Cambridge Assessment International Education

Cambridge O Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6658376226

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 Theory **October/November 2022**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

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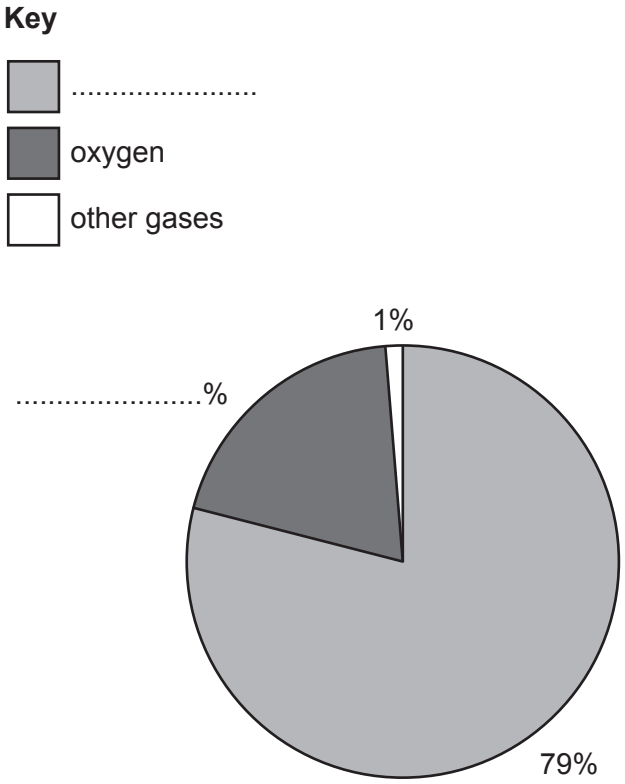
Section A

1 The pie chart shows the proportion of gases in the atmosphere.

(a) **(i)** Complete the missing information in the chart and the key.



[2]

(ii) State the names of **two** gases which are included in the category 'other gases'.

1 .....

2 .....

[2]

(b) State the main source of oxygen in the atmosphere.

.....

..... [1]

[Total: 5]

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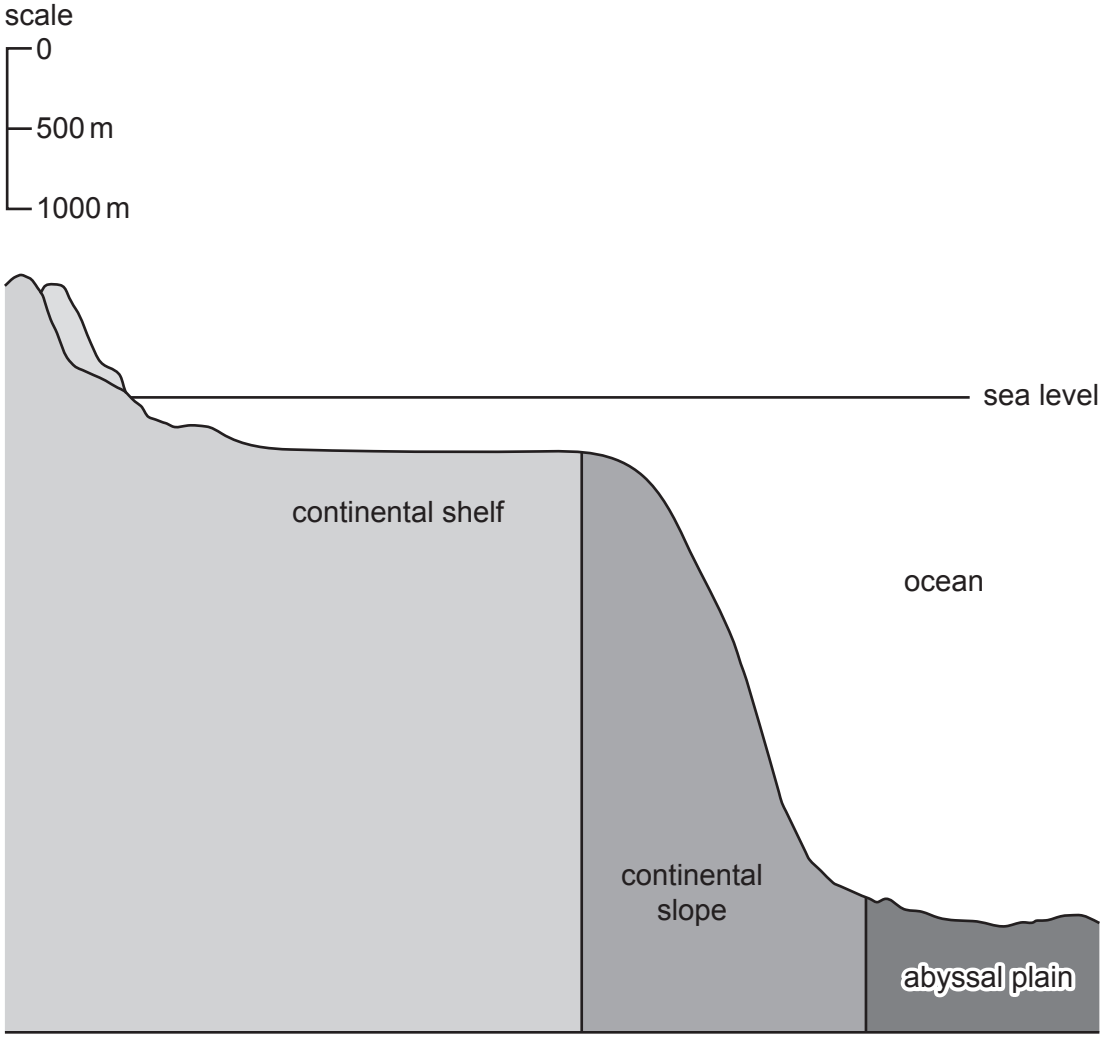
2 The diagram shows a cross-section of part of an ocean.



(a) **(i)** Calculate the maximum sea depth on the continental shelf.

..... m [1]

(ii) Explain why the ocean above the continental shelf sustains a higher density of fish compared to the ocean above the abyssal plain.

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..... [2]

(iii) Explain why the depletion of fish stocks is greatest on the continental shelf.

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..... [2]

(b) Describe how the use of fish farms reduces the impact on wild fish stocks.

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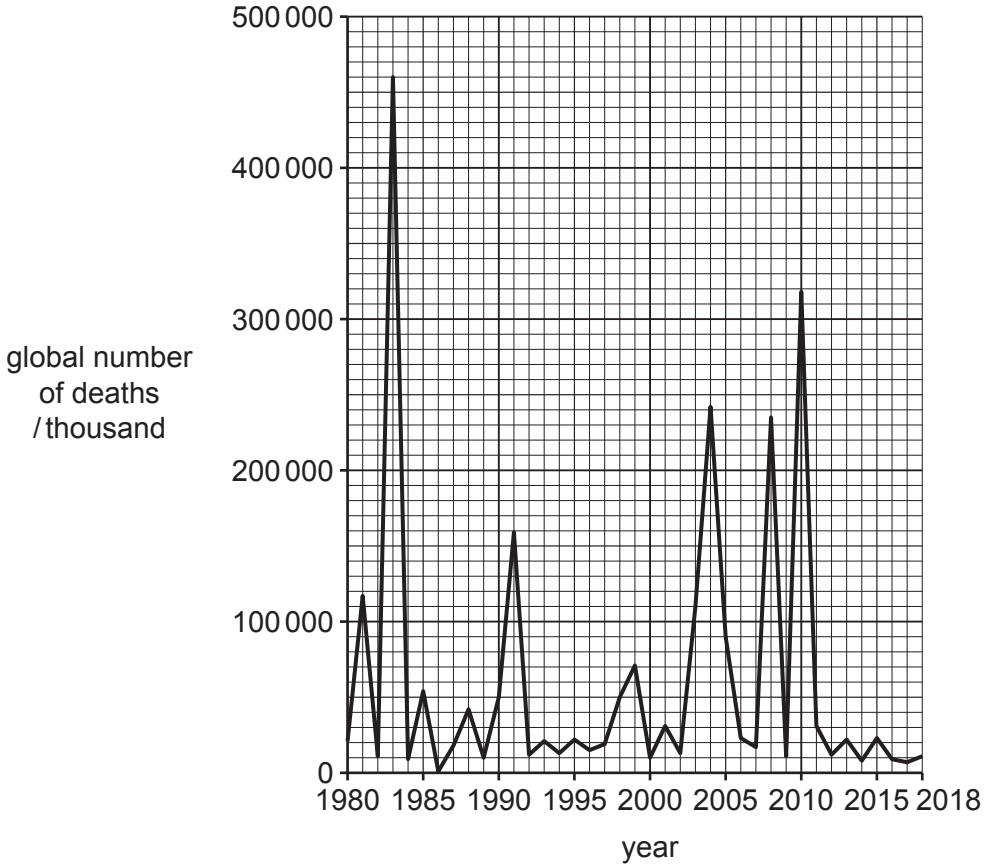
..... [3]

[Total: 8]

3 The graph shows the global number of deaths caused by natural disasters between 1980 and 2018.



(a) **(i)** State the greatest number of deaths caused by natural disasters in one year.

..... thousand [1]

(ii) State which 10-year period had the most deaths caused by natural disasters.

from ..... to ..... [1]

(b) Suggest reasons for the variations in the global number of deaths caused by natural disasters between 1980 and 2018.

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..... [3]

(c) Name **two** natural disasters that are caused by tectonic plate movement.

1 .....

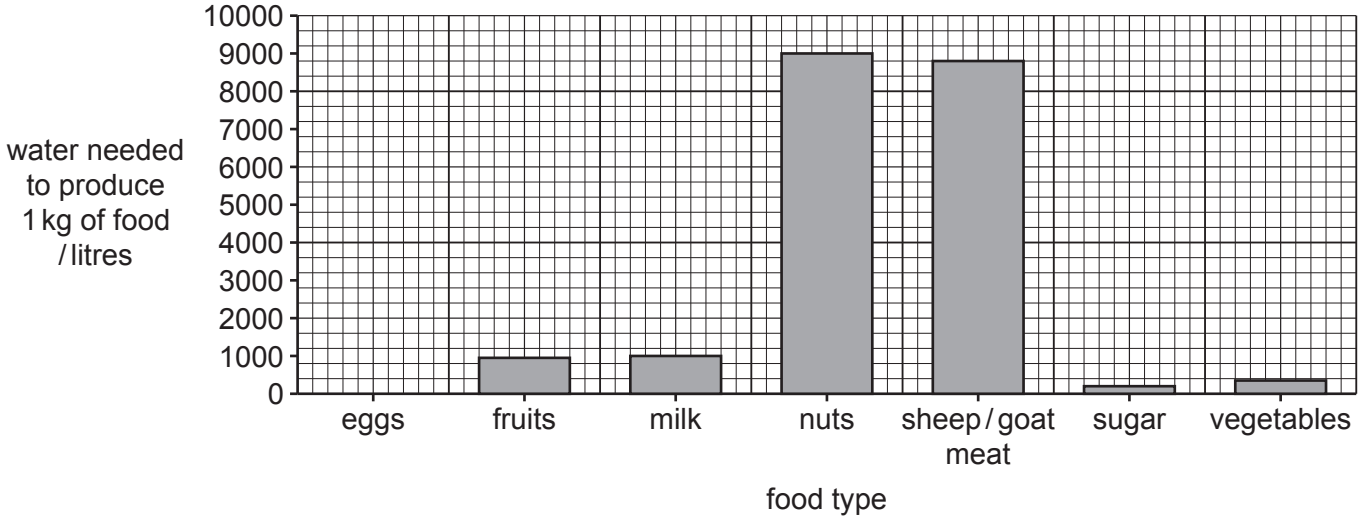
2 .....
[2]

[Total: 7]

Section B

4 The bar chart shows the volume of water required to make 1 kg of different types of food.

The bar chart is **not** complete.



(a) **(i)** The production of 1 kg of eggs needs 3200 litres of water.

Complete the bar chart for eggs. [1]

(ii) Rank the food types according to the amount of water required to produce 1 kg of food.

One has been completed for you.

water use	food type
most water	nuts
↓	
↓	
↓	
↓	
↓	
least water	

[2]

(b) Explain how increasing the amount of land used for agriculture affects the availability of safe drinking water.

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..... [3]

(c) Describe strategies a farmer could use to reduce water usage in agriculture.

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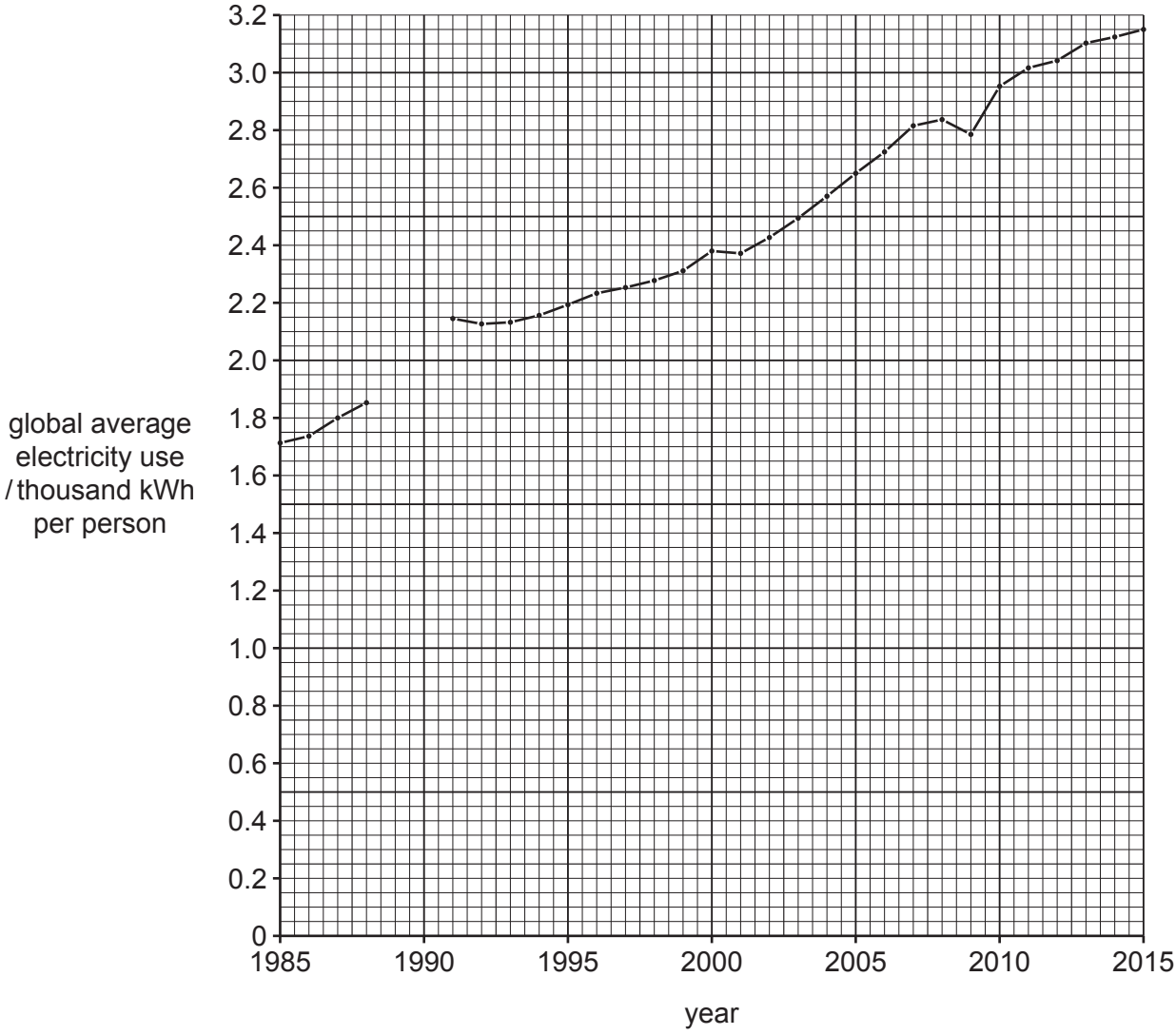
..... [4]

[Total: 10]

5 The graph shows the global average electricity use per person from 1985 to 2015.



(a) **(i)** Complete the graph by including the information in the table.

year	**global average electricity use / thousand kWh per person**
1989	1900
1990	2100

[2]

(ii) Describe the trend in global average electricity use per person from 1985 to 2015.

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..... [2]

(iii) Suggest reasons why average electricity use per person varies between countries.

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..... [4]

(b) Describe ways to reduce domestic energy use.

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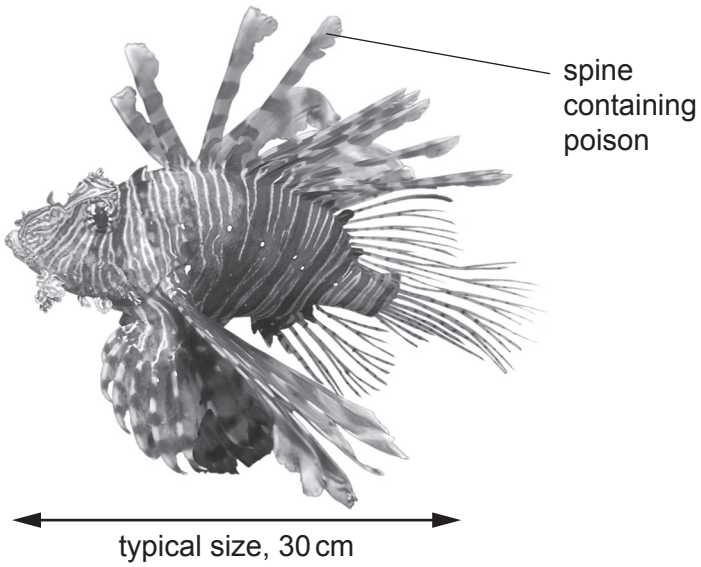
..... [4]

[Total: 12]

6 The fact sheet contains information about lionfish.

Lionfish fact sheet



Lionfish are native to the Indian Ocean.

Lionfish contain a poison in their spines which is a defence against any predators. Lionfish can eat any animal smaller than them. They have a large appetite.

Lionfish are sometimes kept as pets. In 1990, some pet lionfish in the USA were released into the Atlantic Ocean. Female lionfish can lay as many as 20 000 eggs every four days. The lionfish population in this area increased rapidly.

Scientists are concerned about the impact of lionfish on the ecosystem of the area.

(a) Explain why scientists are concerned about the impact of lionfish on the ecosystem of the area.

Use the fact sheet to support your answer.

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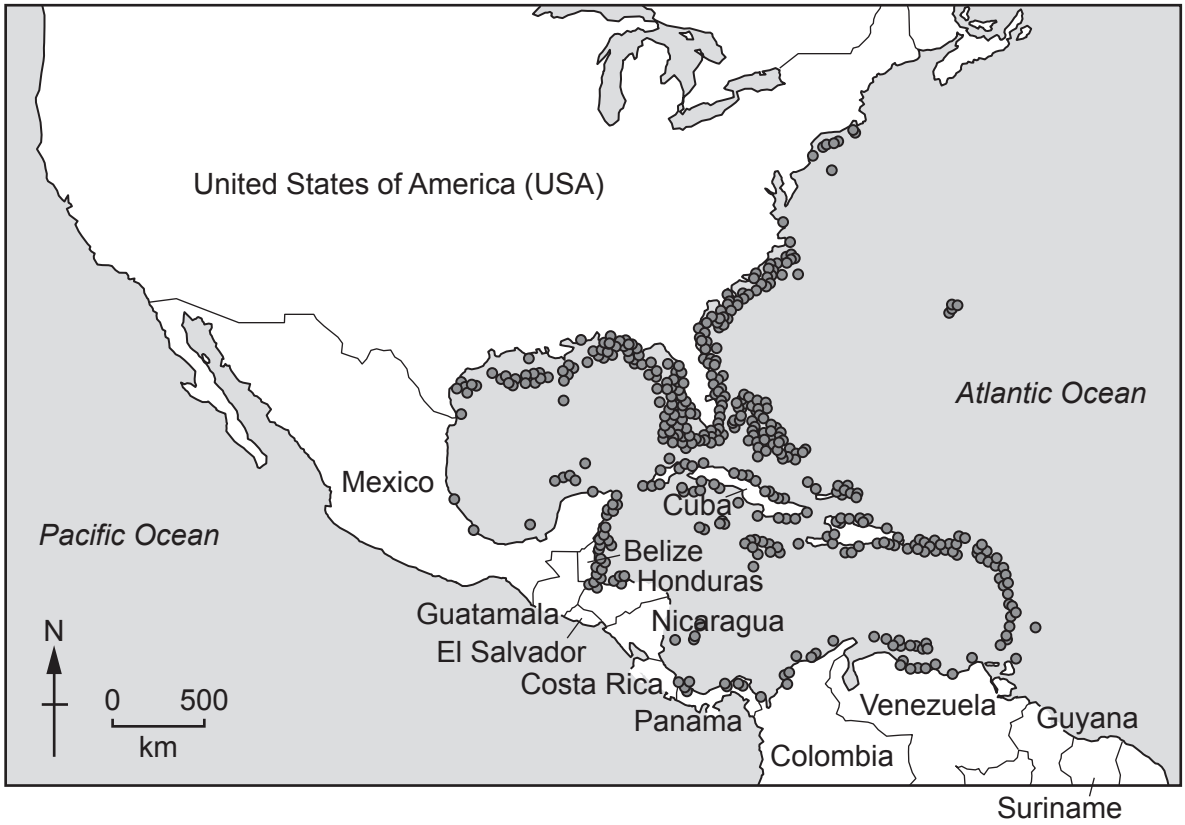
..... [4]

(b) The map shows the distribution of lionfish in the Atlantic Ocean in 2017.



Describe the distribution of lionfish shown on the map.

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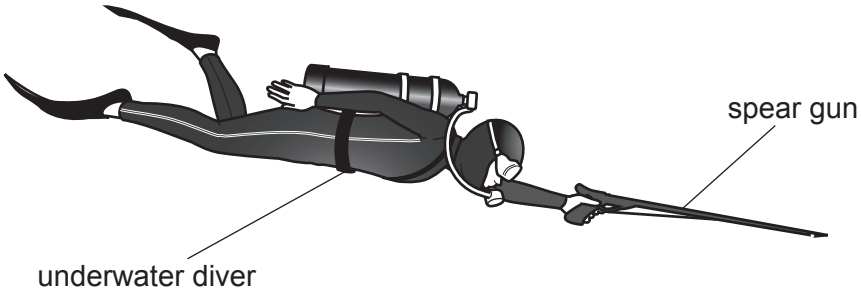
..... [3]

(c) Underwater divers are encouraged to spear the lionfish when they see them.



Suggest why spearfishing is a more environmentally friendly method of control compared with using a net.

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..... [2]

[Total: 9]

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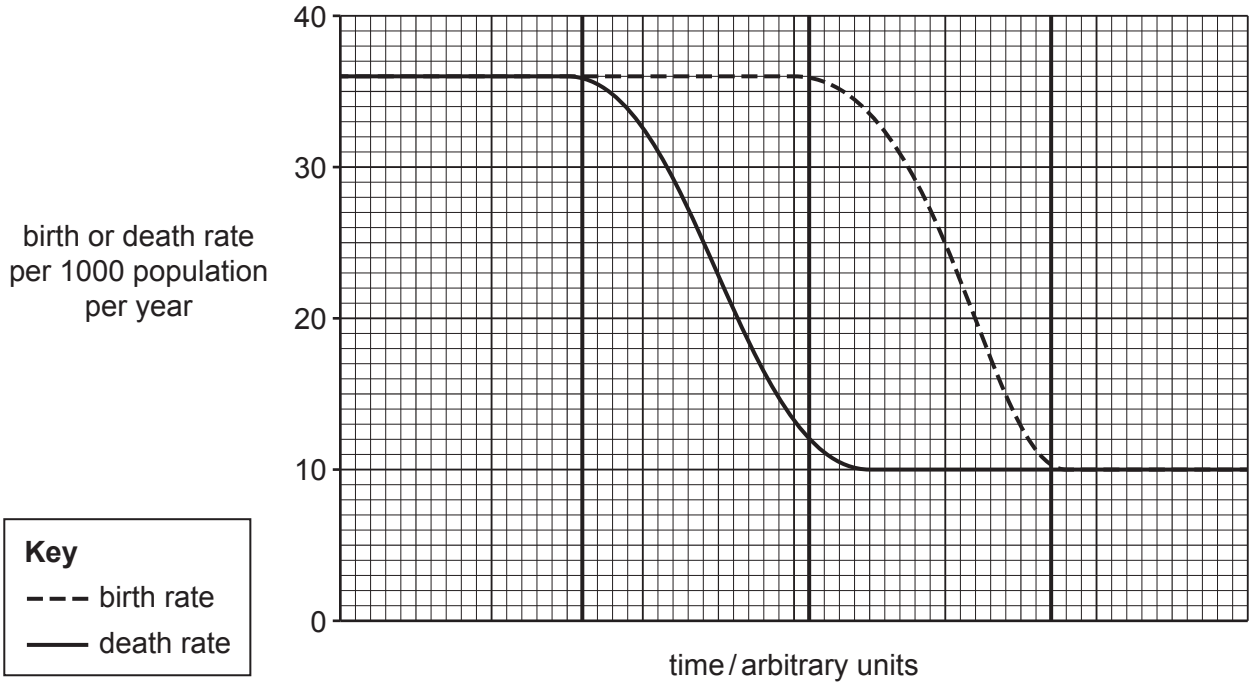
7 The graph shows the birth rate and death rate of a population.



(a) **(i)** State the maximum birth rate shown on the graph.

..... per 1000 population [1]

(ii) Shade an area on the graph to show when the population is increasing. [1]

(iii) On the graph, draw an **X** to show when the population is at its maximum. [1]

(b) Suggest reasons why the death rate of a population decreases.

.....

.....

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..... [2]

(c) State **three** pronatalist policies.

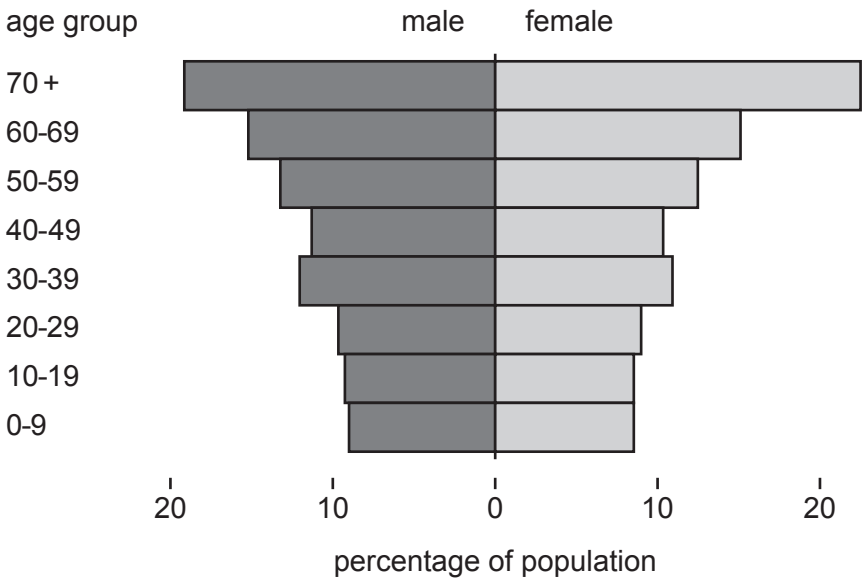
1 .....

2 .....

3 .....

[3]

(d) A country has the population pyramid shown.



Suggest the problems this causes for the country.

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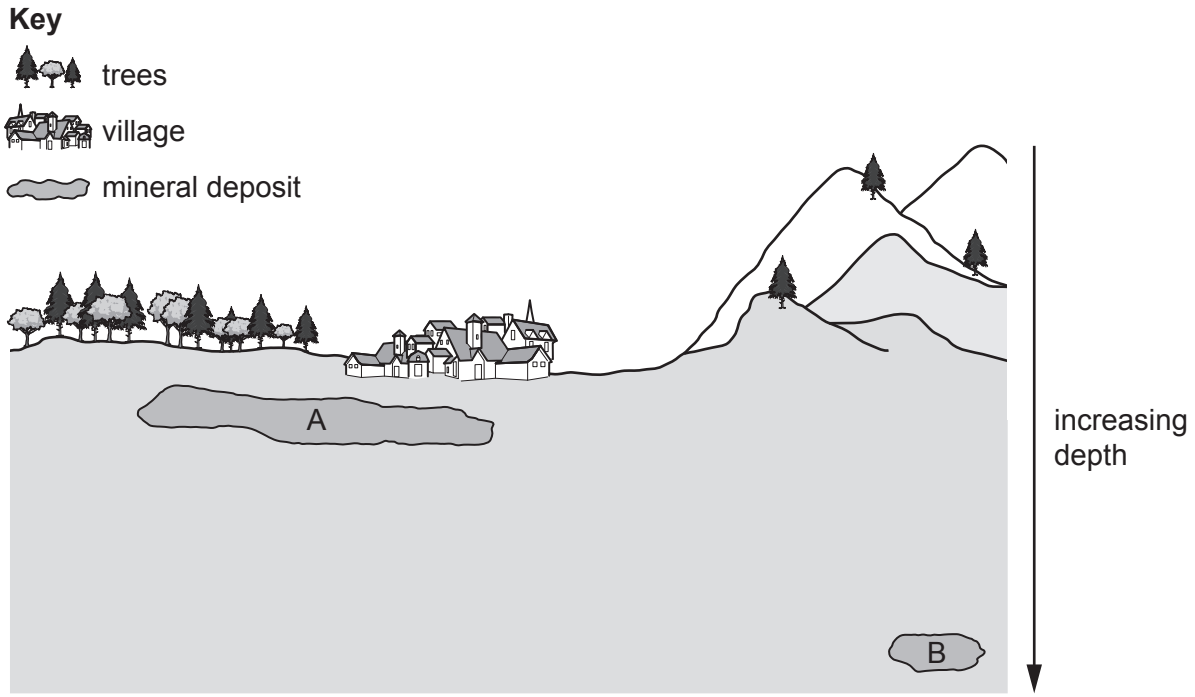
..... [4]

[Total: 12]

8 **(a)** The diagram shows the locations of two underground mineral reserves, A and B.



(i) A mining company wants to extract the minerals from location A using an open-pit mine.

Suggest reasons why the government does **not** allow the mining company to extract the minerals at location A.

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..... [2]

(ii) The government allows the mining company to extract the minerals at location B.

Suggest reasons why the mining company decides **not** to extract the minerals at location B.

.....

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.....

..... [2]

(b) State **two** ways that a mine benefits people living in the local area.

1 .....

2 .....
[2]

(c) The table shows the main uses of some metals and the number of years of remaining reserves from 2020.

metal	main uses	number of years of remaining reserves from 2020
antimony	fire retardants	30
bismuth	medicines and cosmetics	200
copper	electric wires	200
gold	jewellery and electronic components	40
molybdenum	high quality steel	80
tin	food cans and brass	300
zinc	corrosion protection	80

(i) Calculate the year in which the reserves of zinc will be depleted.

..... [1]

(ii) State the metal that has the greatest number of years of remaining reserves.

..... [1]

(iii) Describe strategies for the sustainable use of rocks and minerals.

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..... [3]

(iv) A student says:

> Minerals are in short supply and are going to run out.
>
> Governments should agree to use these reserves for essential reasons and not for jewellery and cosmetics.

To what extent do you agree with this view? Give reasons for your answer.

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..... [6]

[Total: 17]

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