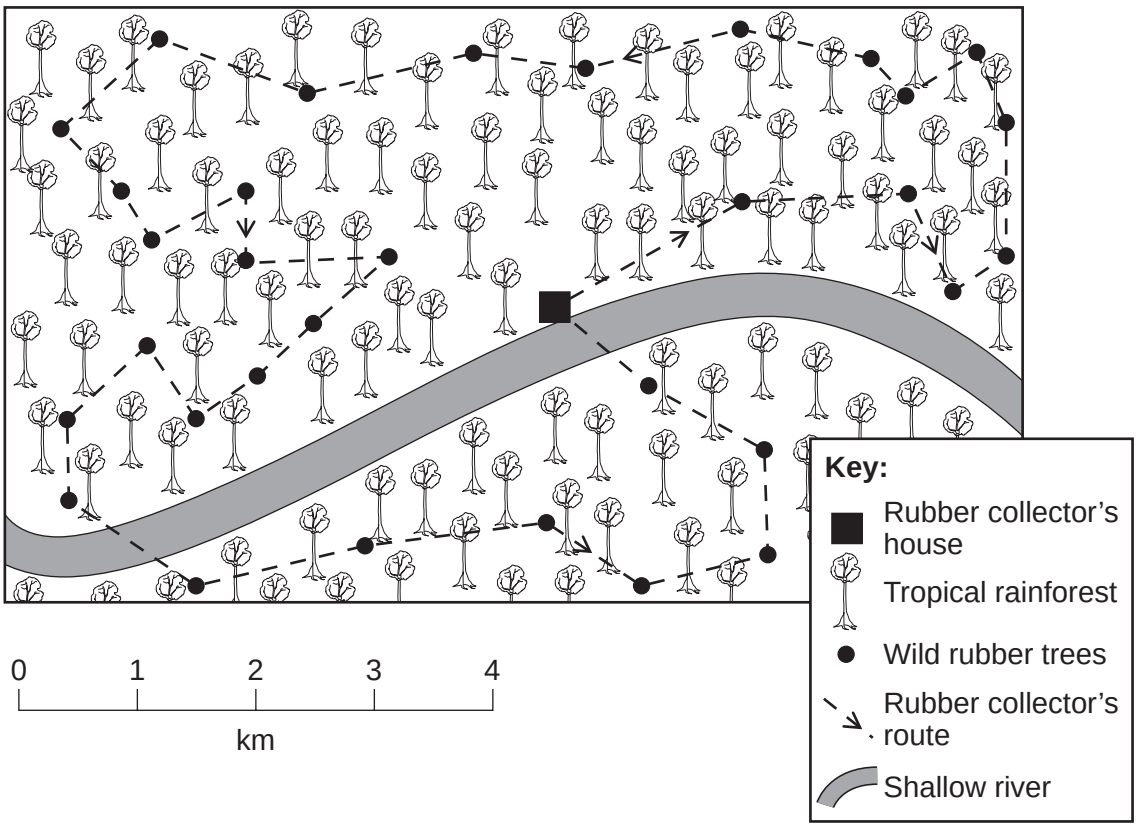
[Turn over

(c) Some people in the Amazon forests in Brazil make a living by collecting wild rubber. Look at the sketch and map below.

For Examiner's Use



Map



(i) Describe the daily pattern of work for a collector of wild rubber.

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.....[2]

(ii) Explain why collecting wild rubber is an example of a sustainable forest activity.

For Examiner's Use

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(iii) Suggest **two** problems for the rubber collectors trying to make a living in this way.

1 .....

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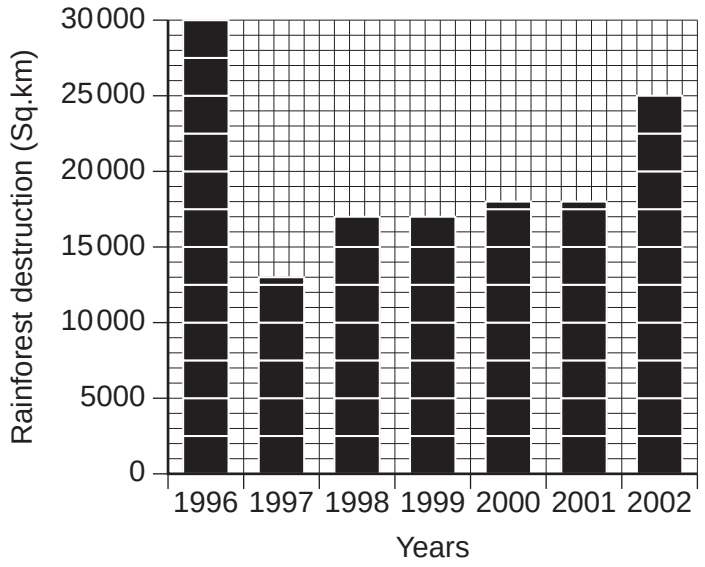
2 .....

.....[2]

(d) Amount of Amazon rainforest destroyed in Brazil

For Examiner's Use

Rainforest destruction in the Amazon Basin 1996 – 2002



Environmentalists were very pleased in 1997, but very disappointed in 2002. Use values from the graph to explain why.

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.....[3]

(e) More information about Brazil and its rainforests is given below.

Brazil

- Size - the world's 5th. largest country
- Area - 8.5 million square kilometres
- Natural vegetation - rainforest in 60% of the country
- Rainforest clearance - 16% of the area of natural forest

One view about Brazil and its rainforests is stated below.
'The area of rainforest is still massive in Brazil. There is no need to be concerned about its disappearance.'

Explain how the information given about Brazil and its rainforests could be used to support this statement.

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(f) Total population in Brazil (past and expected) is shown in the table below.

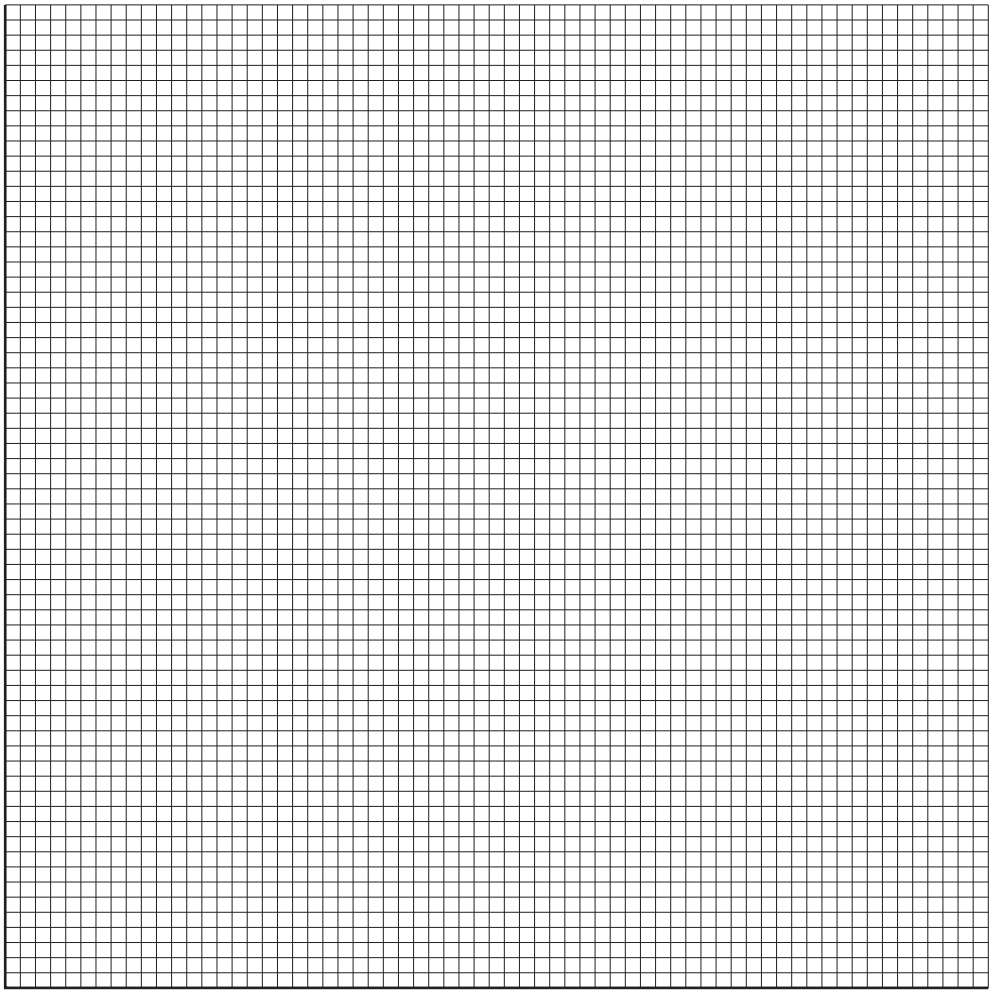
For Examiner's Use

Total population of Brazil

Year	1950	1960	1970	1980	1990	2000	2010	2020
Population (millions)	55	75	95	120	150	170	E190	E210

E = expected in future

Draw a line graph to show population in Brazil (past and expected).



[4]

(g) Read the report below.

For Examiner's Use

Reasons for forest destruction

1 Economic

The forest has been destroyed to allow economic development, such as logging, mining and, most of all, farming. Large areas are used for cattle ranching. However, much of the recent advance of agriculture into the south and east has been by farmers growing soya beans. This crop offers farmers large profits. Most of the soya crop is exported to Europe where it is used for animal feed. This has boosted Brazil's export earnings and helped to pay off some of the country's massive debts. Brazil is expected to overtake the USA as the world's leading producer of soya beans in a few years time.

2 Social

Most Brazilian farmers are landless. Land in the old settled areas of Brazil is divided up into large estates, owned and operated by rich landlords. Only on the new lands in the Amazon is there a chance of peasant farmers working land that they own. Families are still large in the rural areas of Brazil and there is great population pressure where land is suitable for farming. There is much rural poverty. Most farmers have given up hope of the government introducing a programme of land reform dividing up the large estates and sharing out land among the estate workers.

(i) From the report, state **one** economic problem in Brazil.

Economic problem .....

(ii) Explain how rainforest clearance might reduce the problem.

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.....[3]

(iii) From the report, state **one** social problem in Brazil

Social problem .....

(iv) Explain how rainforest clearance might reduce the problem.

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(v) Two views about clearing the Amazon rainforest in Brazil are given below.

For Examiner's Use

'Brazil's population continues to grow. Clearing rainforest is the only way of solving Brazil's great economic and social problems.'

'We are in danger of losing the most species-rich environment on Earth. The Amazon is the great green lung of the world.'

Decide which view is better in your opinion and explain why.

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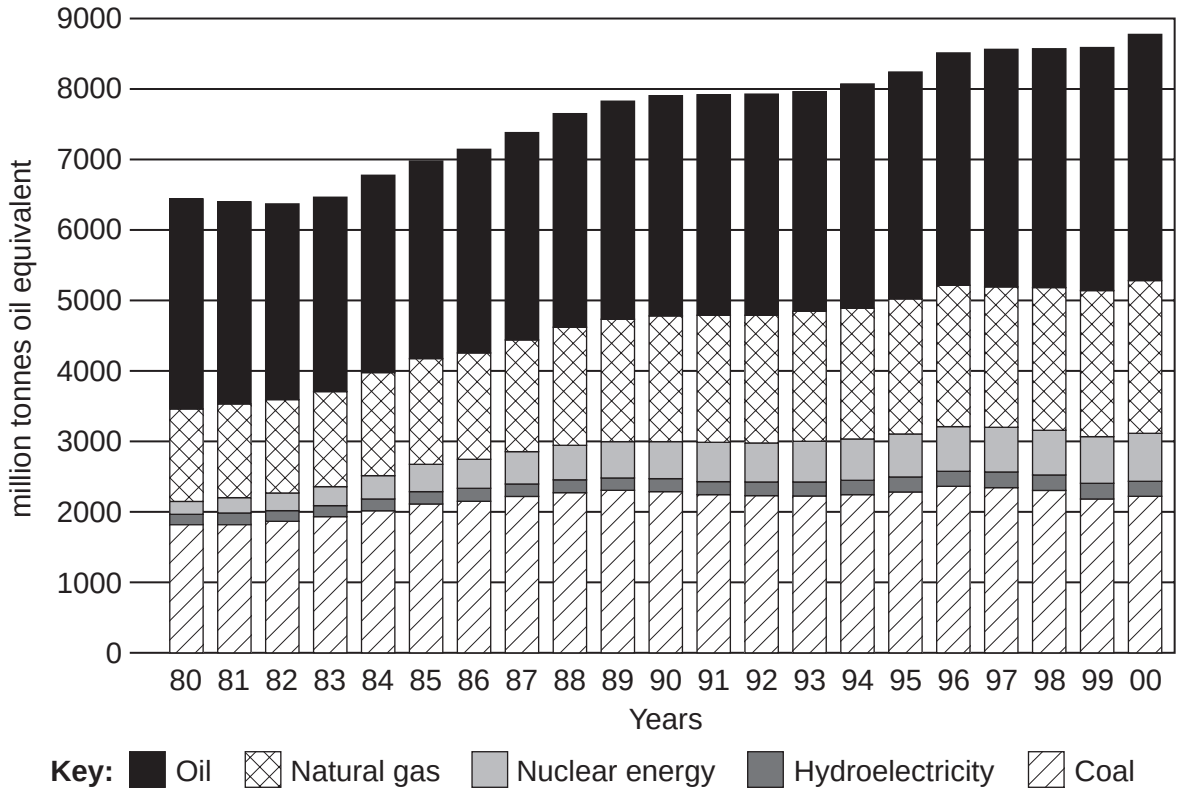
.....[5]

[Total: 40]

2 **(a)** Look at the graph which shows world consumption of the five main commercial sources of energy from 1980 to 2000.

For Examiner's Use



(i) List the five energy sources in **1990** in order of amount used (from highest to lowest).

Highest 1.....

2 .....

3 .....

4 .....

Lowest 5 ..... [1]

(ii) The total amount of energy used increased from 1980 to 2000. State values from the graph to support this.

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.....[2]

(iii) The pattern of total energy consumption shows a few years without much growth followed by several years with faster growth.
In which five year period did the total amount of energy consumed increase the most?

.....[1]

For Examiner's Use

(iv) State **three** reasons for increased energy consumption from 1980 to 2000.

1 .....

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2 .....

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(v) Describe how the graph shows the world's great dependence upon fossil fuels.

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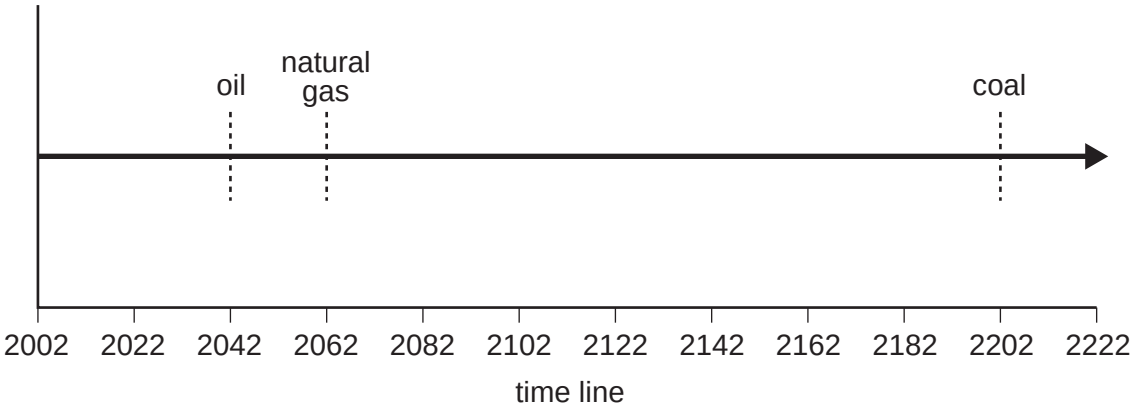
(b) The table below gives information about fossil fuels in 2002.

For Examiner's Use

	Annual production (thousands million tonnes of oil equivalent)	Known reserves (thousands million tonnes of oil equivalent)
Oil	35.5	1420
Natural gas	23.0	1380
Coal	24.0	4800

The number of years from 2002 that fossil fuels are expected to last.



(i) How many times longer is coal expected to last than oil?

.....[1]

(ii) What is meant by the 'known reserves' of a mineral?

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(iii) How was the value for the number of years that oil was expected to last worked out?

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.....[1]

(iv) Look back at the graph of total world energy consumption (page 10).
What percentage of total energy consumption in 2000 came from coal? Circle **one** answer.

15% 25% 35% 45%

[1]

(v) Known reserves of coal are greater than those of oil.
Less coal is used per year than oil.
Explain why less coal is produced and used each year than oil? Use the headings below for your answers.

For Examiner's Use

A Mining coal compared with extracting oil

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B Using coal compared with using oil

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C Environmental problems from burning coal compared with burning oil

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.....[6]

(c) Look at the diagram which shows how people, energy use and oil reserves were split between developed and developing countries in 2002.

For Examiner's Use

	Developed countries	Developing countries
Total world population		
Energy use		
Proved oil reserves		
Average income per head		

(i) Total world population

Developed countries 1 billion

Developing countries 5 billion

Choose a suitable symbol and complete the diagram. [2]

(ii) Describe what the diagram shows about present energy use in the world.

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.....[2]

(iii) Some developed countries are becoming concerned about their future energy supplies. Does the information in the diagram support these concerns? Explain as fully as you can.

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(d) Future energy supplies

Strategies to ensure future energy supplies

A – Greater energy conservation

B – Increased use of alternative energy sources (solar, wind, geothermal, hydroelectric and biomass)

(i) What is meant by energy conservation?

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(ii) Describe **two** methods of energy conservation.

1 .....

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2 .....

.....[4]

[Turn over

For Examiner's Use

(iii) Write about some of the **disadvantages** of alternative energy sources for future energy supplies.

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(iv) In your view, for which one of the named alternative energy sources is there the best chance of increased output in the future? Explain your choice.

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[Total: 40]

[Total for paper: 80]