



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

CANDIDATE  
NAME

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NUMBER

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**ENVIRONMENTAL MANAGEMENT**

**0680/23**

Paper 2

**October/November 2017**

**1 hour 45 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 **both** 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.

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 **14** printed pages and **2** blank pages.

1 (a) (i) State what is meant by *rural to urban migration*.

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

(ii) Migration occurs because of push and pull factors. Some push and pull factors are given in the list.

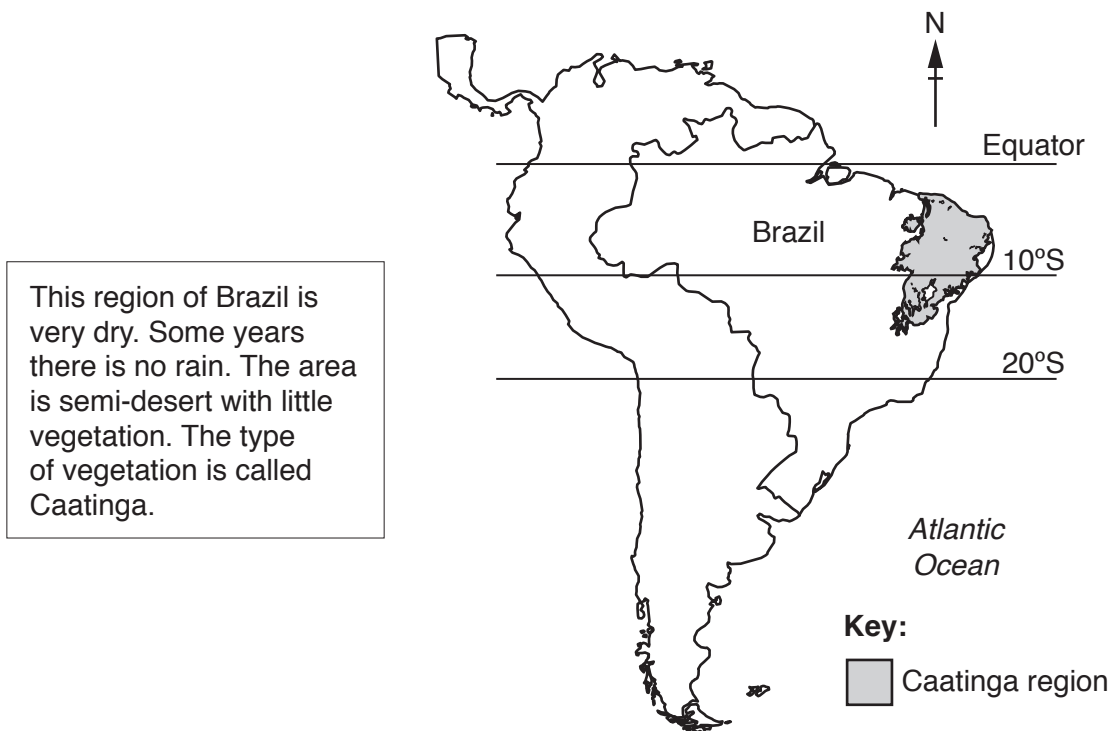
- jobs in industry
- few doctors
- lack of schools
- better paid jobs

Write the factors in the correct place in the table.

push factors	pull factors

[2]

(b) The following information is about the Caatinga region in Brazil.



(i) Describe the location of the Caatinga region in Brazil.

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

(ii) Use the information to suggest reasons why farmers are leaving the Caatinga region of Brazil.

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.....[3]

(iii) The photograph shows Caatinga vegetation.



Describe the vegetation shown in the photograph.

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.....[3]

(iv) Explain why plants such as those shown in (iii), have shallow, wide spreading roots.

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

(v) The land in the Caatinga region has been overused for grazing and growing crops.

Explain how this overuse can cause desertification.

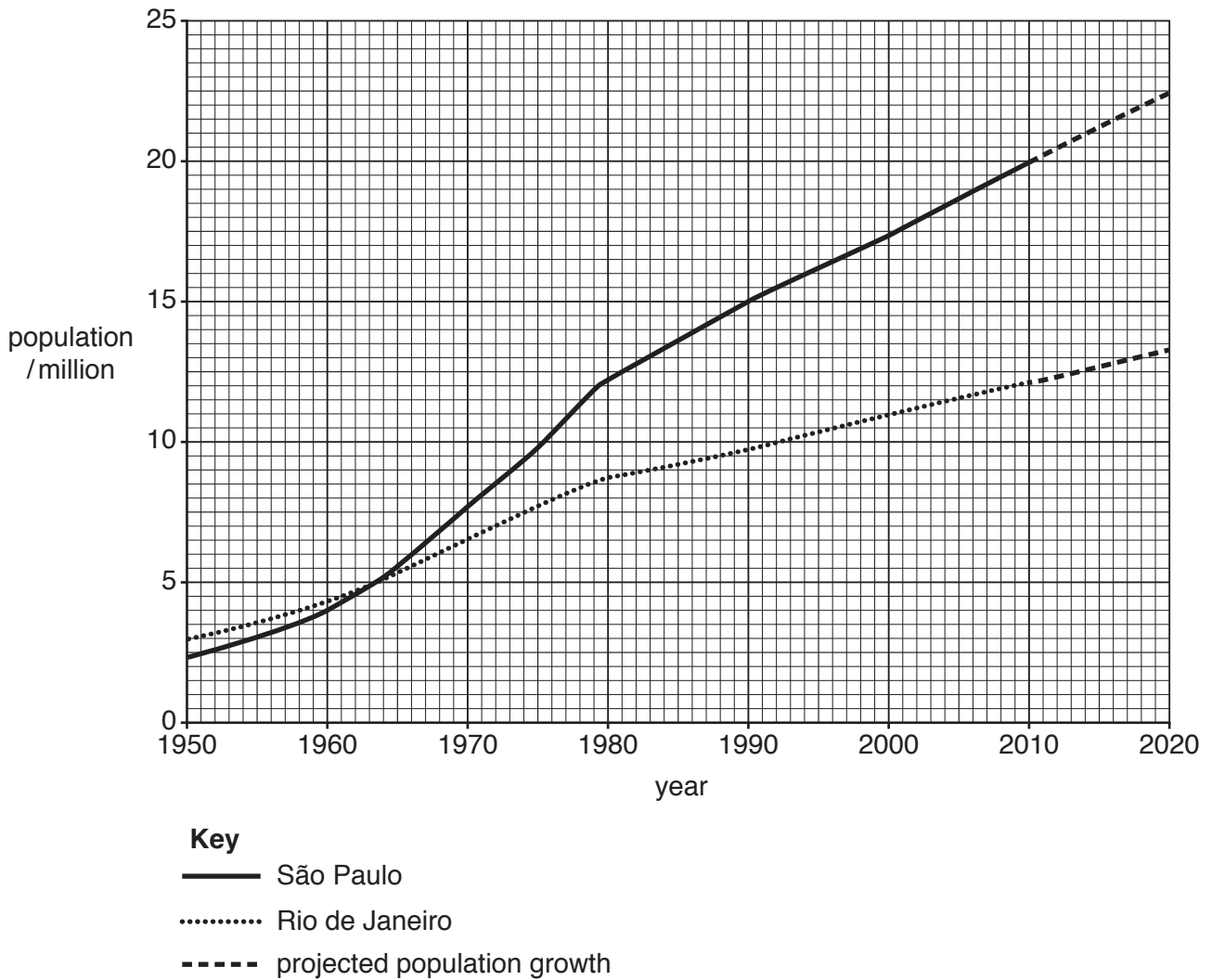
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.....[5]

(vi) Over 50% of the habitats in the Caatinga region have been destroyed. One strategy that could be used to protect this area of Brazil is to create a national park.

Suggest ways in which the region could be managed as a national park.

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.....[3]

(c) Many people are moving from the north east of Brazil to cities such as São Paulo and Rio de Janeiro. The graph shows urban populations in these two cities.



(i) State the year in which the two cities had the same population.

.....[1]

(ii) State the population of São Paulo in 2010.

.....[1]

(iii) Calculate the difference between the predicted populations of Rio de Janeiro and São Paulo in 2020.

Show your working.

.....[2]

- (iv) Explain **one** reason, other than migration, why the population of these cities is increasing.

.....

.....

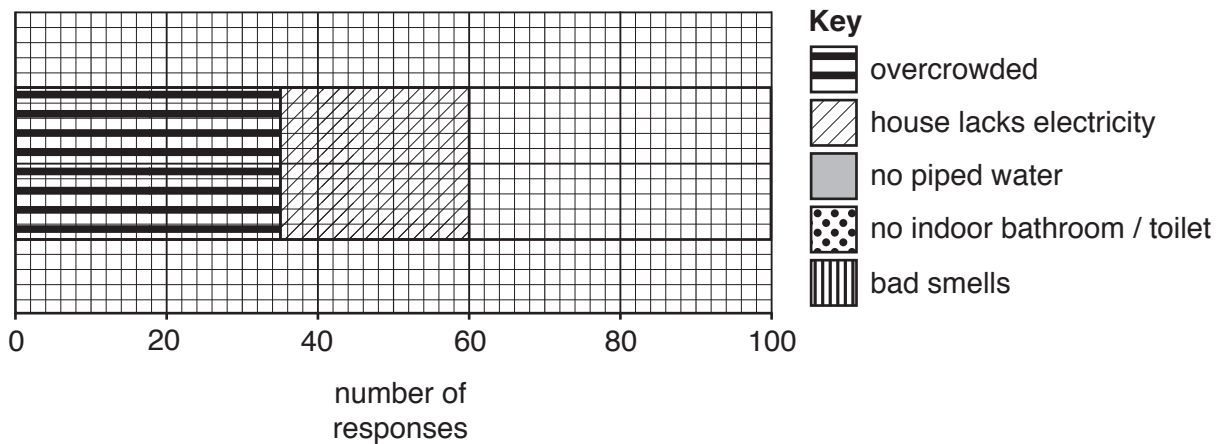
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.....[2]

- (d) Many people arriving in São Paulo live in areas of poor housing. The table shows the results of a survey to find the views of people living in these areas. The survey asked 100 people to name their worst housing problem.

housing problem	number of responses
overcrowded	35
house lacks electricity	25
no piped water	15
no indoor bathroom / toilet	15
bad smells	10

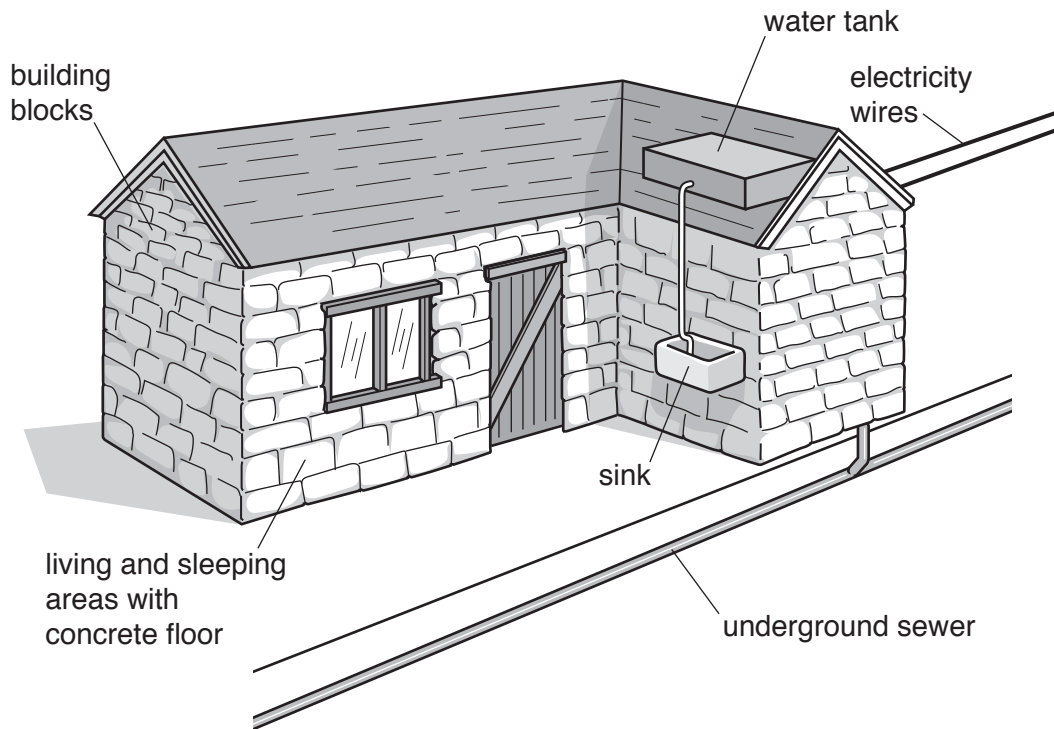
- (i) Use this information to complete the divided bar graph.



[3]

(ii) The diagram shows a scheme in São Paulo to improve housing.

Suggest how the scheme will improve the quality of life for the people living there.



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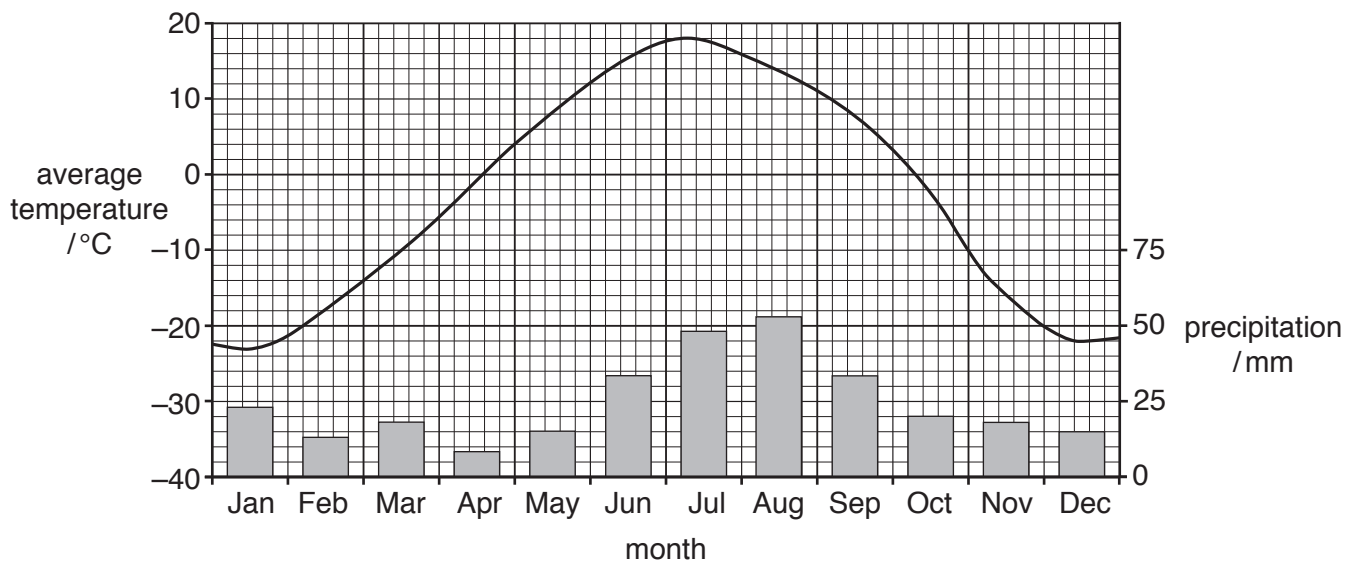
.....

.....[5]





- 2 (a) The climate graph shows average temperature and precipitation for Fairbanks in Alaska, which has a cool temperate interior climate.



- (i) Complete the table using information from the graph.

lowest average temperature	.....°C
month with the highest average temperature	.....
annual average temperature range	from ..... to ..... °C

[3]

- (ii) Describe the pattern of precipitation throughout the year as shown by the graph.

.....  
.....  
.....  
.....  
.....  
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.....  
.....[3]

- (iii) State the number of months in which precipitation will fall as snow.

.....[1]

(b) The information is about regions with a cool temperate interior climate.

Winters are long and cold. There are strong winds and frequent snow falls. Summers are short. The vegetation that grows is coniferous forest or taiga. The vegetation has adapted to the climate.

(i) Complete the table to explain how the trees are adapted for survival in this type of climate.

adaptation	explanation
needle shaped leaves	
thick bark	
downward sloping branches	

[3]

(ii) Suggest why it takes a long time for the leaves on the forest floor to decompose in this climate.

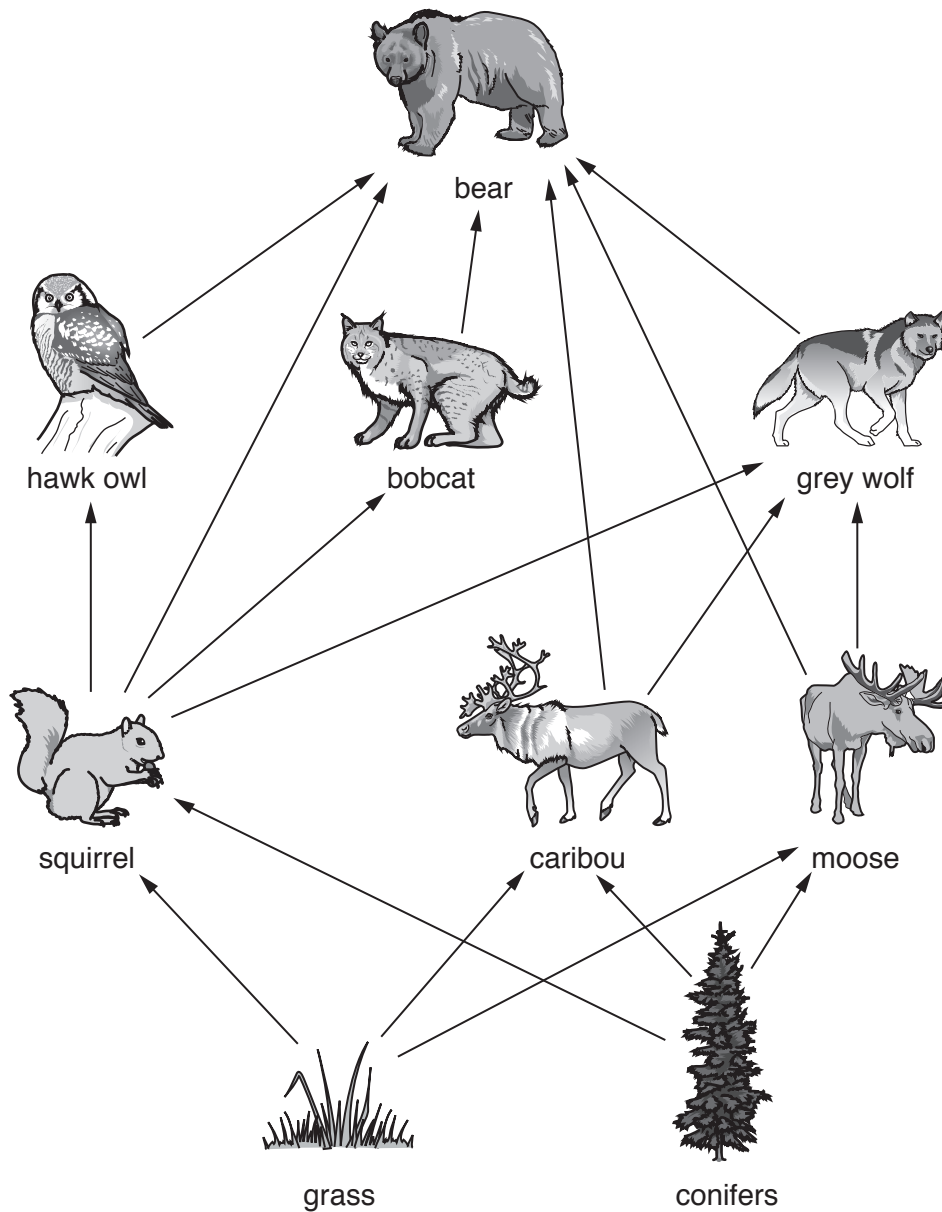
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.....[2]

(c) The diagram shows a food web in the taiga.



(i) State a producer shown in the diagram.

.....[1]

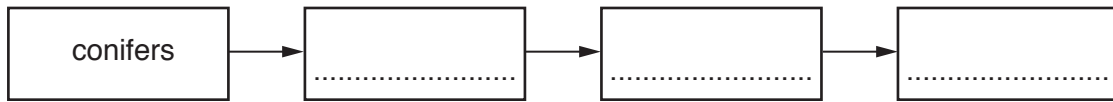
(ii) State an animal, shown in the diagram, that eats squirrels.

.....[1]

(iii) State the top consumer shown in this food web.

.....[1]

(iv) Use the food web diagram to complete a simple food chain in the boxes.



[3]

(v) Suggest what would happen to the food web if the population of squirrels decreased.

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.....  
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.....  
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.....[3]

(vi) Suggest **two** environmental factors that could have caused the population of squirrels to decrease.

1 .....

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2 .....

.....[2]

(d) (i) Another type of forest is the monsoon forest.

Suggest why monsoon forests shed their leaves in the dry season.

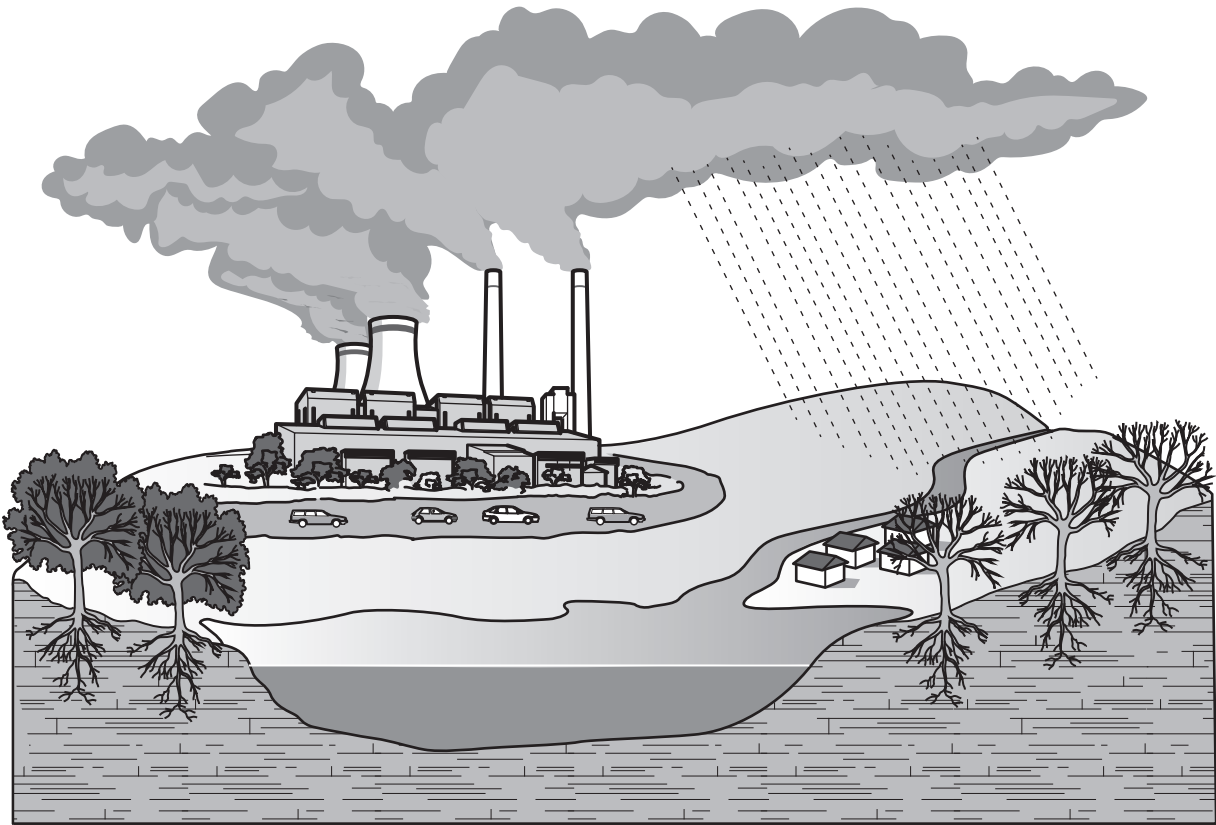
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(ii) Trees in the monsoon forest have a long, narrow extension at the tip of their leaves. This is called a drip-tip.

Explain why the leaves have a drip-tip.

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

- (e) Forest ecosystems are under threat from human activity. They are affected by acid rain. The diagram shows some causes and effects of acid rain.



- (i) Use the diagram and your own knowledge to explain how acid rain is formed.

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.....[4]

- (ii) State **one** effect of acid rain shown on the diagram.

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

(iii) Forest ecosystems are also under threat from deforestation.

Suggest how deforestation contributes to rising global temperatures (global warming).

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.....[3]

(f) Other than reducing global warming, suggest reasons why some people think that the forests around the world should be saved whilst other people think they should be developed.

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