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ENVIRONMENTAL MANAGEMENT **0680/12**

Paper 1 Theory **February/March 2025**

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.

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[Turn over

Section A

1 **(a)** Use words from the list to complete the sentences about the Earth's plates.

core **crust** **cyclones** **earthquakes** **magma** **mantle**

Each word may be used once, more than once or not at all.

The Earth's ..... is made of plates. A plate boundary is where two plates meet.

As plates move, they cause ..... along the plate boundaries.

[2]

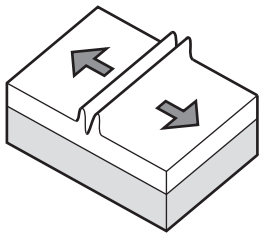
(b) The diagram shows three types of plate boundary, **A**, **B** and **C**.

Name the three types of plate boundary, **A**, **B** and **C**.

Key

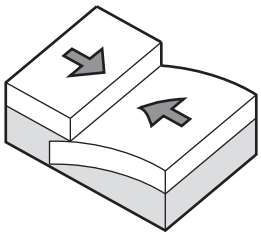
direction of movement

A



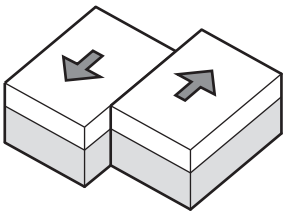
.....

B



.....

C



.....

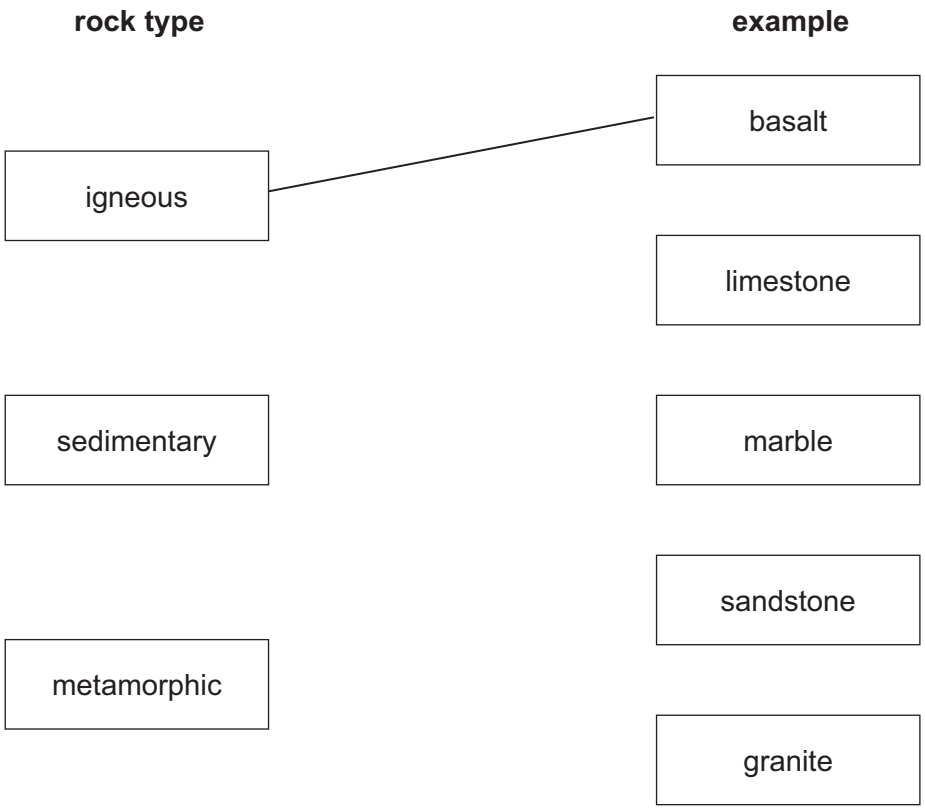
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(c) The diagram shows rock types and examples of each rock type.

Draw lines from each rock type to the correct examples. There may be one or more example for each rock type.

One line has been done for you.

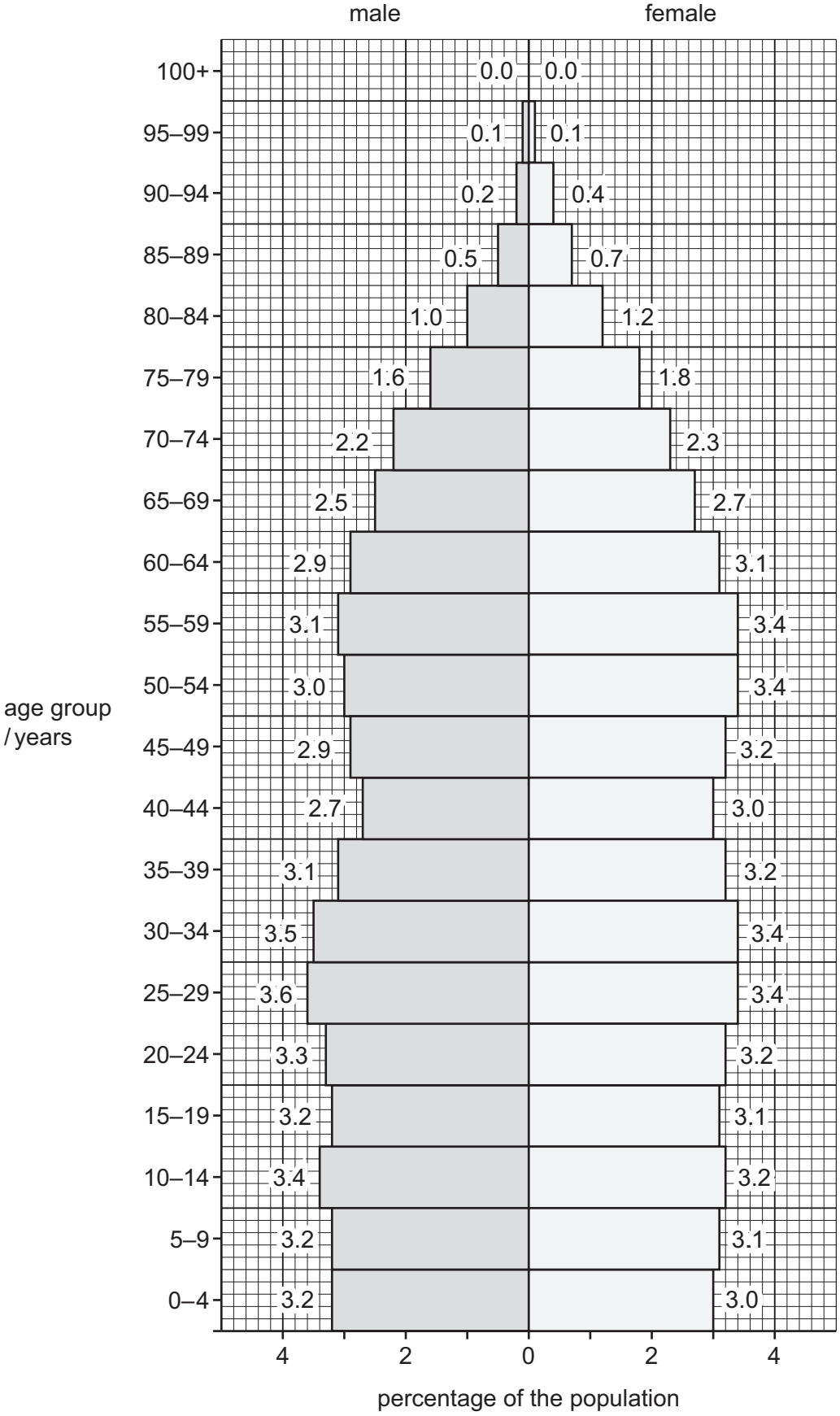


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2 The diagram shows a population pyramid for a country in 2022.



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(a) **(i)** Identify the age group with the greatest difference in percentage of the population between males and females.

..... [1]

(ii) State the percentage of the population that is over 79 years of age.

..... [1]

(iii) The population pyramid shows that 0.0% of the population are aged 100+ years.

Explain why this does **not** mean that all the people in the country are less than 100 years of age.

.....

..... [1]

(b) The population pyramid is from a more economically developed country, MEDC.

State **two** features of the population pyramid that indicate the country is a MEDC.

1 .....

.....

2 .....

.....

[2]

[Total: 5]

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3 **(a)** Tick (✓) **all** the types of organism in the table that respire.

type of organism	respire
animals	
plants	
decomposers	

[1]

(b) Complete the word equation for respiration.

..... + ... → carbon dioxide + ...

[2]

(c) Respiration is a process in the carbon cycle.

Name **one** other process in the carbon cycle that produces carbon dioxide.

..... [1]

[Total: 4]

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4 The aerial photograph shows an island in an area impacted by an oil spill. The island is surrounded by booms.



(a) (i) Explain how booms reduce the impacts of the oil spill on the island.

.....

.....

.....

..... [2]

(ii) State **one** other method of reducing the impacts of an oil spill.

..... [1]

(b) State **two** causes of marine oil spills.

1 .....

.....

2 .....

.....

[2]

[Total: 5]

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Section B

5 **(a)** The photograph shows a geothermal energy resource used to generate electricity.



(i) Describe how geothermal resources are used to generate electricity.

.....

.....

.....

.....

.....

..... [3]

(ii) The pipelines in the photograph go to a nearby town.

Suggest the function of these pipelines.

.....

..... [1]

(iii) Identify **one** piece of evidence from the photograph that shows 100% of the energy resource is **not** converted to electricity.

.....

..... [1]

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(b) Describe **one** benefit and **one** limitation of using geothermal energy resources to generate electricity.

benefit .....

.....

limitation .....

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[2]

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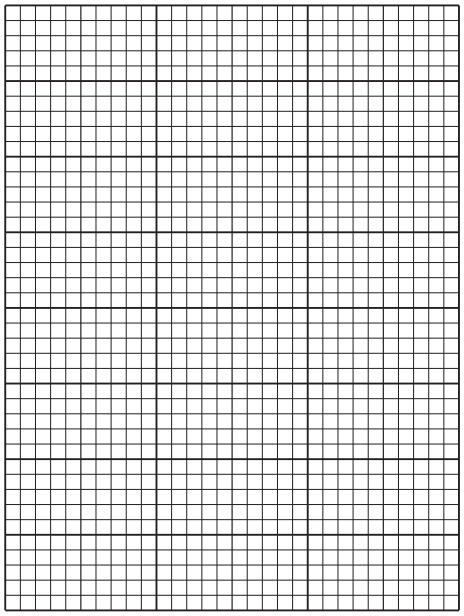
(c) The global energy capacity of a resource is the maximum electricity that the resource can generate.

The table shows the global energy capacity for geothermal energy resources from 2000 to 2020.

year	global energy capacity /gigawatts
2000	8.0
2005	8.5
2010	10.0
2015	11.8
2020	14.2

(i) Plot a line graph to show the global energy capacity for geothermal energy resources from 2000 to 2020.

Draw a straight line between each plotted point.



[5]

(ii) Use the graph to estimate the global energy capacity for geothermal energy resources in 2007.

..... [1]

(iii) A student predicts that the global energy capacity for geothermal energy resources in 2025 will be 16.6 gigawatts.

Describe how the student uses the data to determine the value of 16.6 gigawatts.

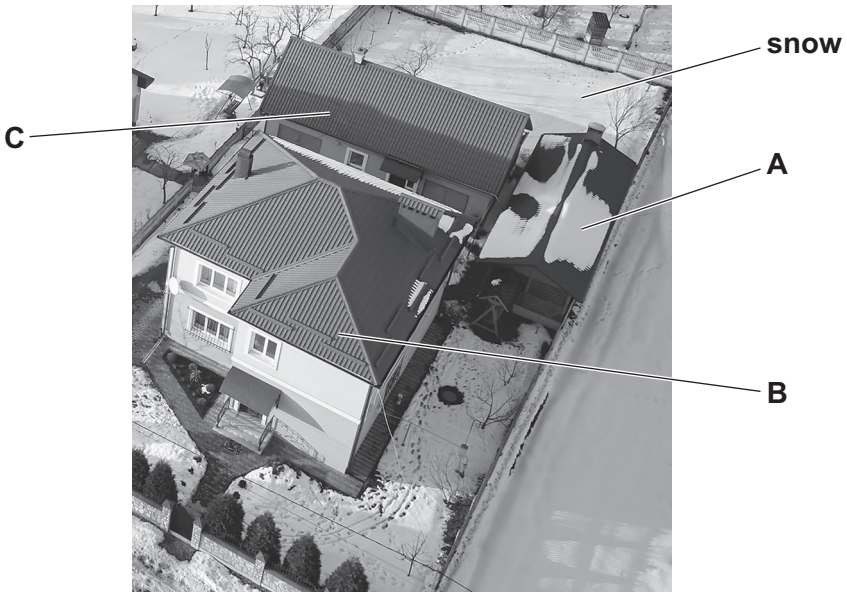
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(d) Buildings have different energy efficiencies.

The diagram shows three buildings, **A**, **B** and **C**, in a cold climate.



(i) Suggest **one** reason why it is important to know the energy efficiency of a building.

.....

..... [1]

(ii) Suggest which building, **A**, **B** or **C**, is the most energy efficient.

Use evidence from the photograph to explain your choice.

building .....

explanation .....

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.....

.....

[2]

(iii) Suggest **one** reason why buildings in some LEDCs are less energy efficient than in MEDCs.

.....

..... [1]

[Total: 18]

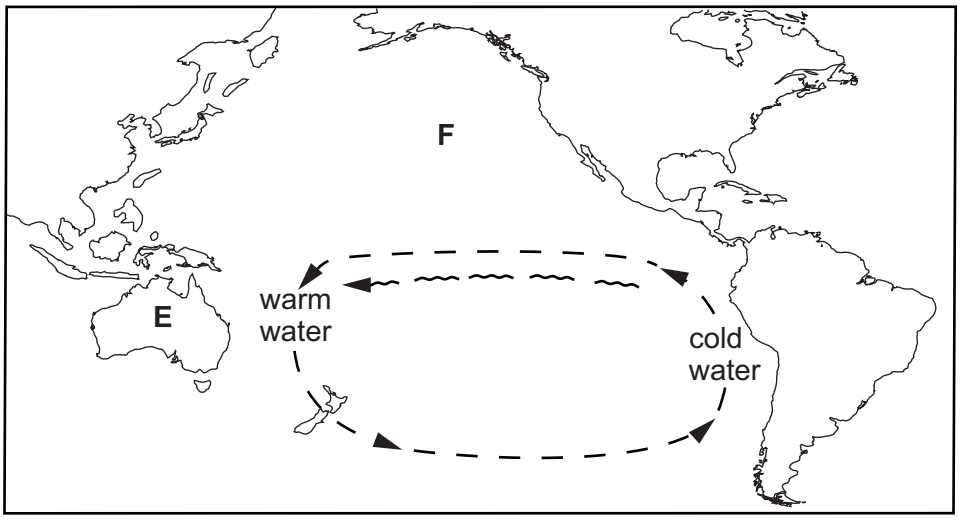
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6 **(a)** The map shows the El Niño Southern Oscillation (ENSO) during a non-El Niño year.

Key

– – ► ocean current direction

~~~► wind direction



(i) Country **E** is part of a continent.

Name this continent.

..... [1]

(ii) Name the ocean labelled **F**.

..... [1]

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(iii) For an El Niño year, draw on the map:

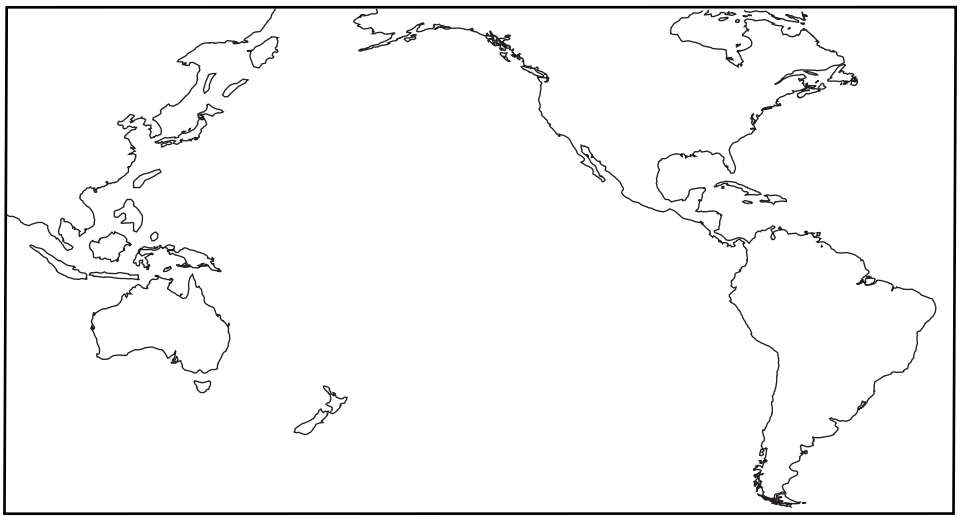
- the ocean current direction
- the wind direction.

Use the key provided.

Key

– – ► ocean current direction

~~~ ~~► wind direction



[2]

(b) Explain how El Niño affects fisheries along the coast of South America.

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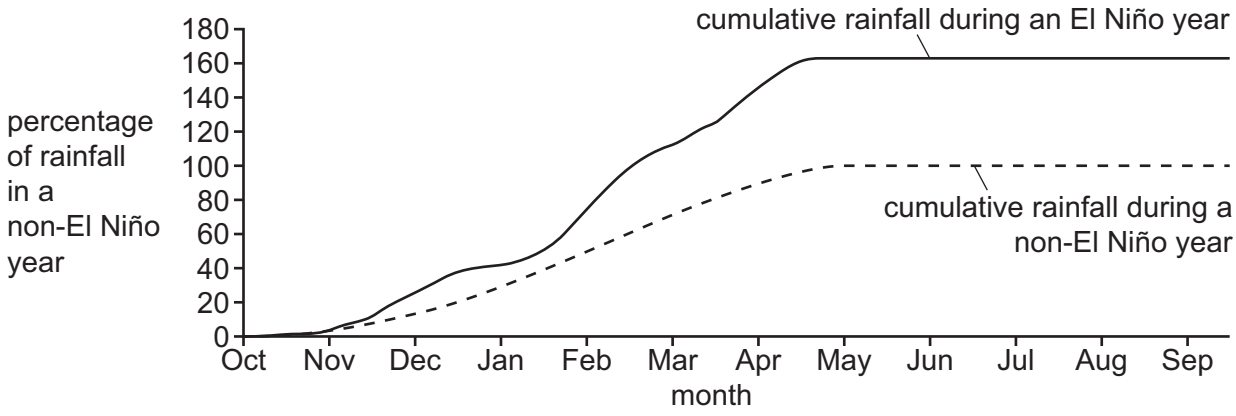
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(c) The graph shows the cumulative rainfall in California, USA, during an El Niño year and during a non-El Niño year.



(i) Determine the month in the El Niño year when the cumulative rainfall reaches 100% of the cumulative rainfall in a non-El Niño year.

..... [1]

(ii) Describe the effect of the El Niño year on the rainfall in California.

Use information from the graph to support your answer.

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.....

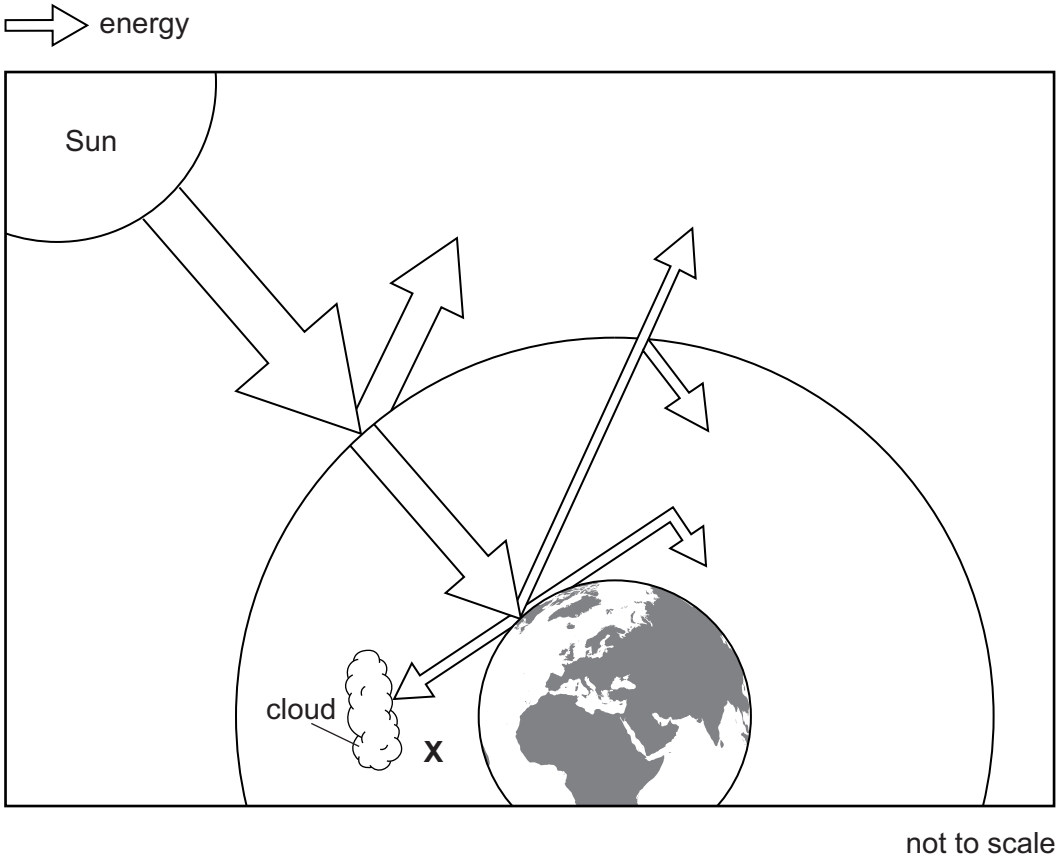
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7 **(a)** The diagram represents the natural greenhouse effect.



(i) **X** is in a layer of the atmosphere 5 km from the surface of the Earth.

Name the layer of the atmosphere that contains **X**.

..... [1]

(ii) Describe how the natural greenhouse effect creates the temperatures experienced on Earth.

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..... [4]

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(iii) Explain how the enhanced greenhouse effect increases the temperature of the Earth.

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..... [2]

(b) The diagram shows major emissions of sulfur dioxide in the USA in 1990 and 2020.

Key

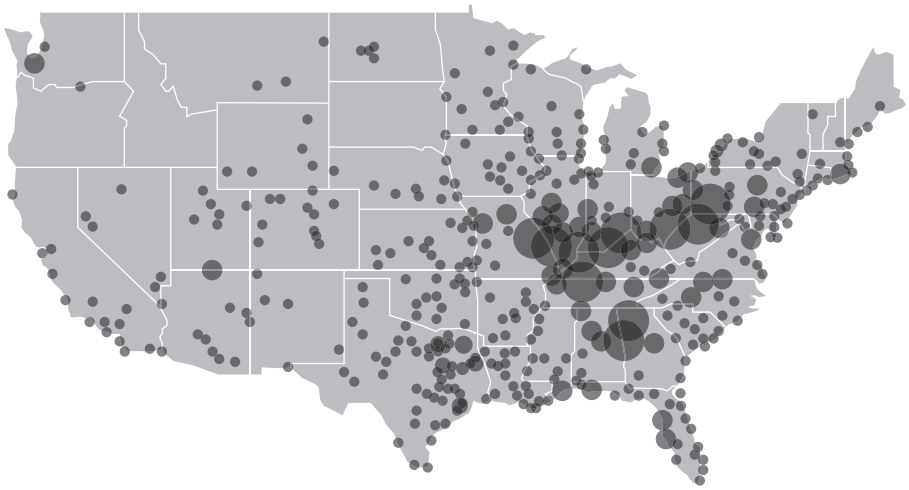
= greater than 300 000 tonnes

= 20 000–300 000 tonnes

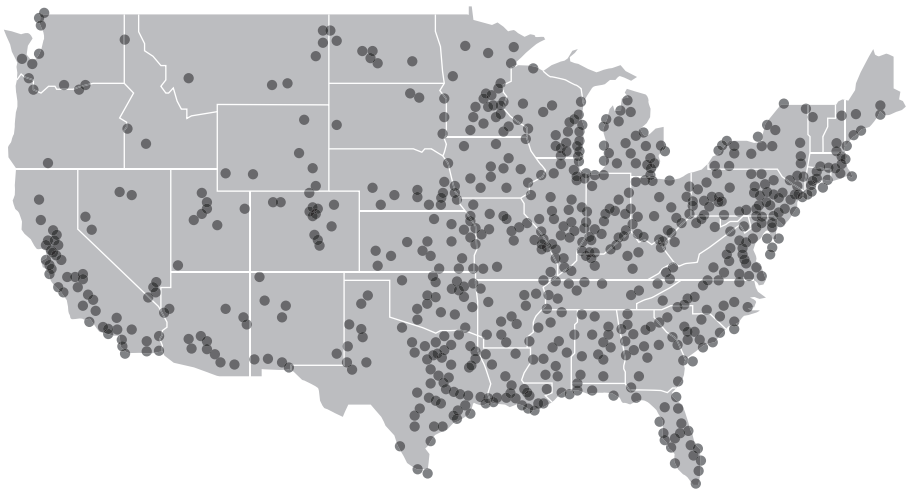
= less than 20 000 tonnes

N

emissions in 1990



emissions in 2020



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(i) Use the diagram to describe **three** ways that emissions of sulfur dioxide have changed from 1990 to 2020.

1 .....

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2 .....

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3 .....

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[3]

(ii) A student concludes that in the USA in 2020 acid rain was not a serious atmospheric pollutant.

Suggest **two** reasons why this conclusion may **not** be correct.

1 .....

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2 .....

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[2]

(iii) State **two** impacts of acid rain.

1 .....

2 .....

[2]

[Total: 14]

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8 **(a)** The photograph shows an aeroplane spraying a maize crop with herbicides.



(i) Explain why crops are sprayed with herbicides.

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..... [2]

(ii) Suggest the benefits and limitations of using an aeroplane to spray herbicides onto crops, as shown in the photograph.

benefits .....

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limitations .....

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[4]

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(b) The photograph shows a strategy for reducing soil erosion.



(i) Name this strategy.

..... [1]

(ii) Explain how the strategy shown in the photograph reduces soil erosion.

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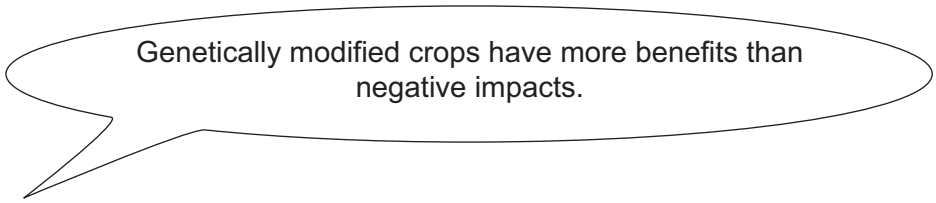
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(c) A farmer says:



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

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..... [6]

[Total: 16]

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