

CANDIDATE
NAME

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CENTRE
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CANDIDATE
NUMBER

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ENVIRONMENTAL MANAGEMENT

5014/11

Paper 1

October/November 2015

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.

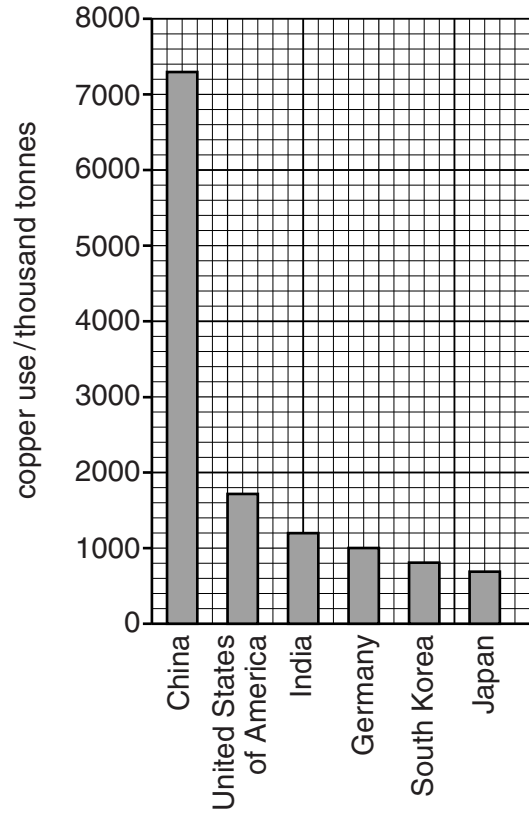
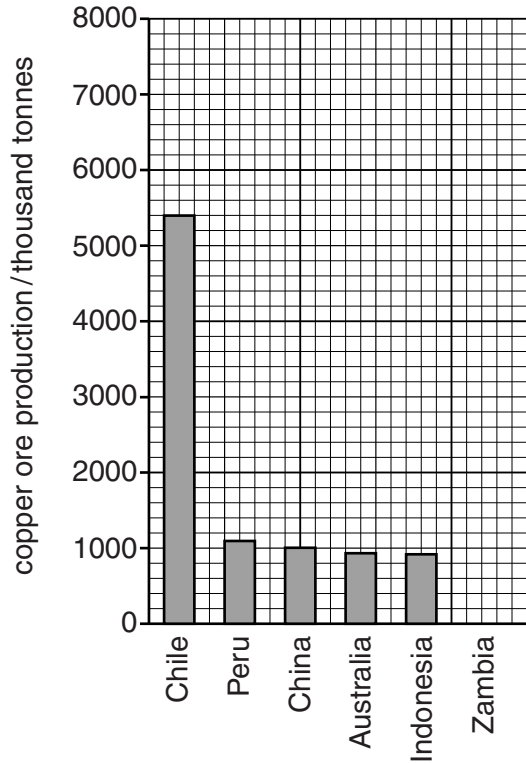
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **24** printed pages.

Section A

Answer **all** the questions.

- 1 (a) Look at the bar graphs, which show the main copper ore producing and the main copper using countries.



- (i) Complete the bar graph to show that copper ore production in Zambia was 800 thousand tonnes. [1]

- (ii) State the name of the country which is both a main copper ore producer and a main user of copper.

.....[1]

- (iii) State the evidence that India has to import large amounts of copper to meet its needs.

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[1]

- (b) (i)** Some countries export copper to developed countries. Explain how this will benefit the government and people of the exporting country.

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.....[4]

- (ii)** Suggest other reasons why some countries export most of their copper ore, rather than using it within their own country.

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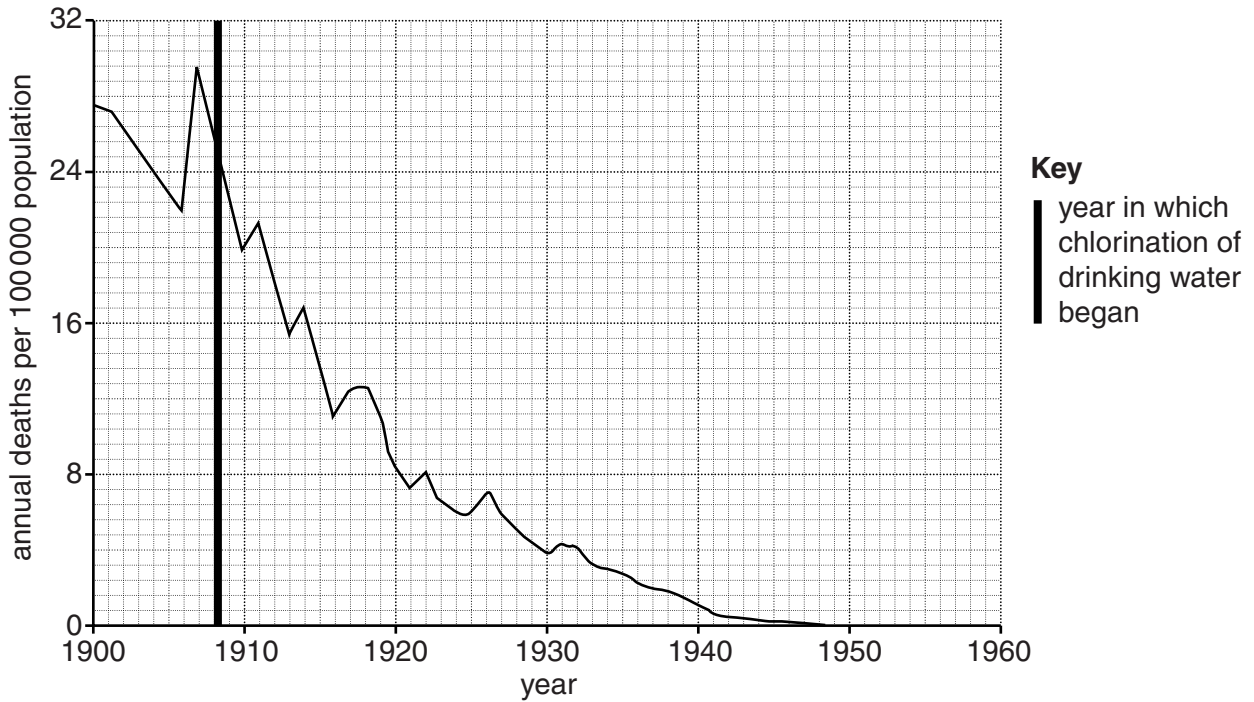
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.....[3]

2 (a) Look at the graph, which shows annual deaths from typhoid between 1900 and 1960 in the United States of America (USA).



(i) State the highest number of deaths per 100 000 population from typhoid in the USA in a year between 1900 and 1960.
 per 100 000 population [1]

(ii) State the year when chlorination of drinking water started in the USA.
[1]

(iii) Describe the trend in the death rate from typhoid in the USA after the drinking water was chlorinated.

[1]

(iv) Other than chlorination, describe ways in which typhoid can be controlled.

[3]

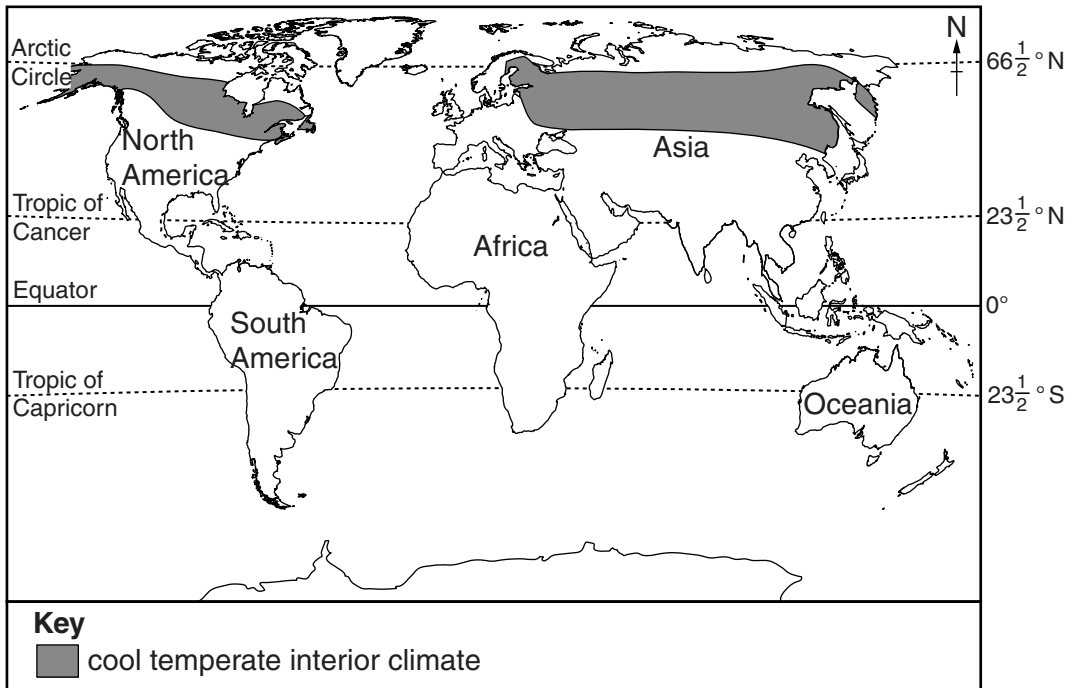
(v) Name **one** other water-borne disease.

.....[1]

(b) Explain why governments in some countries find it difficult to reduce death rates during outbreaks of diseases.

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.....[3]

3 Look at the map, which shows the distribution of the cool temperate interior type of climate.



(a) Describe the distribution of the cool temperate interior type of climate.

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.....[2]

(b) The table shows the temperatures for a weather station with a cool temperate interior climate.

month	J	F	M	A	M	J	J	A	S	O	N	D
mean monthly temperature /°C	-19	-15	-4.5	6	14.5	20	23	21	14	5	-7	-16

(i) State the annual range of temperature at this weather station.

Space for working.

.....°C [1]

- (ii) Suggest **one** difficulty caused by this climate for each of the following. Give a different reason for each.

open-pit (opencast) mining

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farming

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people

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.....

[3]

- (iii) Explain why some people who live in this climate might welcome an increasing level of carbon dioxide in the atmosphere.

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.....[1]

- (iv) Name **two** other important gases that occur naturally in the atmosphere. Explain the importance of each for life on Earth.

gas 1

explanation

.....

gas 2

explanation

.....

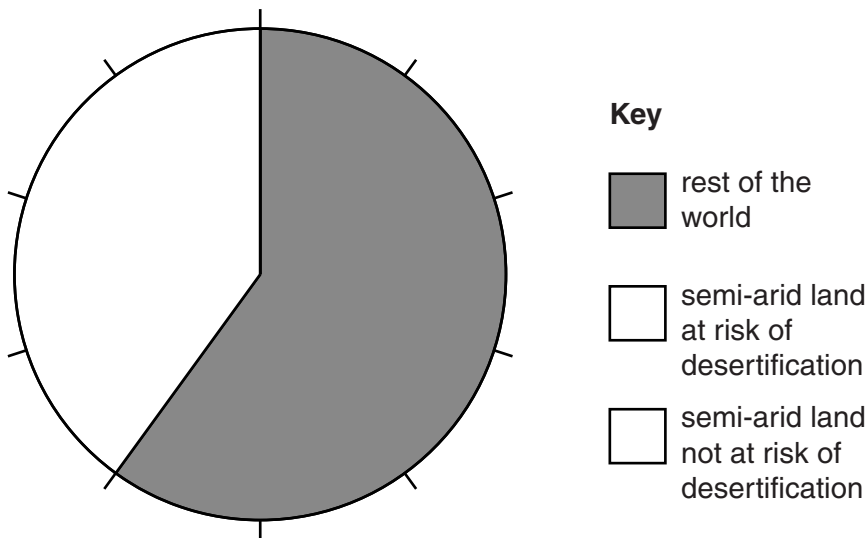
[3]

- 4 (a) Desertification occurs when soil is damaged by human activity so plants cannot grow in it. Semi-arid lands are found next to hot deserts and have an average annual rainfall between 250 and 500 mm.

The pie graph shows the percentage of the world's total land area that is semi-arid.

Complete the pie graph and key, using the information below.

	percentage of the world's total land area
semi-arid land at risk of desertification	28
semi-arid land not at risk of desertification	12
rest of the world	60



[2]

- (b) Look at the information below.

The Sahel is a semi-arid region on the southern edge of the Sahara Desert. It is frequently affected by desertification during droughts but after a series of wetter years the area recovers. Images from satellites suggest the Sahara Desert is not expanding permanently, as was once thought.

- (i) State the compass direction in which the Sahara Desert will expand during several years of drought.

.....[1]

- (ii) Circle below the **one** climate in which there is the greatest risk of desertification.

cool temperate interior equatorial savanna tundra [1]

(c) Explain how desertification can result from:

(i) poor farming practices

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.....[3]

(ii) overpopulation.

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.....[1]

(d) Suggest how providing a water well in the Sahel for nomadic pastoralists to use could result in:

(i) a change in their way of life

.....
.....[1]

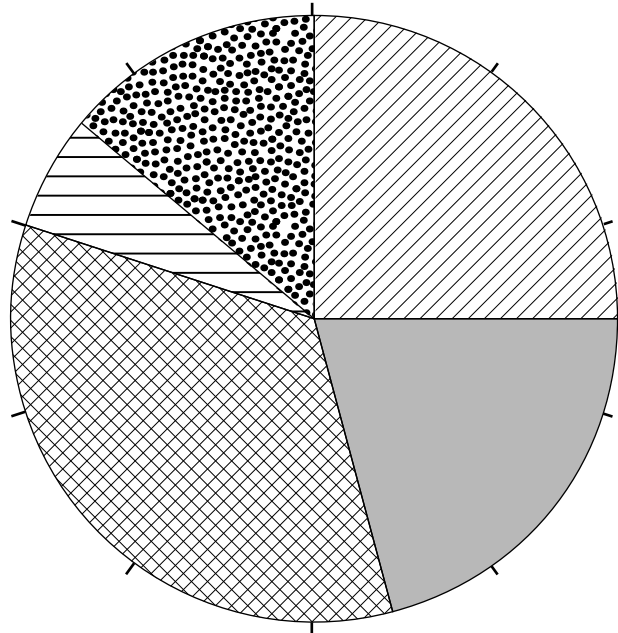
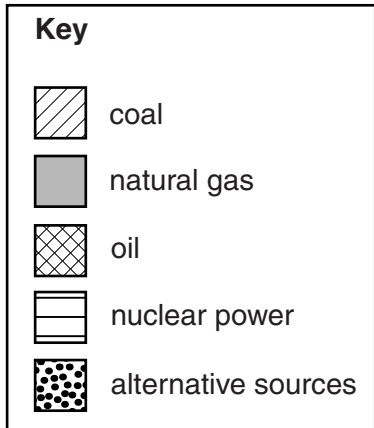
(ii) damage to the ecosystem.

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.....[1]

Section B

Answer **both** questions.

- 5 (a) Look at the graph below which shows the percentage of world energy that came from different sources in 2013.



- (i) State the energy source that was used most in 2013.

.....[1]

- (ii) Calculate the percentage of world energy that came from fossil fuels in 2013.

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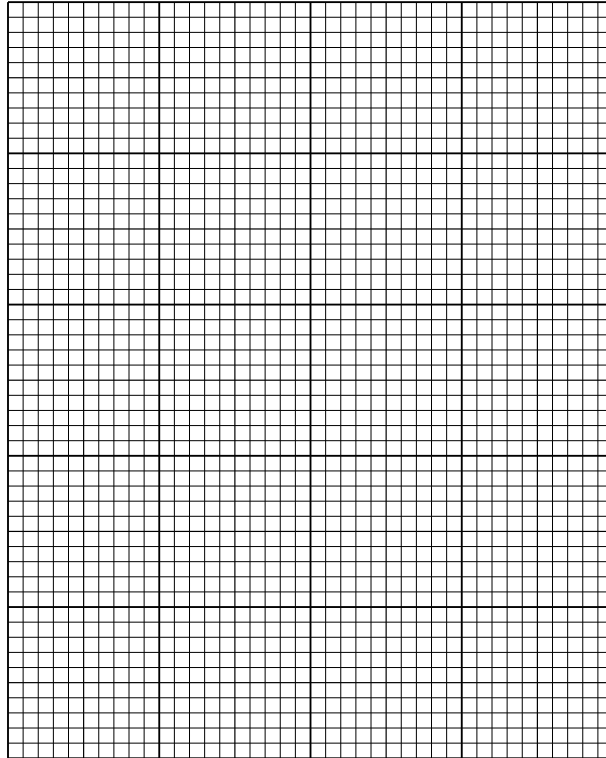
..... % [1]

- (iii) Using evidence from the graph, describe the contribution that alternative energy sources made to world energy in 2013.

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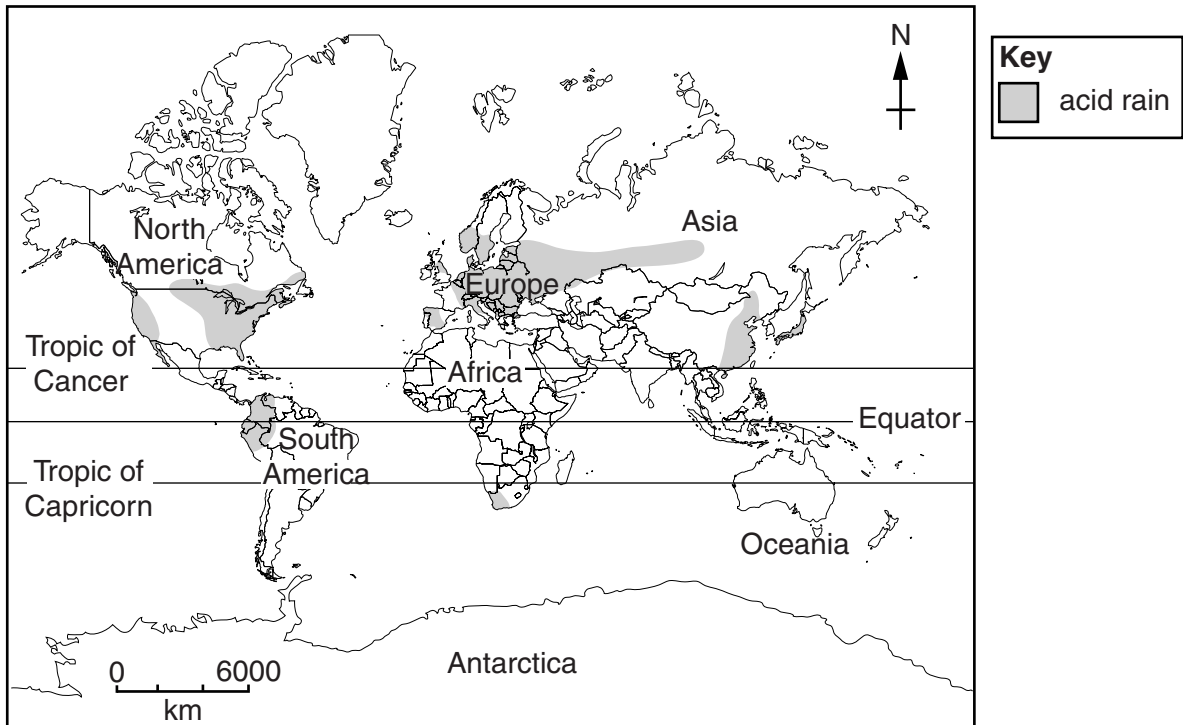
- (iii) The table shows information about how fossil fuels are used to generate electricity in the United States of America. Draw a bar graph on the grid below using the data in the table. Label your axes.

fossil fuel	percentage of electrical production
oil	2
gas	25
coal	42



[4]

(d) Look at the map below, which shows a world distribution of acid rain.



(i) Using the map, state the name of **two** continents which are affected by acid rain.

1

2 [2]

(ii) Using the map, identify **one** continent that is not affected by acid rain. Suggest a reason for this.

continent

reason

..... [2]

(iii) Explain how acid rain is formed.

.....

 [4]

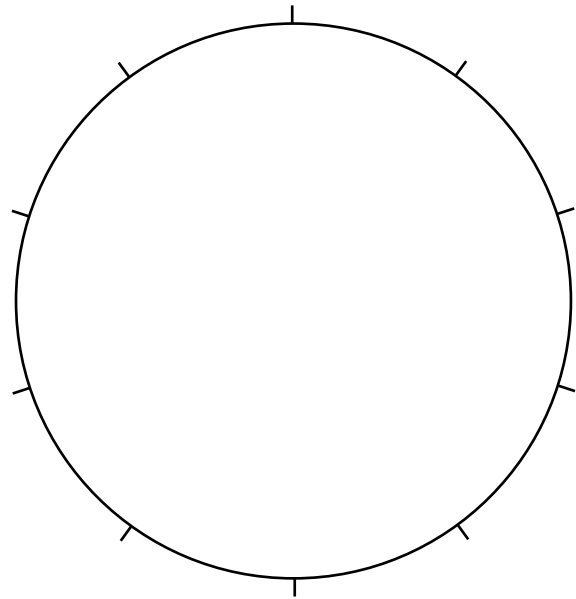
- 6 (a) (i) A student investigating soil types found out that a sample of soil contained the following particles.

soil particles	percentage composition
clay	70
sand	18
silt	12

Use this information to complete the pie graph and key below.

Key

<input type="checkbox"/>
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[3]

- (ii) Suggest reasons why clay soils are often used as grazing land rather than for growing crops.

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(b) Look at the information below taken from a student textbook.

Parts of northern China experience some of the worst soil erosion in the world. The soil is being washed and blown away at a very rapid rate. It is estimated that 1.6 billion tonnes of soil reach the nearby Huang He River each year. Removal of natural vegetation to grow crops is thought to be one of the causes of this soil erosion.

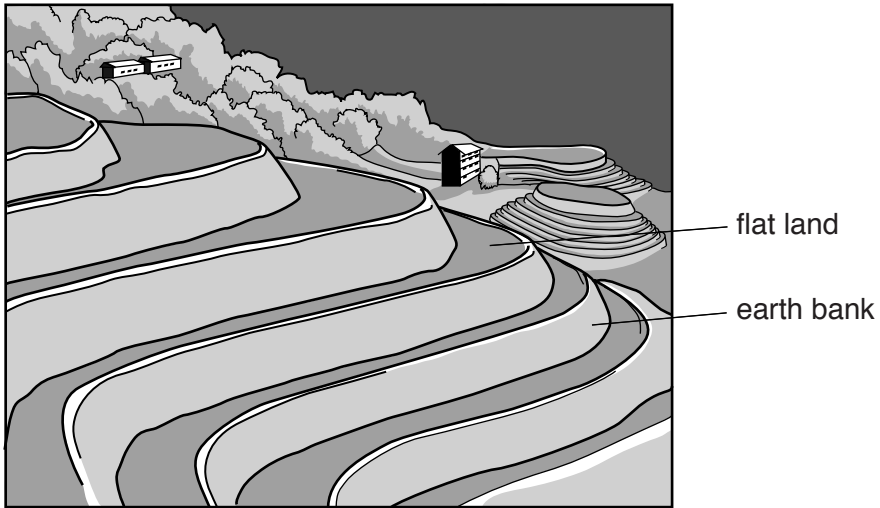
(i) Suggest reasons why the development of crop farming has led to soil erosion in northern China.

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(ii) Describe **two** ways, other than soil erosion, in which crop farming could damage the environment.

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(c) Look at the sketch below, which shows some terraced fields in Nepal.



(i) Suggest how the terracing shown in the sketch might help to prevent soil erosion.

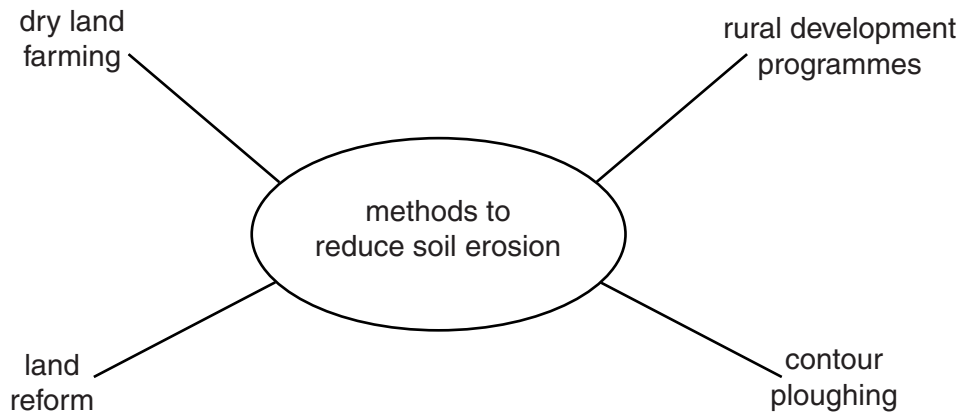
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(ii) Look at the diagram below, which shows other methods for preventing soil erosion.



Describe and explain how **two** of these methods help to reduce soil erosion.

method 1

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method 2

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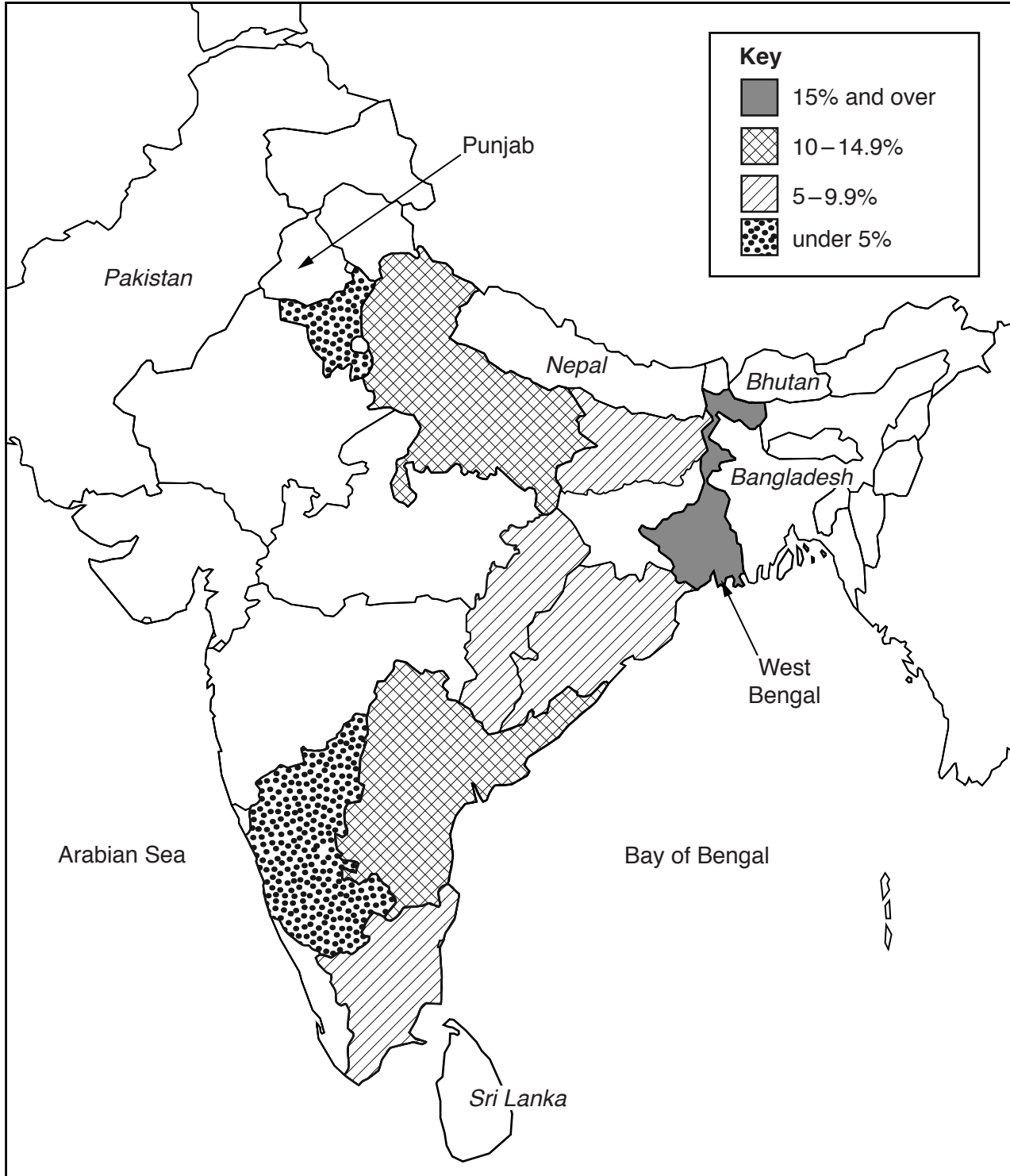
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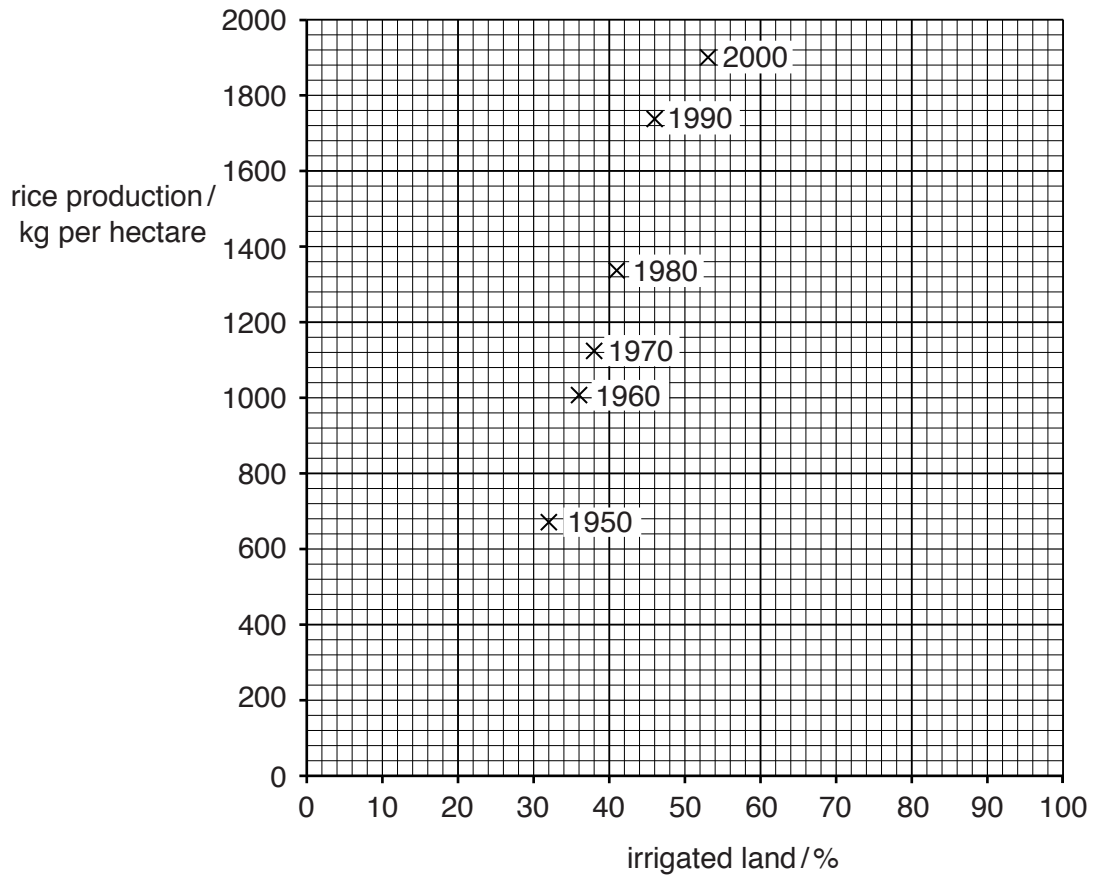
[4]

- (d) Many people in India and the Ganges Valley survive through subsistence farming. Farmers grow rice in flooded fields.

Look at the map below, which shows rice production for the major rice producing states in India.



(iv) Look at the graph below, which shows rice production and the area of irrigated land for another country.



Use the graph to complete the table below.

rice production in 2000 kg per hectare
irrigated land in 2000 %

[2]

(v) Calculate the increase in irrigated land from 1950 to 2000.

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..... % [1]

(vi) Using evidence from the graph, describe the relationship between rice production and irrigated land. Suggest an explanation for the relationship.

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(e) The Green Revolution was introduced to modernise agriculture. Describe the advantages of the Green Revolution.

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