Cambridge Assessment International Education

Cambridge O Level

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

5718689943

ENVIRONMENTAL MANAGEMENT **5014/12**

Paper 1 Theory **May/June 2023**

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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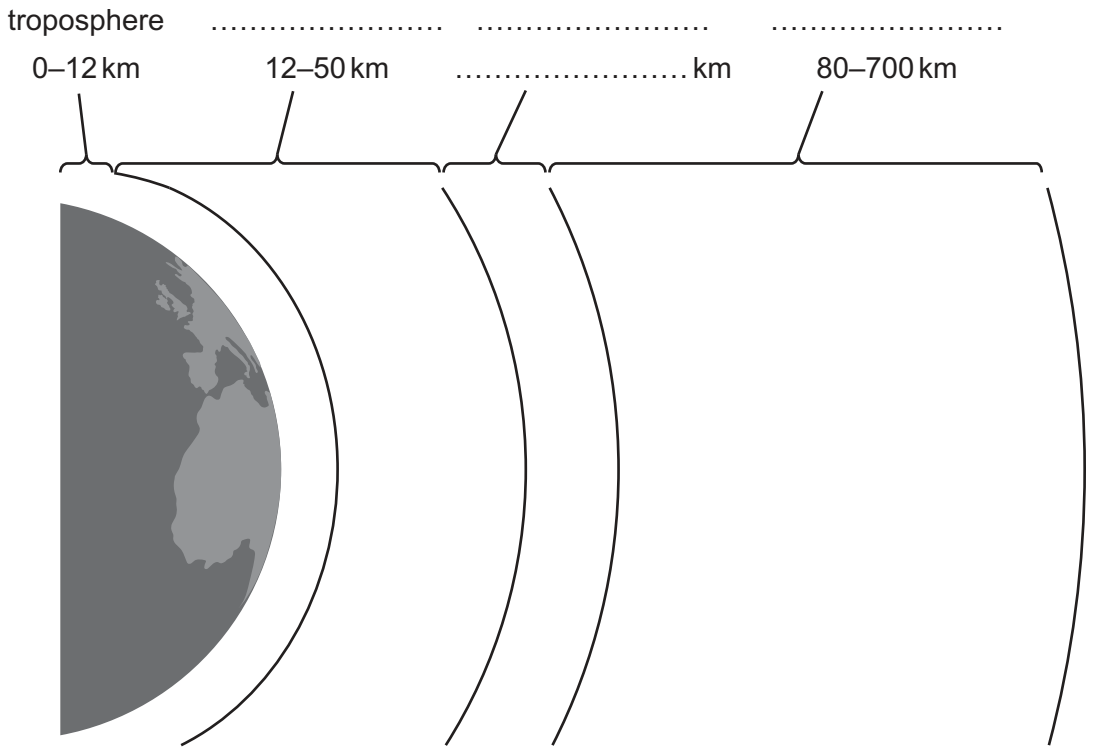
Section A

1 The diagram shows the layers in the atmosphere.



(a) Complete the diagram to show the layers in the atmosphere. [3]

(b) Add a letter **O** to the diagram to show the position of the ozone layer. [1]

(c) Explain why the ozone layer is important to life on Earth.

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..... [2]

[Total: 6]

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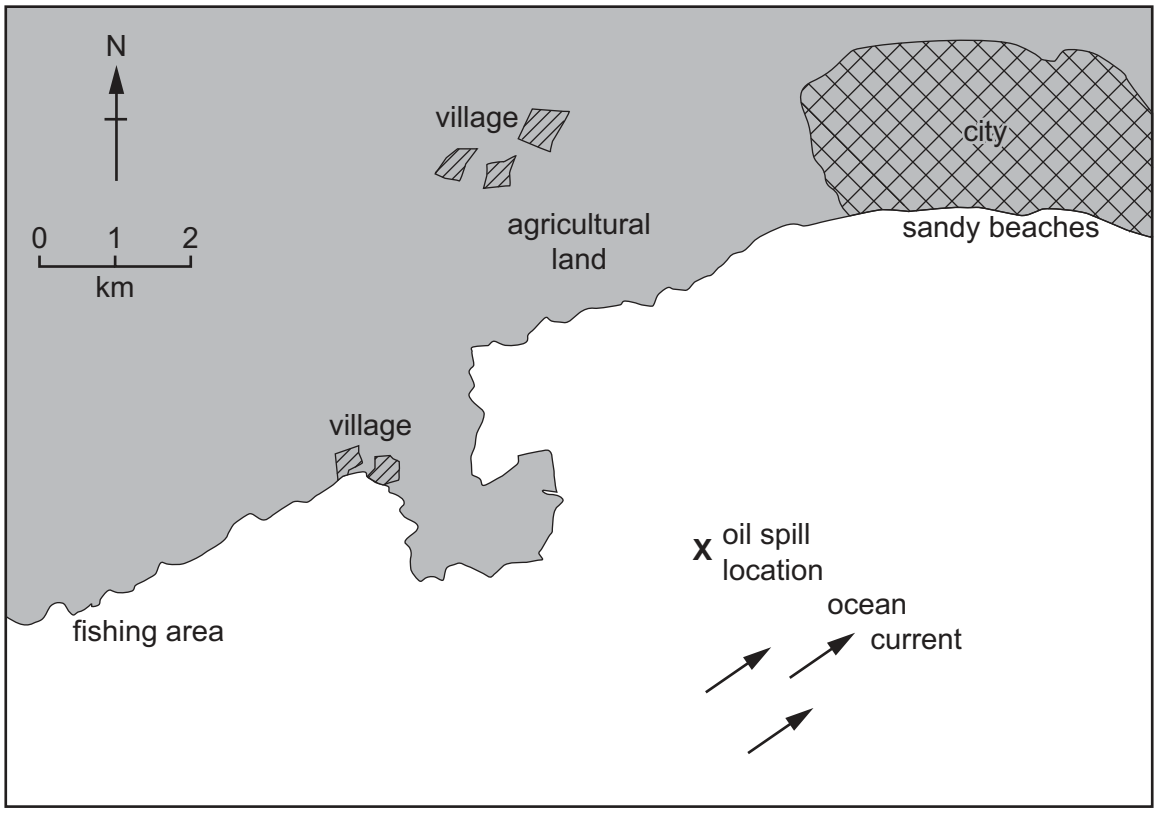
2 The map shows some features of a coastal area of a country.



(a) An oil spill occurs in the sea at location **X**.

(i) Determine the distance between the oil spill and the nearest land.

..... km [1]

(ii) Suggest which local industry will be affected first by the oil spill.

Give a reason for your answer.

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..... [2]

(b) Describe how each of the following equipment reduces the impact of an oil spill.

booms .....

.....

detergent sprays .....

.....

skimmers .....

.....

[3]

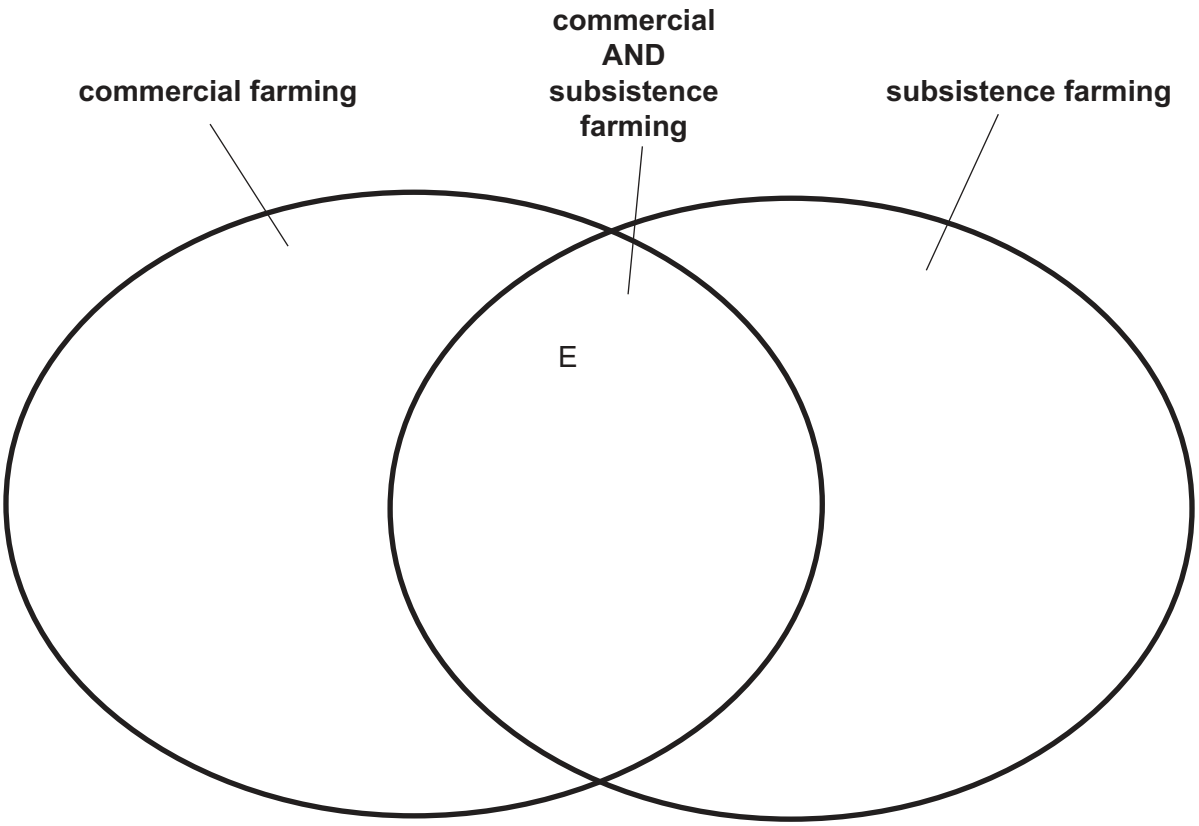
[Total: 6]

3 The table describes different farming activities.

farming activity	description
A	production mainly for selling
B	production mainly for own use
C	growing crops
D	using machinery
E	using irrigation

(a) Use the table to complete the diagram.

One has been completed for you.



[4]

(b) Explain how the overuse of insecticides impacts biodiversity.

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..... [3]

(c) State **one** alternative to using insecticides to control pests.

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..... [1]

[Total: 8]

Section B

4 A student reads a newspaper article about natural disasters.

Recent natural disasters prove that the climate crisis is getting worse

In 2019, there were many natural disasters around the world.

According to the United Nations, there was a climate crisis disaster reported each week in the month of July.

In the first six months of 2019, 7 million people lost their homes.

The World Bank estimated that three regions, South America, sub-Saharan Africa and southeast Asia, will have 143 million climate migrants by 2050.

(a) (i) The student concludes that the article does **not** prove the climate crisis is getting worse.

Suggest why.

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..... [3]

(ii) One of the natural disasters in 2019 was drought.

State the causes of drought.

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..... [2]

(iii) Explain how droughts can cause soil erosion.

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..... [2]

(b) Natural disasters often cause people to lose their homes.

Suggest how the loss of homes can increase the number of deaths due to a natural disaster.

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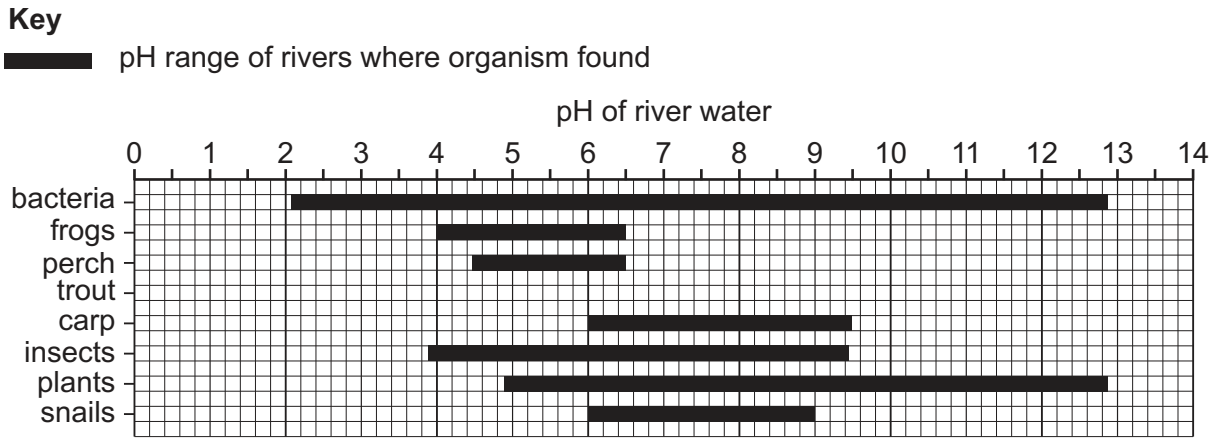
..... [3]

[Total: 10]

5 A scientist investigates the pH range of rivers that aquatic organisms can live in.

The results are shown in the diagram.



(a) (i) Trout can live in rivers with a pH range of 5.0 to 6.5.

Plot the data for trout on the diagram. [1]

(ii) State which organism can live in rivers with the greatest pH range.

..... [1]

(iii) Suggest what would happen to the populations of aquatic organisms in a river if the pH changes from 6.0 to 5.0.

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..... [4]

(b) (i) Acid rain is a cause of pH change in rivers and lakes.

Explain how acid rain is formed.

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..... [5]

(ii) Describe strategies a country can use to reduce its contribution to the problem of acid rain.

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..... [3]

[Total: 14]

6 The map shows countries where people are at risk of malaria.

(a) (i) Describe the distribution of countries where people are at risk of malaria.

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..... [3]

(ii) Suggest a reason why some countries are **not** affected by malaria.

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..... [1]

(b) (i) Describe how malaria is spread from one person to another.

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..... [4]

(ii) Scientists in some countries have identified that insecticides are no longer effective in the control of malaria.

State **two** other control methods that can be used.

1 .....

.....

2 .....

.....

[2]

[Total: 10]

7 Many modern buildings are made of concrete.

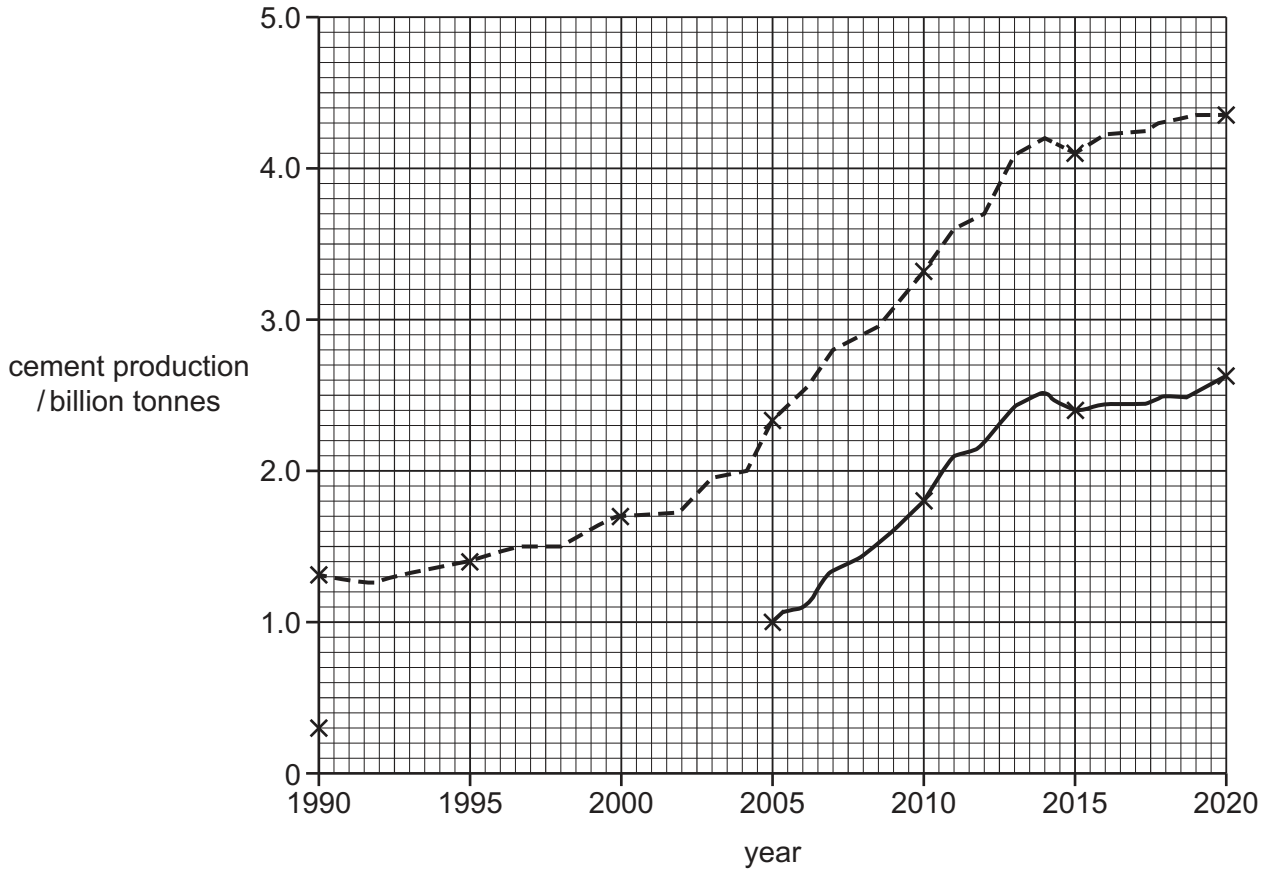
Concrete is made from cement, sand, gravel and water.

(a) The graph shows cement production between 1990 and 2020.

Key

——— production in China

– – – total world production



(i) Complete the line graph for China using the data in the table.

year	cement production / billion tonnes
1995	0.4
2000	0.6

[2]

(ii) Describe the trend in world cement production between 1990 and 2020.

.....

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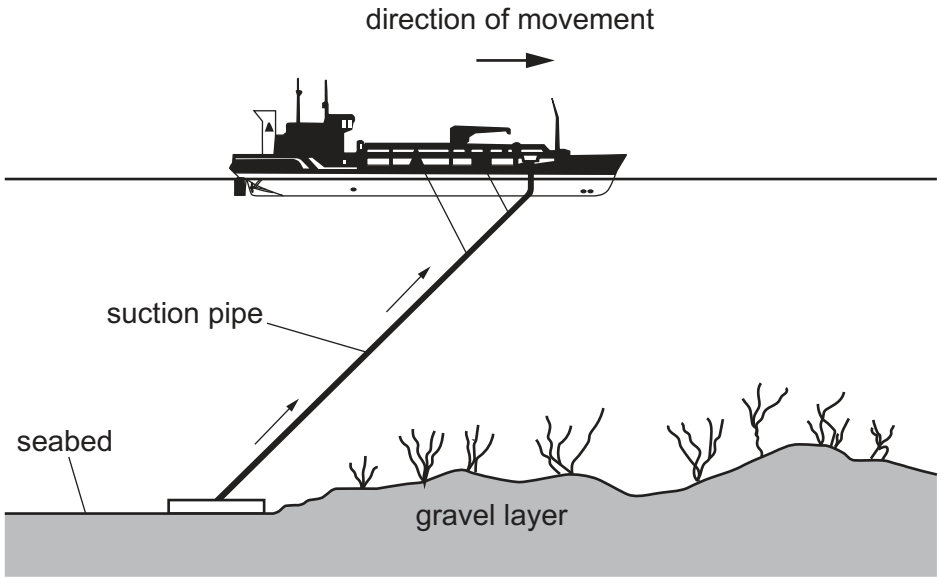
..... [2]

(iii) Calculate the percentage of world production of cement that was produced in China in 2015.

..... % [1]

(b) Gravel is used in the production of concrete.

The diagram shows how gravel is extracted from the seabed.



(i) Suggest the effect this gravel extraction has on the marine ecosystem.

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..... [3]

(ii) Suggest why it is difficult for governments to control the extraction of gravel from the seabed.

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..... [2]

(c) State **three** strategies to make mineral extraction more sustainable.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 13]

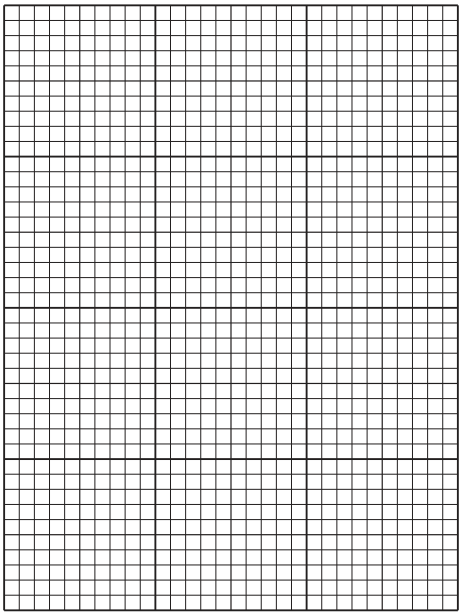
8 The northern white rhinoceros is an endangered species of animal.

The table shows population data about this rhinoceros.

year	wild population	captive population	total population
1939	2500	8	2508
1959	2000	7	2007
1979	500	15	515
1999	.....	11	41
2019	0	2	2

(a) (i) Complete the table for the **wild** population in 1999. [1]

(ii) Plot a bar chart for the **captive** population between 1939 and 2019.



[4]

(iii) Suggest why keeping the northern white rhinoceros in captivity has **not** increased its population.

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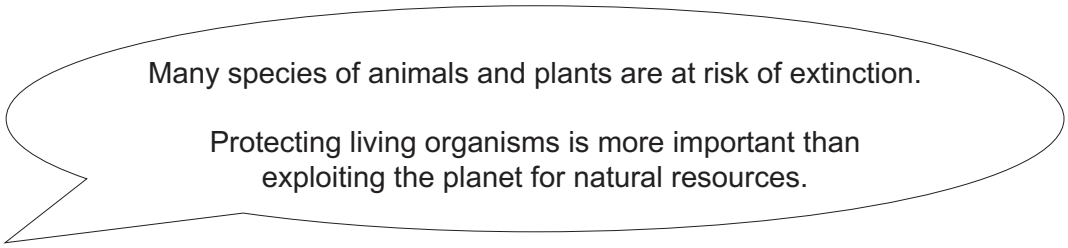
..... [2]

(b) A scientist says:



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

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..... [6]

[Total: 13]