Cambridge O Level

Cambridge International Examinations
Cambridge Ordinary Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

0719333938

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 **October/November 2016**

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 **23** printed pages and **1** blank page.

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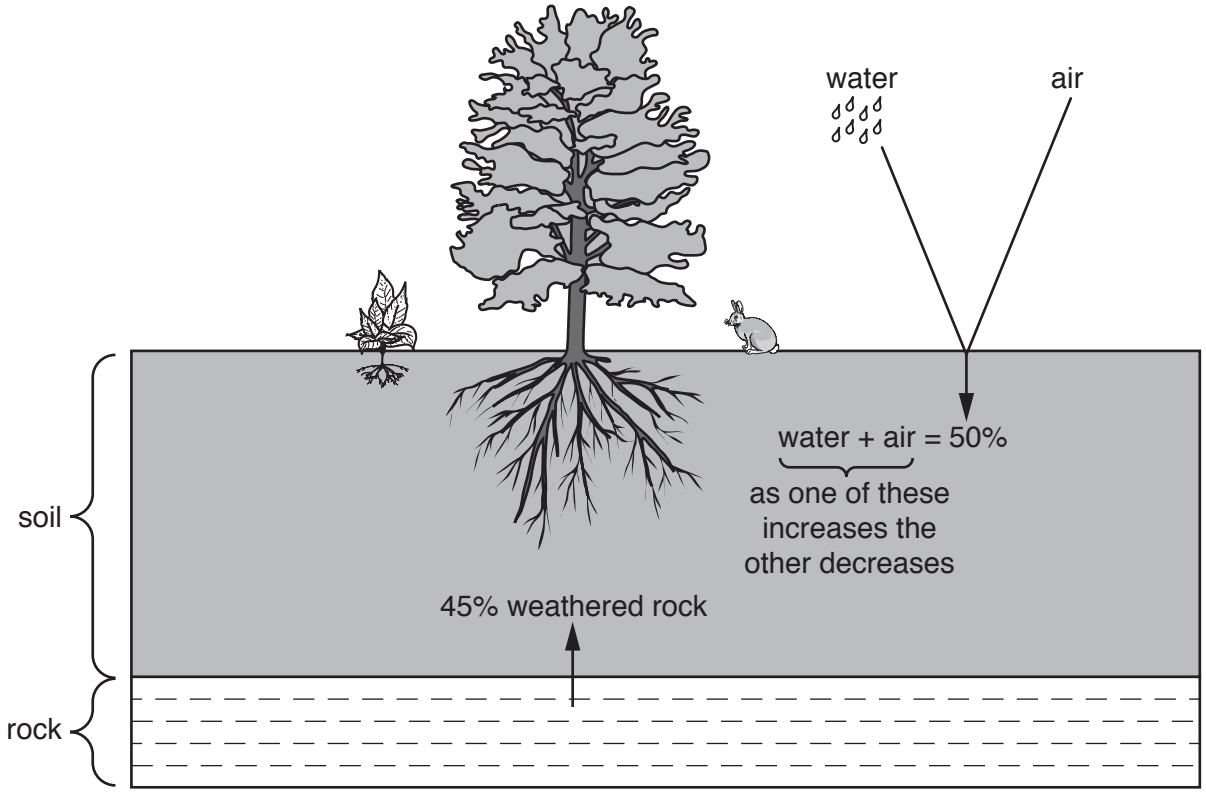
CAMBRIDGE International Examinations

Section A

Answer **all** the questions.

1 **(a)** Look at the diagram, which shows the composition of a soil.



(i) Using the diagram, calculate the percentage of organic matter in this soil.

.....% [1]

(ii) Calculate the air content of the soil when the water content is 30 percent.

.....% [1]

(iii) State the source of the sand, silt and clay in this soil.

.....[1]

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(b) Explain how bacteria and earthworms make a soil suitable for plant growth.

bacteria .....

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earthworms .....

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[4]

(c) Look at the information, which shows some characteristics of sandy soils.

- coarse texture because of medium and large-sized particles
- infertile
- poor water-holding ability because water passes through quickly
- low pH

Suggest methods which could be used to make a sandy soil more suitable for crop growth.

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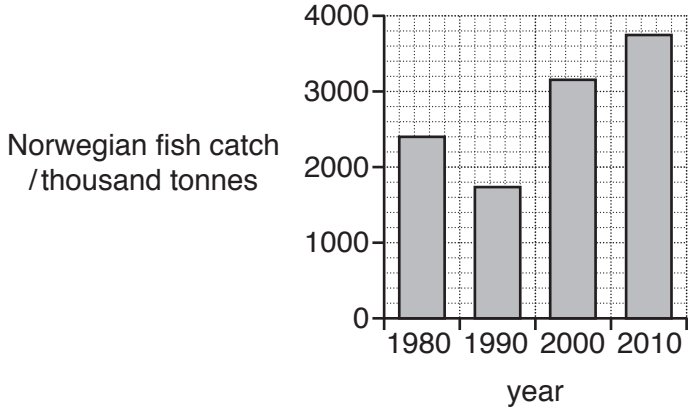
.....[3]

2 **(a)** Look at the bar graph, which shows the fish catch from Norwegian fisheries in four different years.



(i) Compare the fish catch in 2010 with that in 1980.

.....

.....

.....

.....[2]

(ii) Describe strategies that the governments of countries can use to try to keep their fisheries sustainable.

.....

.....

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.....[4]

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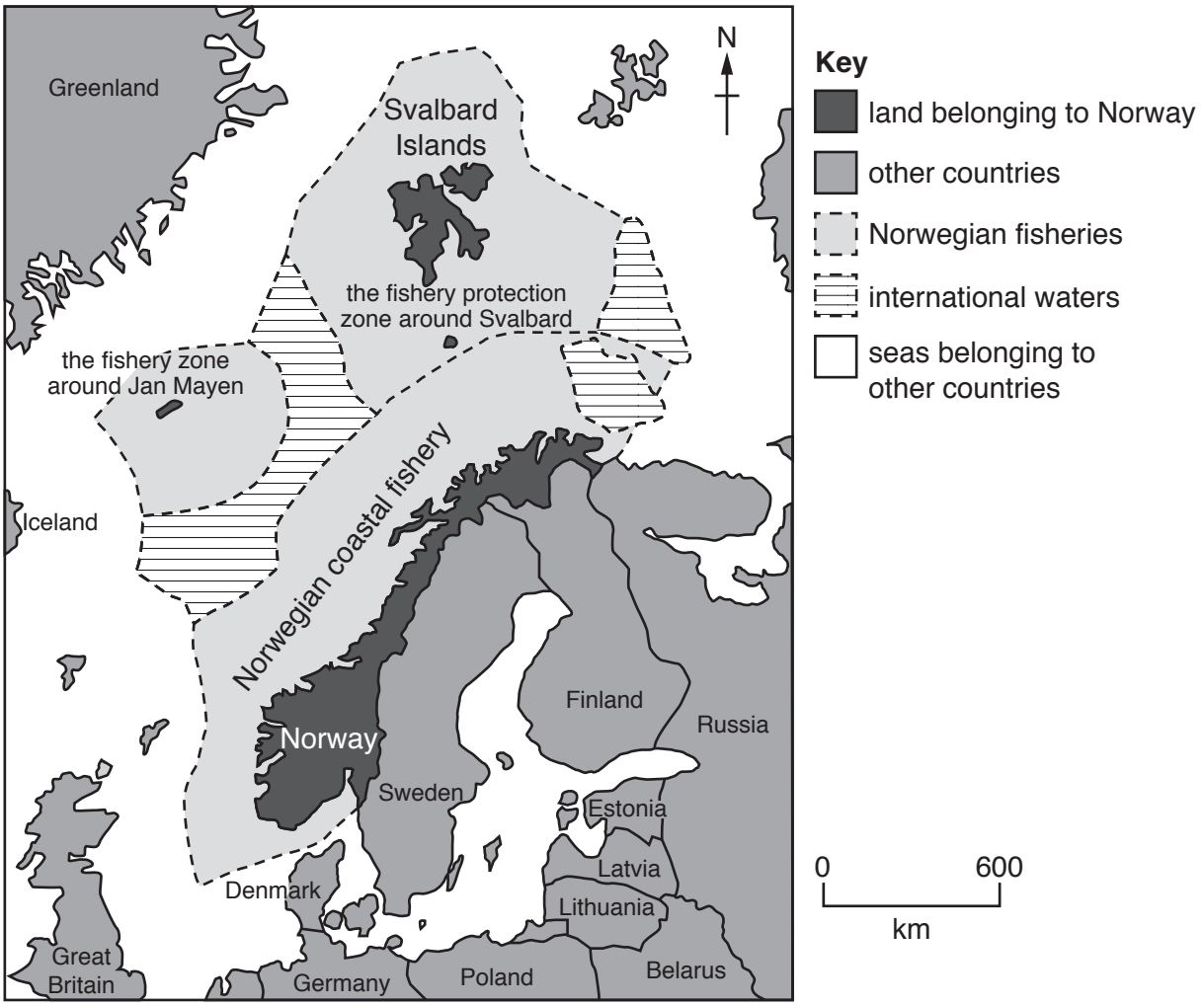
(b) Look at the map of Norway, a mountainous country, and the areas of ocean that Norway controls.



(i) Use evidence from the map to suggest why Norway has a large fishing industry.

.....

.....[1]

(ii) Name the islands on the map which are surrounded by a fisheries protection zone.

.....[1]

(iii) Suggest why the Norwegian government wants to protect fish in this zone.

.....

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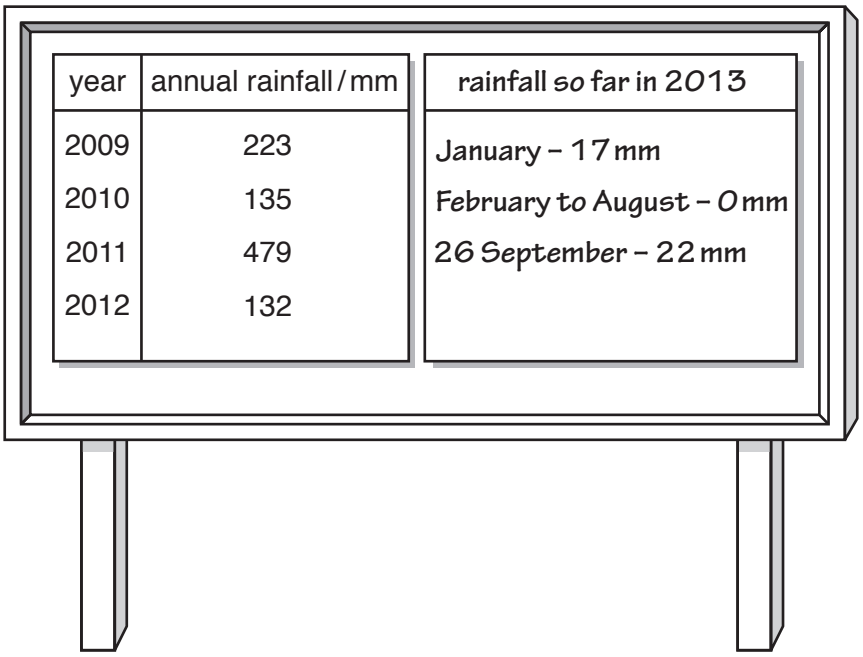
.....

.....[2]

3 **(a)** The diagram shows information on a notice board at the end of September 2013 in a village in a hot country. The bar graph shows the annual rainfall data from this information.



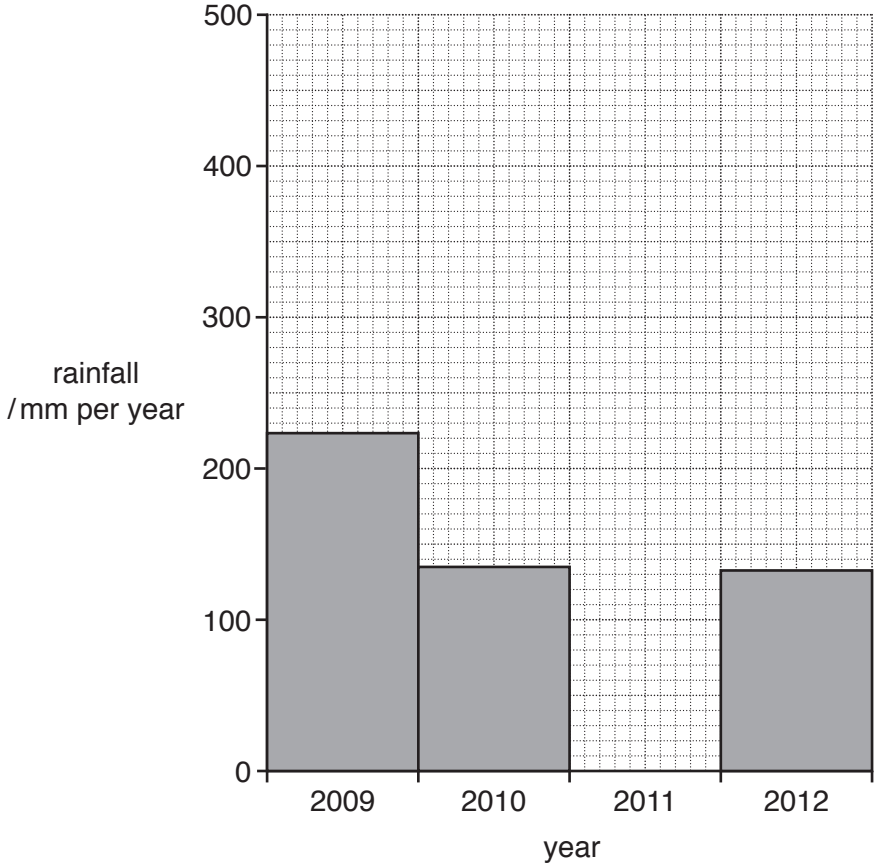
year	annual rainfall / mm
2009	223
2010	135
2011	479
2012	132

rainfall so far in 2013

January – 17 mm

February to August – 0 mm

26 September – 22 mm



(i) Use the information on the notice board to complete the bar graph for 2011. [1]

(ii) Describe the annual rainfall of the village between 2009 and 2012.

.....[1]

(iii) Compare the rainfall that fell on 26 September 2013 with the amount of rain that had fallen up to the end of August that year.

.....

.....[1]

(iv) Give reasons why the rainfall in the first eight months of 2013 would have been a problem for the village population.

.....

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.....[3]

(v) Circle the type of climate that this village experiences.

cool temperate interior **desert** **equatorial** **tundra** [1]

(vi) Name the instrument used to measure rainfall.

.....[1]

(b) Use your knowledge of the water cycle to answer the following questions.

(i) Suggest why people living in this village are unable to use most of the rain that falls.

.....[1]

(ii) Most of the water used by the villagers is supplied by pumping from bore-holes and wells sunk into the ground.

Explain why water is available underground.

.....

.....[1]

4 Look at the photograph, which shows the entrance to Etosha National Park in Africa.

(a) **(i)** Etosha National Park has savanna vegetation. State the evidence in the photograph for this.

.....

.....

.....

.....[2]

(ii) One aim of national parks is to manage tourism in a sustainable way.
Suggest how the following instructions for the tourists support this aim.

do not drive off the roads

.....

.....

do not litter

.....

.....

ensure that entrance and accommodation fees have been fully paid

.....

.....
[3]

(iii) State **three** other instructions that the notice board gives to tourists and give a reason for each of them.

instruction 1 .....

.....

reason .....

.....

instruction 2 .....

.....

reason .....

.....

instruction 3 .....

.....

reason .....

.....
[3]

(b) **(i)** Name an organisation, other than a National Park, that was set up to conserve the natural environment and its species.

.....[1]

(ii) Give **one** reason why ecosystems should be conserved.

.....

.....[1]

Section B

Answer **both** questions.

5 **(a)** **(i)** State what is meant by the terms *birth rate* and *life expectancy*.

birth rate .....

.....

life expectancy .....

.....
[2]

(ii) Look at the table below, which gives information about the birth rates and the death rates in some countries for the same year.

country	birth rate per 1000	death rate per 1000	natural increase per 1000
country **A**	23.0	6.0	17.0
country **B**	12.2	7.0	5.2
country **C**	12.6	8.0	4.6
country **D**	21.0	7.0	14.0
country **E**	8.5	9.0	–0.5
country **F**	12.0	9.0	.....

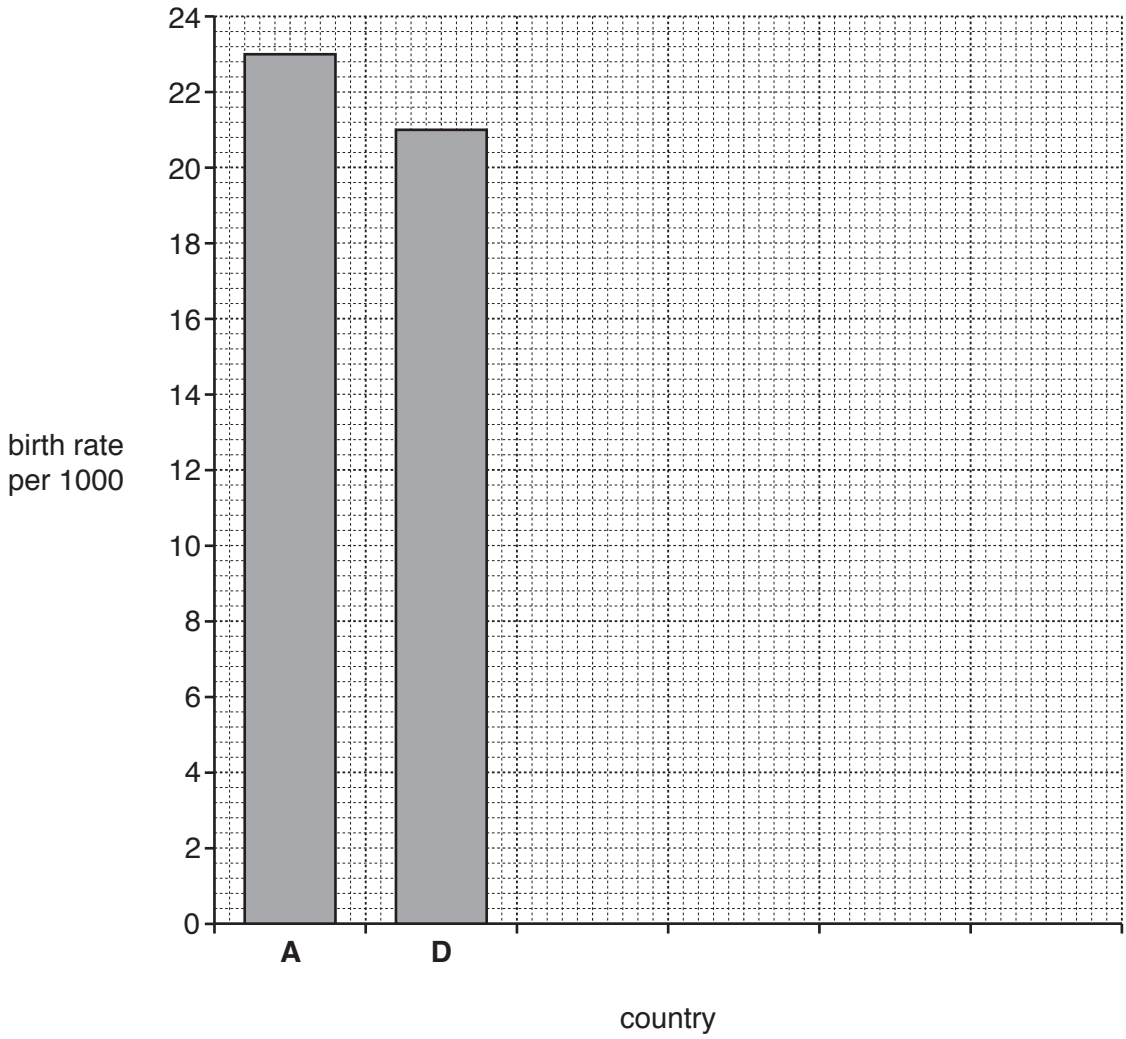
Natural increase is the difference between the birth rate and the death rate. Complete the table by calculating the natural increase for country **F**. [1]

(iii) State the letter of the country which has:

the highest natural increase, ...

a natural population decrease. .....
[2]

(iv) Use the information in the table to complete the bar graph of birth rates. You should place the countries in rank order of birth rates (highest to lowest). [3]

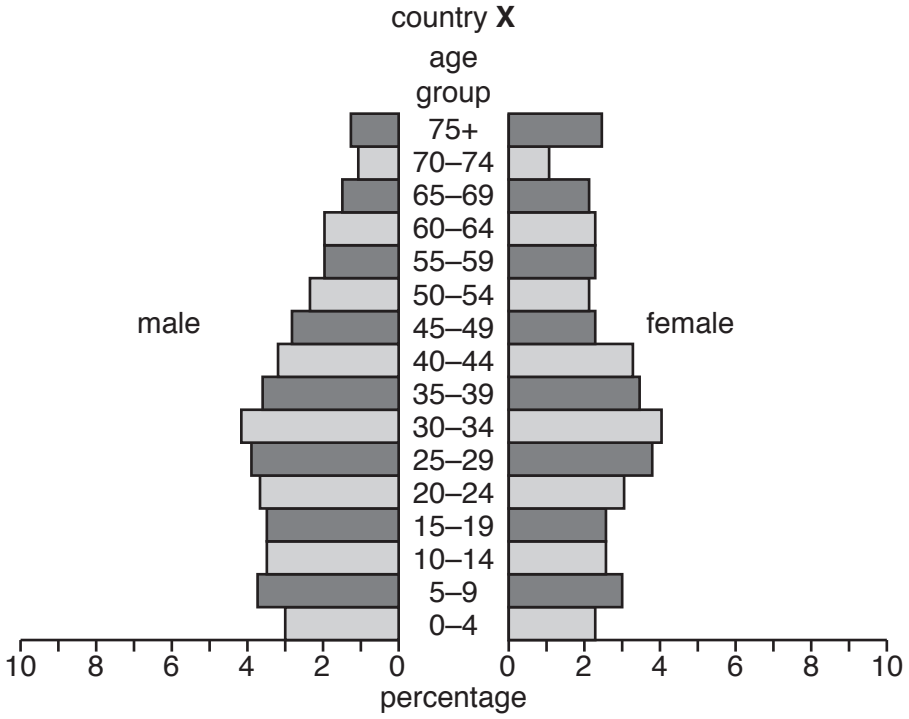


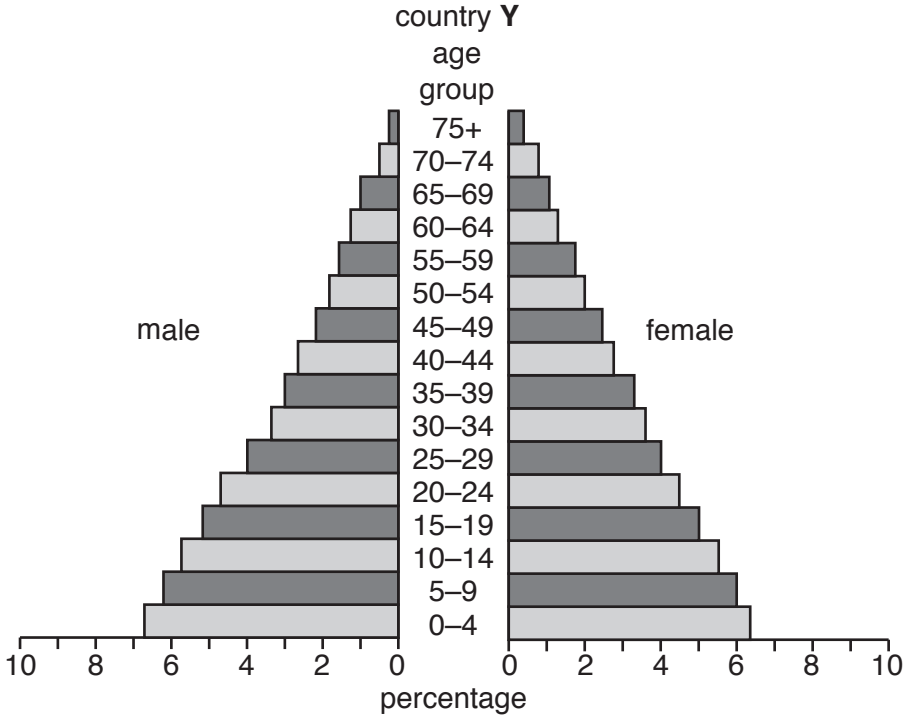
(v) Suggest a way in which the population of a country might grow other than by natural increase.

.....

.....[1]

(b) Look at the population pyramids below for country **X** and country **Y**.





(i) Use the information from the population pyramids to complete the table below. [3]

the percentage of males in country **X** aged between 0–4	.....
the percentage of females in country **Y** aged between 5–9	.....
the letter of the country with the largest percentage of people aged 75+	.....

(ii) Suggest what would happen to the shape of the pyramid for country **Y** in the future if birth rates decrease.

.....

.....[1]

(iii) Describe **three** differences in the shape of the population pyramid for country **X** and country **Y**.

.....

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.....[3]

(iv) Suggest reasons for the differences you have described in **(b)(iii)**.

.....

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.....

.....[3]

(v) Suggest strategies which a country can use to control its population growth.

.....

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.....[4]

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(vi) Suggest what problems a country might face as a result of having an ageing population.

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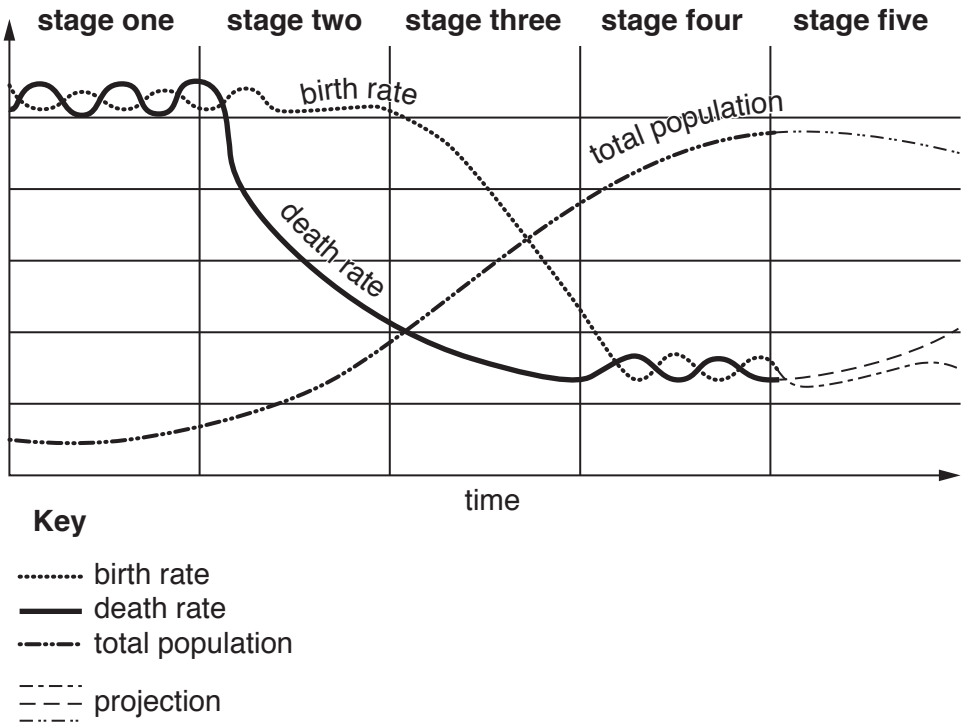
.....[3]

(c) Look at the diagram below, which shows the demographic transition model.



(i) State what happens to the birth rate in **stage three** of the model.

.....

.....[1]

(ii) State the stage with the fastest increase in total population.

stage ..... [1]

(iii) Death rates decrease in **stage two** of the model.
Suggest reasons why death rates decrease in a country.

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.....[5]

(iv) State **one** limitation of the demographic transition model.

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.....[1]

(d) Population growth is a global concern because it increases pressure on the environment. Explain how population growth can lead to soil erosion and desertification.

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.....[6]

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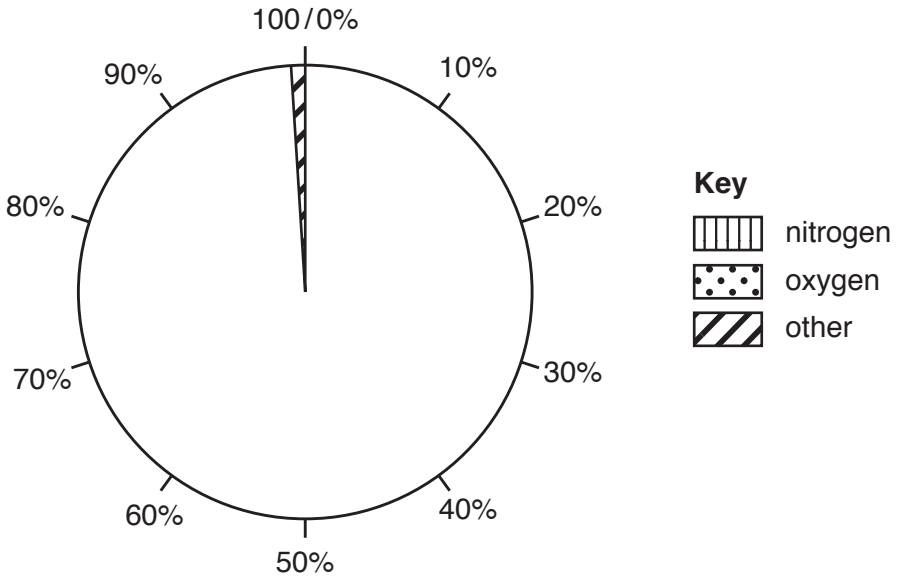
6 **(a)** Look at the table below, which shows information about the percentage of the main gases in the atmosphere.

gas	percentage of atmosphere
nitrogen	78
oxygen	21
other	1

(i) Use the information in the table to complete the pie graph below. [2]



(ii) State **two** gases that could be included in the category 'other'.

..... and ..... [2]

(iii) Human activities increase the percentage of some gases in the atmosphere causing pollution.
State **one** gas that causes pollution and suggest **one** human activity which produces this gas.

name of gas .....

human activity .....
[2]

(iv) Describe ways in which changes in the atmosphere and climate can affect human health.

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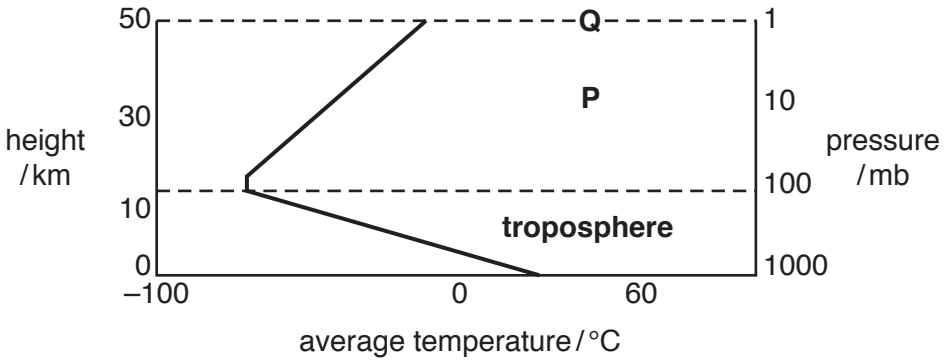
.....[3]

(b) Look at the diagram below (not to scale), which shows information about the structure of the atmosphere.



(i) Name the layer at **P**. ..... [1]

(ii) State the height of the boundary **Q**.

..... km [1]

(iii) State the range of pressure for the troposphere layer as shown in the diagram.

..... mb [1]

(iv) State the relationship between height and average temperature in the **troposphere** as shown in the diagram.

.....

.....[1]

(v) Describe **two** characteristics of the troposphere **not** shown in the diagram.

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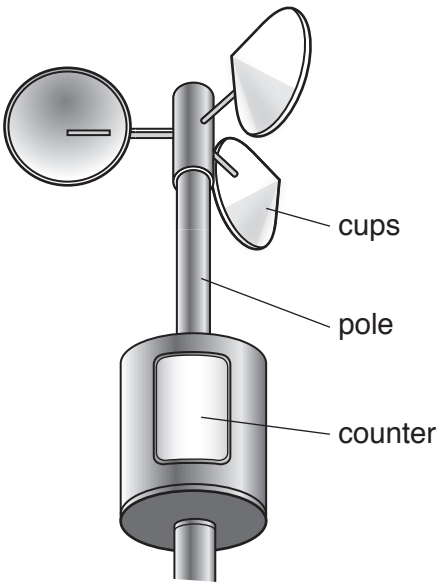
.....[2]

(c) **(i)** Look at the table below, which shows elements of the weather. Complete the table by stating the instrument used to measure each element of the weather. [3]

element of weather	instrument used
temperature	.....
sunshine hours	.....
atmospheric pressure	.....

(ii) Look at the diagram below, which shows an instrument used to measure wind speed.



Explain how this instrument measures wind speed.

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.....[4]

(iii) Wind is used to generate electricity. Suggest reasons why some people might agree with using wind power to generate electricity but other people do not agree.

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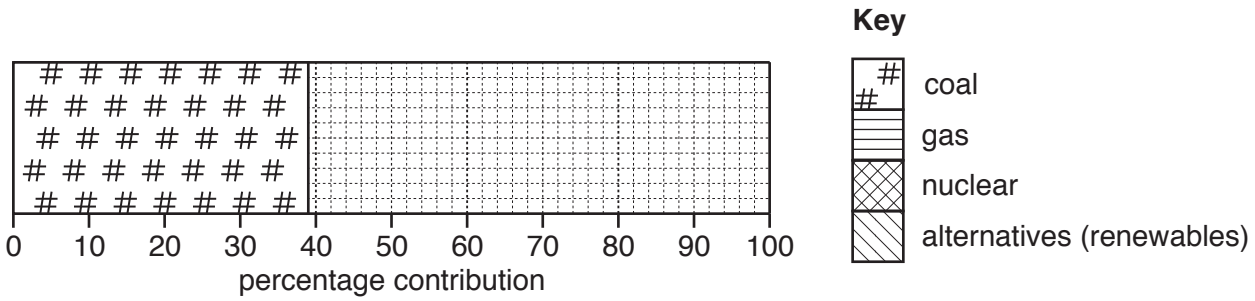
.....[5]

(d) The table shows the energy sources used to generate electricity in a developed country.

source	percentage contribution
coal	39
gas	28
nuclear	19
alternatives (renewables)	14

(i) Use the information in the table to complete the divided bar graph below. [3]



(ii) Calculate the percentage of electricity which is generated from the two fossil fuels named in the table.

Space for working.

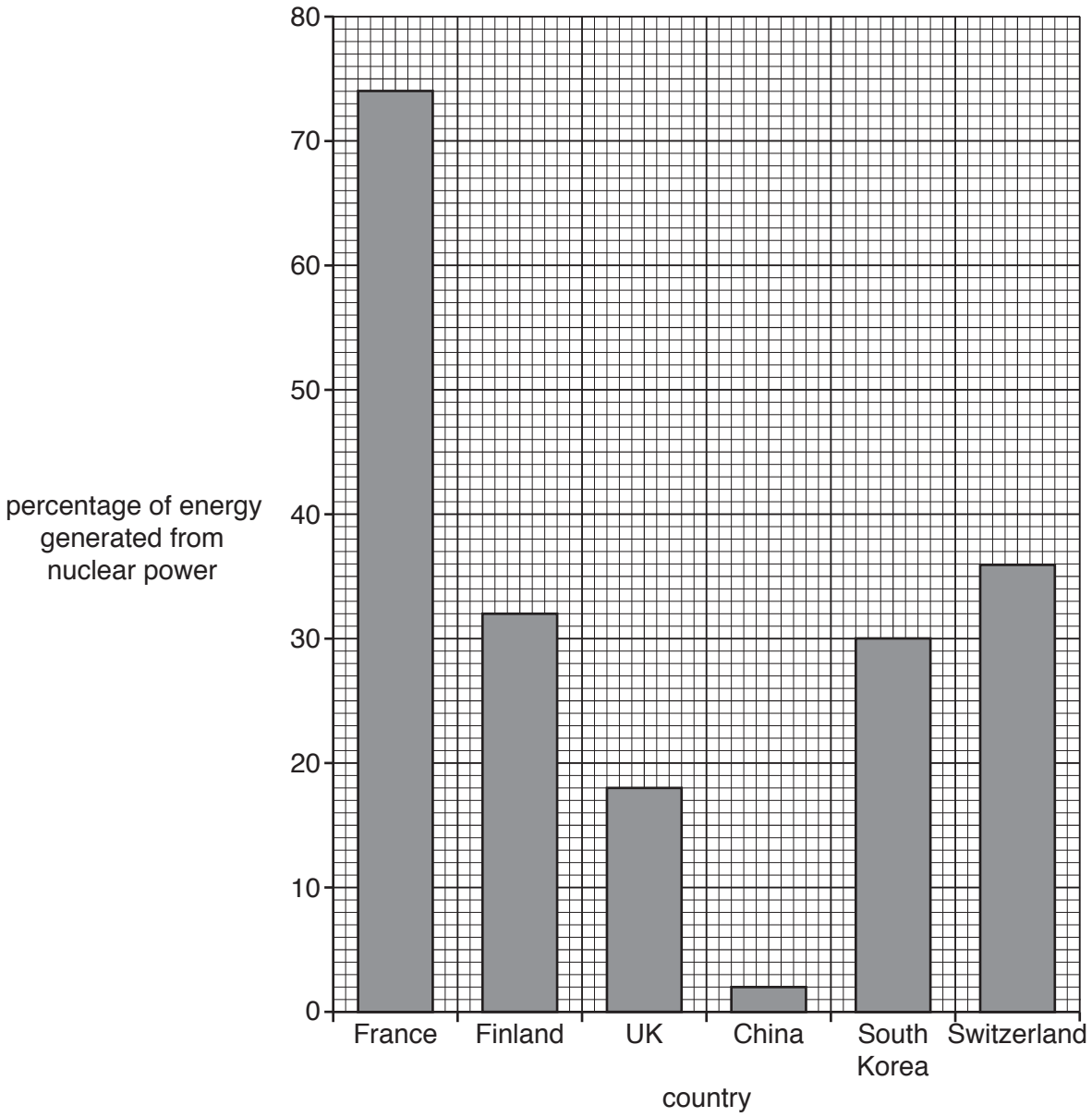
..... % [1]

(iii) Name a fossil fuel **not** included in the table.

.....

.....[1]

(iv) Look at the bar graph below, which shows the percentage of energy generated from nuclear power in some countries.



Write the countries in rank order (highest to lowest) in the spaces below. France and Finland have been completed for you. [2]

1. France

2. .....

3. Finland

4. .....

5. .....

6. .....

(e) Suggest reasons why some countries may use nuclear power for electricity generation rather than fossil fuels and alternative sources.

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.....[6]

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