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International Education

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CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

9610200915

ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **May/June 2026**

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. Do **not** use correction fluid or tape.
- 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 **24** pages. Any blank pages are indicated.

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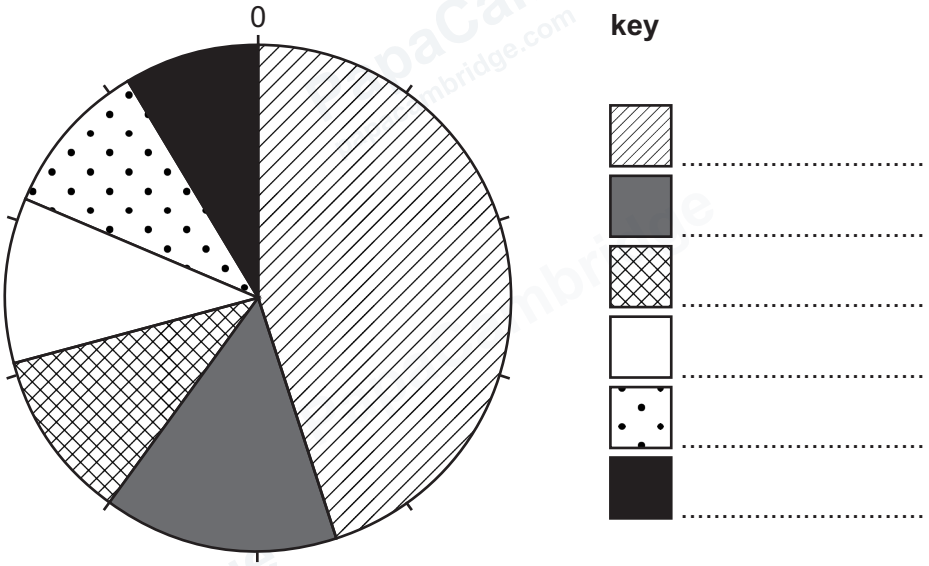
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Section A

1 **(a)** The table shows data for different domestic electricity uses in the USA.

use	percentage
cold storage of food	10
cooling homes	15
heating homes	8.5
heating water	11
lighting homes	10.5
other	

(i) Complete the pie chart key for the different domestic electricity uses in the USA.



[1]

(ii) Determine the percentage for 'other' domestic electricity use.

.....% [1]

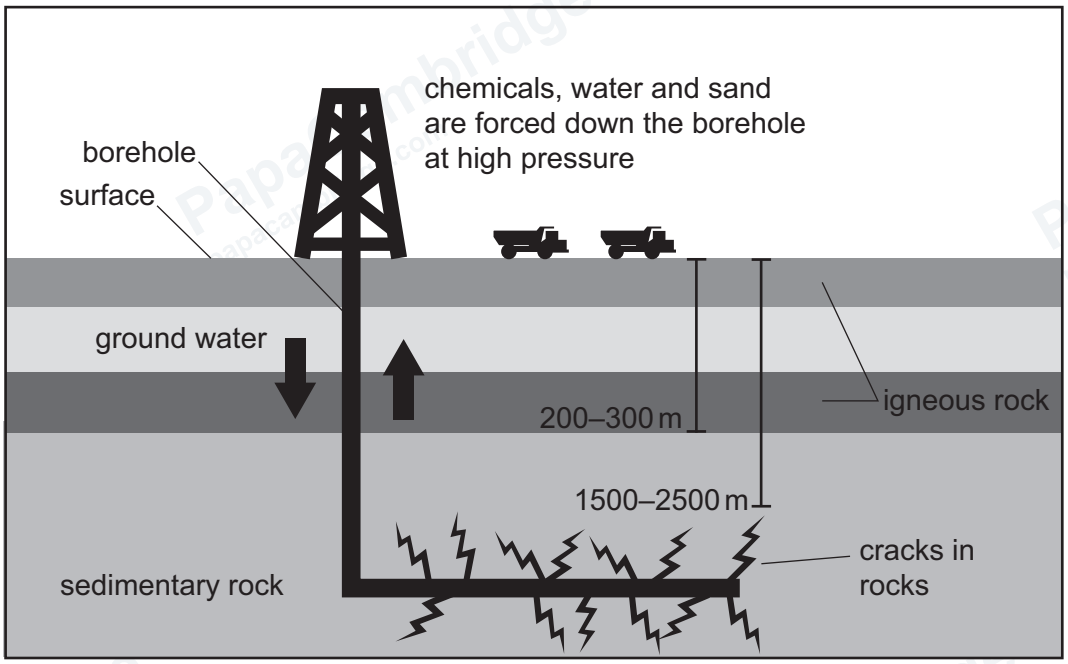
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(b) The diagram shows the process of fracking.

The product obtained by fracking is used to generate electricity.



not to scale

(i) Explain why the borehole must be more than 300 m below the surface.

.....

..... [1]

(ii) Explain why high pressure is used to force chemicals, water and sand down the borehole.

.....

..... [1]

(iii) Explain the role of sand in fracking.

.....

..... [1]

(iv) State **two** substances that are collected at the surface during fracking.

1 .....

2 .....

[2]

(v) Name the sedimentary rock shown in the diagram.

..... [1]

[Total: 8]

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2 The photograph shows a row of planted trees. This is a strategy for reducing soil erosion.



(a) Explain how this strategy reduces soil erosion.

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..... [3]

(b) State **two** other strategies to reduce soil erosion.

1 .....

2 .....

[2]

(c) Describe what is meant by desertification.

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..... [2]

[Total: 7]

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3 Many people do **not** have access to clean water.

(a) Describe how a dam is used to create a source of fresh water.

.....

.....

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.....

.....

..... [3]

(b) Multipurpose dams create a source of fresh water and benefit people in other ways.

State **two** other ways a multipurpose dam benefits people.

1 .....

2 .....

[2]

[Total: 5]

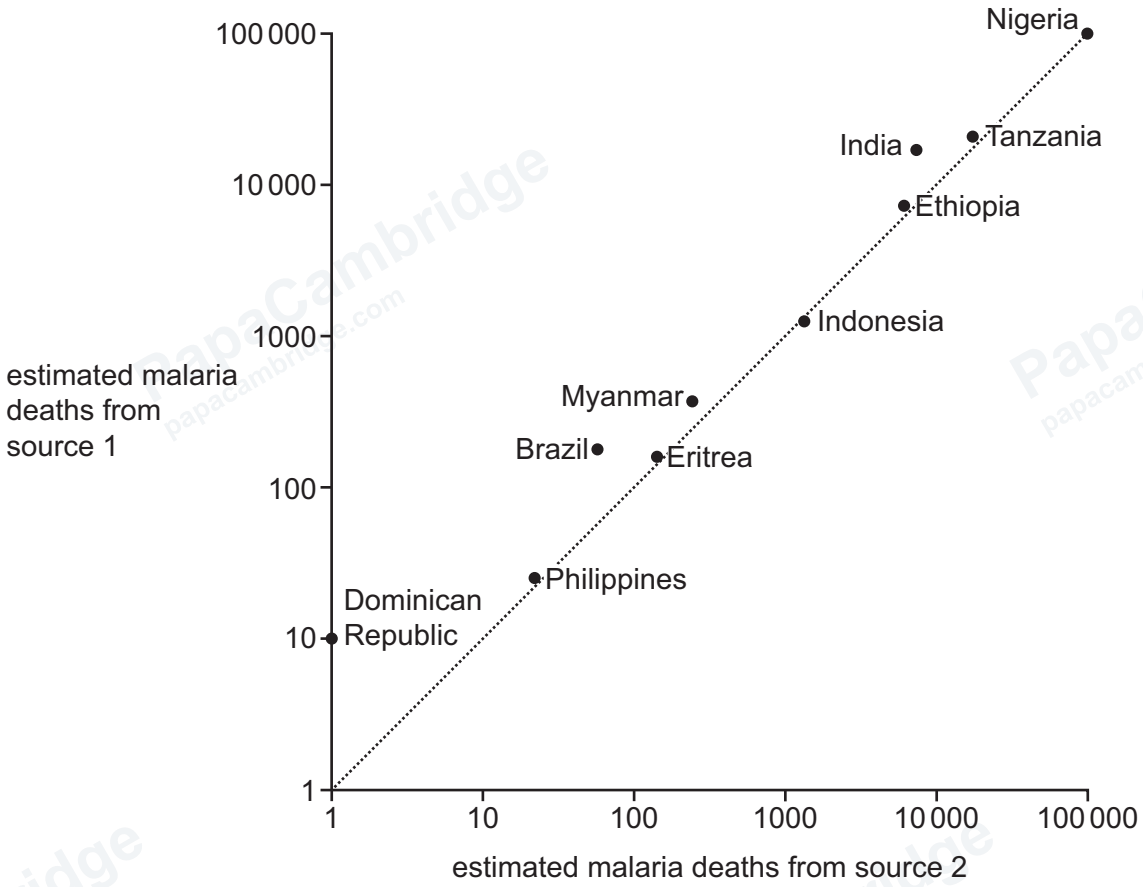
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Section B

4 Malaria is a water-related disease.

(a) The diagram shows estimates from two sources for the annual number of deaths from malaria in different countries.



(i) Identify the country with the greatest estimated deaths from malaria.

..... [1]

(ii) Explain what the diagram shows about the estimates from the two sources.

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..... [1]

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(b) The vector for the malaria parasite is the *Anopheles* mosquito.

Juvenile mosquitoes are called larvae. These larvae can live on flooded land such as rice fields.

The photograph shows an aerial drone used to spray rice fields with an insecticide to kill mosquito larvae in Zanzibar, Africa.



Suggest **two** benefits of this strategy for controlling malaria.

1 .....

.....

2 .....

.....

[2]

(c) A farmer investigates how effective insecticides are for killing mosquito larvae.

Three rice fields are sprayed with water and three different rice fields are sprayed with insecticide. The water is used as a control to compare with the results of the insecticide.

The six fields are selected at random.

Describe how to select the fields at random.

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..... [2]

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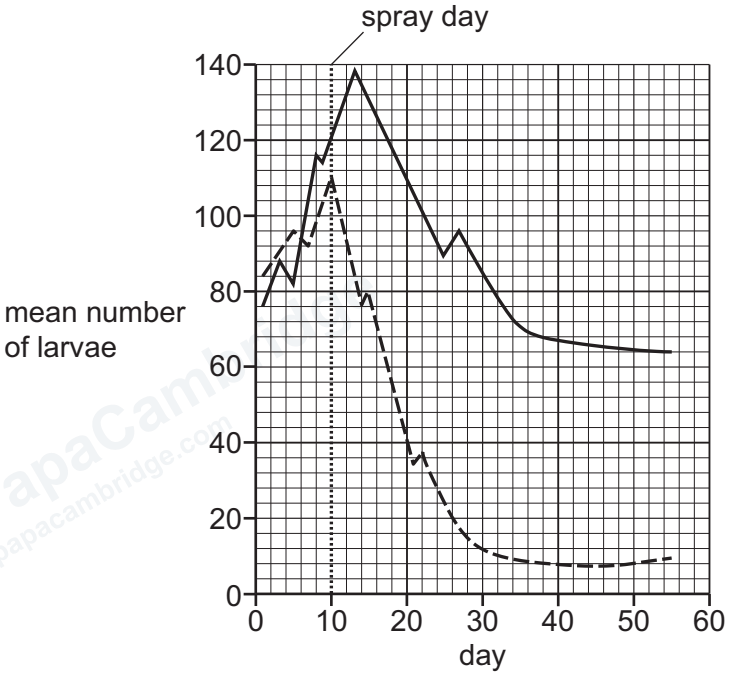
(d) The fields in **4(c)** are sprayed on day 10.

The graph shows the mean number of larvae counted before and after the fields are sprayed.

key

—— fields sprayed with water

– – – fields sprayed with insecticide



(i) Identify the mean number of larvae counted on day 10 in the fields sprayed with insecticide.

..... [1]

(ii) Use the graph to write a conclusion about how effective this strategy is for controlling malaria.

Use the results to support your answer.

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..... [3]

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(e) Cholera is another water-related disease.

Describe strategies to control cholera.

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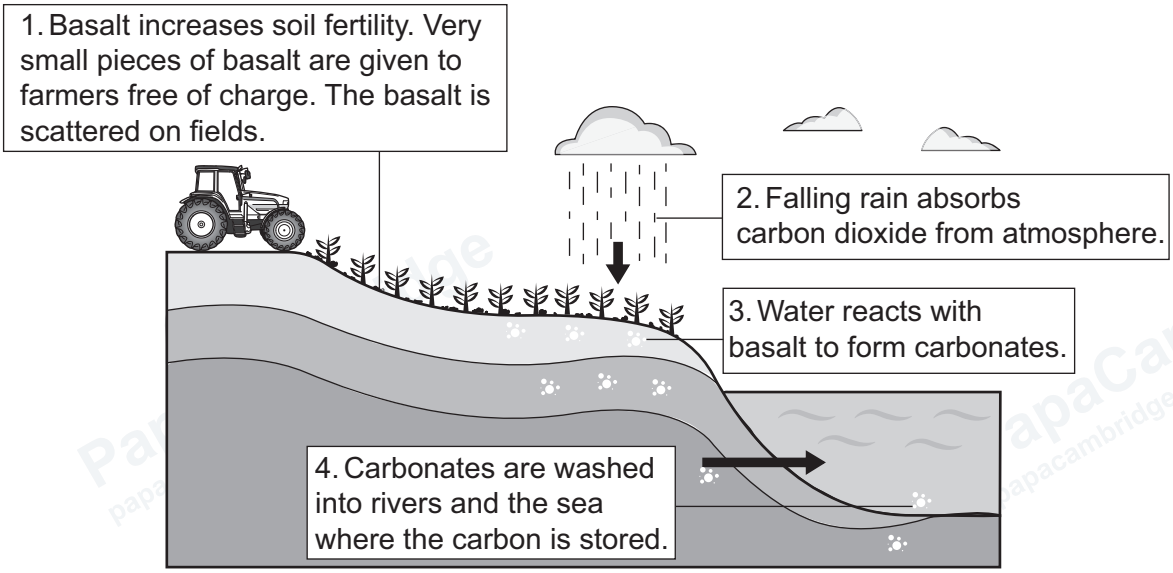
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..... [5]

[Total: 15]

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5 The diagram shows a method of atmospheric carbon capture and storage and four statements that describe this method.



(a) (i) Basalt is a type of rock.

Name this type of rock.

..... [1]

(ii) In statement 1 on the diagram, very small pieces of basalt are used.

(Circle) the process in the rock cycle that this statement represents.

cementation **compaction** **melting** **weathering**

[1]

(iii) Statement 4 represents a process in the water cycle.

Name this process.

..... [1]

(b) A mass of 4 tonnes of basalt captures 1 tonne of atmospheric carbon dioxide.

A report states that in 2022 global carbon dioxide emissions were 37 billion tonnes.

Calculate the mass of basalt needed to remove this mass of carbon dioxide from the atmosphere.

..... billion tonnes [1]

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(c) Suggest benefits and limitations of this method to remove carbon dioxide from the atmosphere.

benefits .....

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limitations .....

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[4]

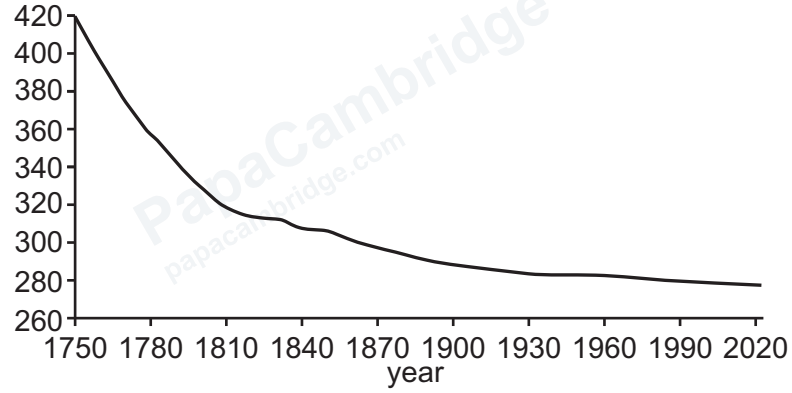
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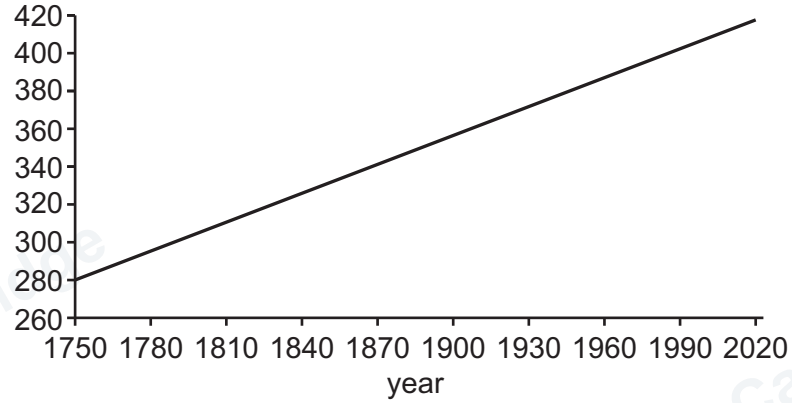
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(d) A student draws four graphs, **A**, **B**, **C** and **D**, to show how atmospheric carbon dioxide, CO_2, concentrations have changed with time.

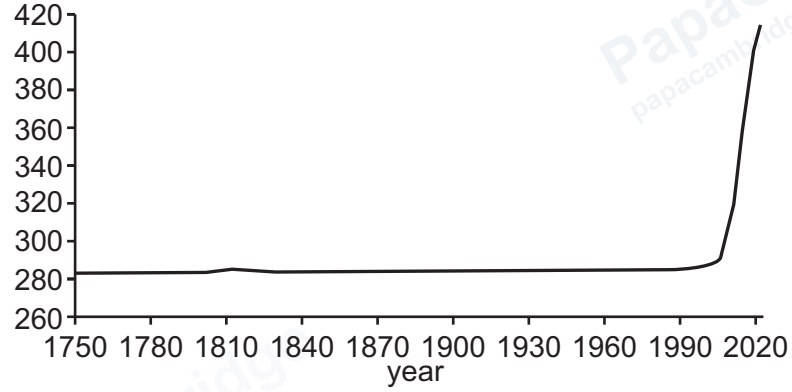
A



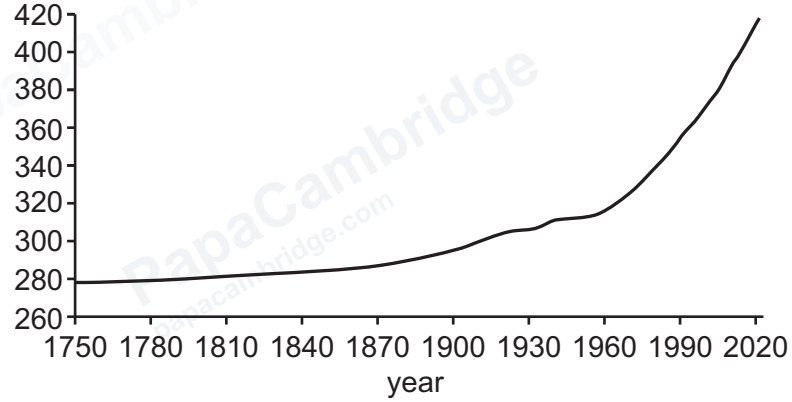
B



C



D



Identify the graph, **A**, **B**, **C** or **D**, that best represents atmospheric carbon dioxide concentrations.

..... [1]

[Total: 9]

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6 Landfill sites are used to store waste.

(a) An environmental impact assessment is used before a landfill site is created.

State **three** features of an environmental impact assessment.

1 .....

.....

2 .....

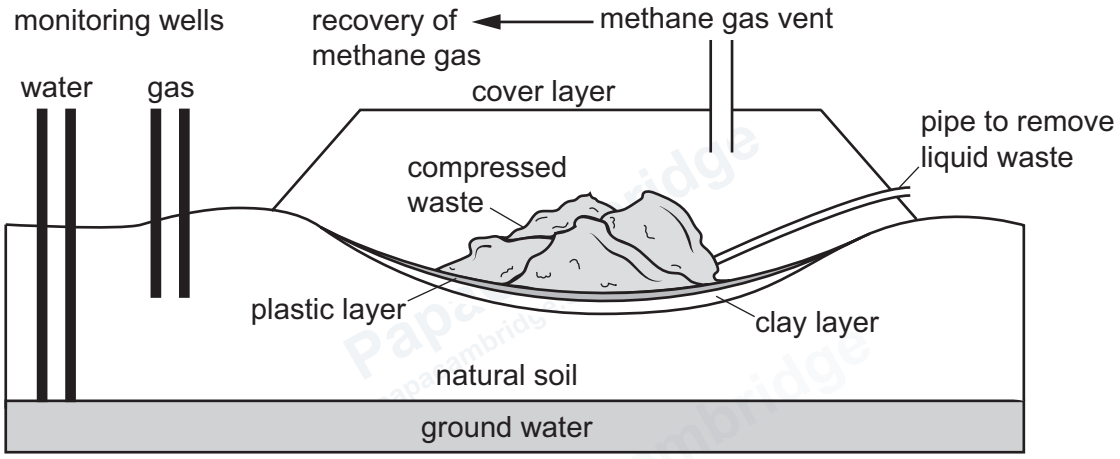
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3 .....

.....

[3]

(b) The diagram shows the design of a landfill site.



(i) Suggest why the waste is compressed.

.....

..... [1]

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(ii) Use the diagram to describe **three** ways the landfill site is managed to reduce impacts on the environment.

Give reasons for your answer.

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2 .....

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3 .....

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[3]

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(c) The photograph shows waste tyres from vehicles at a landfill site.



The waste tyres are made into a fine powder and mixed with waste stone from the building industry.

The mixture is added to a substance used to make roads.

Roads made with this mixture are less likely to crack.

500 waste tyres are used per km of road surface.

One benefit of using this mixture to make roads is a reduction in the need for landfill sites.

Suggest **other** benefits.

Give reasons for your suggestions.

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..... [4]

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(d) Restoration of landfill sites can return the land to beneficial use.

Describe how bioremediation is used to restore land.

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..... [3]

(e) In 1995, there were 1500 landfill sites in the UK, Europe. In 2020, there were 250 sites.

(i) Determine the percentage decrease in landfill sites in the UK.

.....% [1]

(ii) One reason for the reduction in landfill sites is increased taxation.

Suggest how increased taxation supports good environmental management.

.....

..... [1]

[Total: 16]

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7 One impact of climate change in the Arctic is a change in the area of summer sea ice.

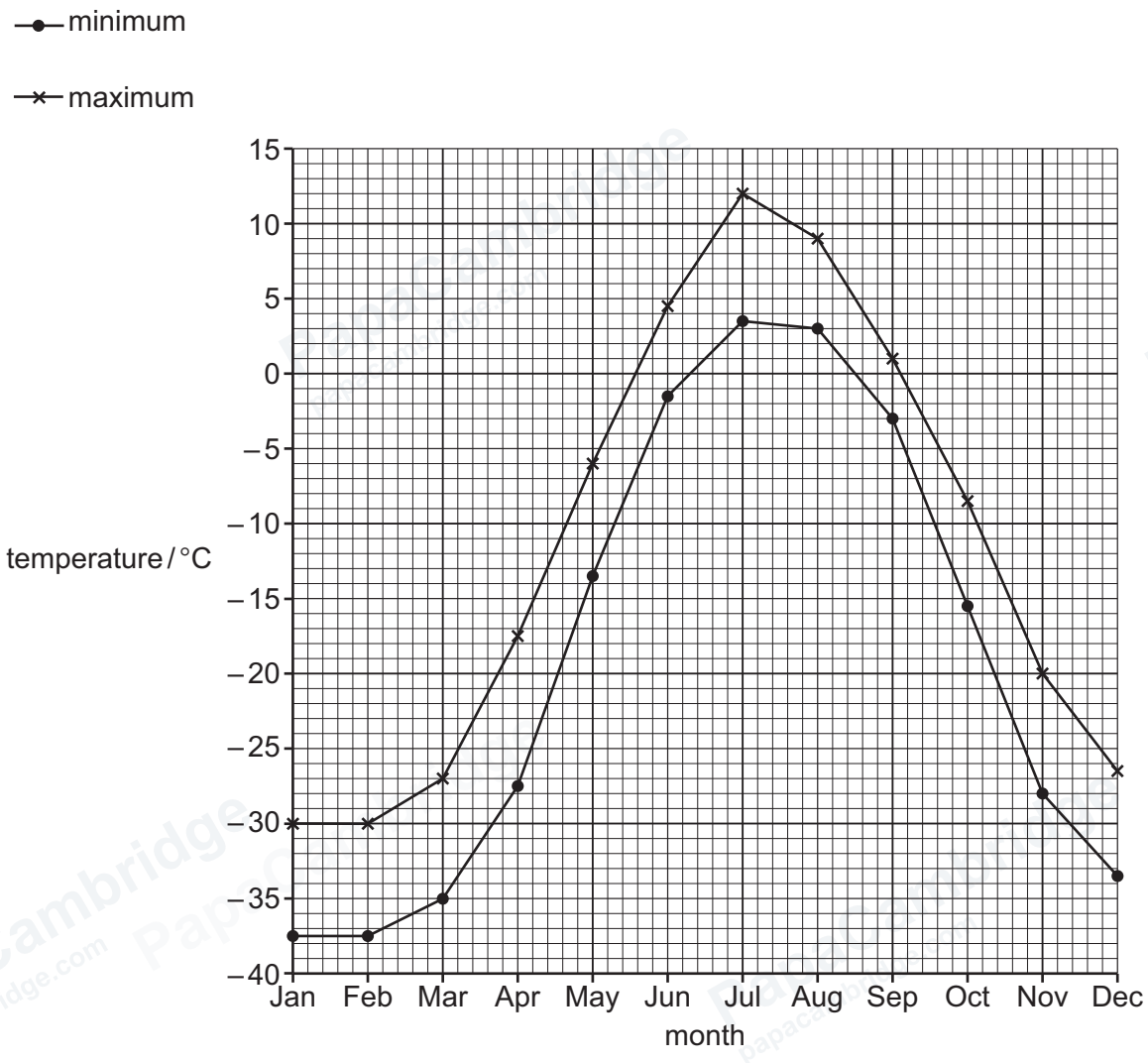
(a) Temperature and precipitation are recorded at 30 climate stations in the Arctic.

Suggest why 30 climate stations are used to record temperature and precipitation.

.....

..... [1]

(b) The graph shows the monthly mean minimum and maximum temperatures from these climate stations.



(i) Identify the month with the warmest mean temperature.

..... [1]

(ii) Calculate the range in mean temperature for January.

..... °C [2]

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(c) The table shows mean precipitation recorded from these climate stations.

month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
precipitation /mm	4.0	4.5	5.0	6.5	10.5	12.0	22.5	28.0	20.0	14.5	6.0	5.0

(i) Calculate the total mean precipitation for these climate stations.

.....mm [1]

(ii) Plot the data as a bar chart on the grid.



[4]

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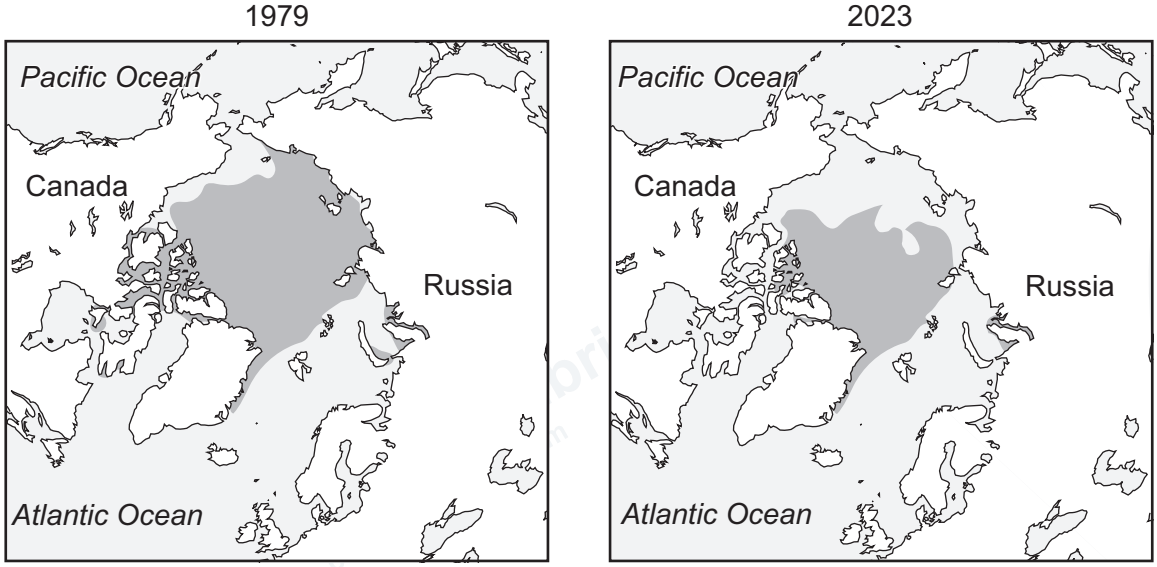
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(d) The map shows the change in area of summer sea ice in the Arctic from 1979 to 2023.

key

area of summer sea ice



Circle the best estimate for the percentage of sea ice that has been lost from 1979 to 2023.

10% **30%** **60%** **80%**

[1]

(e) Scientists investigate strategies to reduce the impacts of climate change in the Arctic.

One strategy is to:

- drill a hole in the sea ice to the sea water under the ice
- extract 1000 dm^3 of sea water per minute and pump this sea water to the surface
- cover the surface of the sea ice with this sea water and allow the water to freeze in the cold temperatures.

(i) Suggest **two** benefits of this strategy.

1 .....

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2 .....

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[2]

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(ii) Suggest **two** limitations of this strategy.

1 .....

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2 .....

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[2]

(f) Ice sheets are large areas of ice on top of land.

A student makes this statement about ice sheets.

> The biggest impact of climate change is ice sheet melting.

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

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