Cambridge Assessment International Education

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CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2953702819

ENVIRONMENTAL MANAGEMENT **0680/13**

Paper 1 Theory **May/June 2024**

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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[Turn over

Section A

1 **(a)** Igneous and sedimentary are types of rock.

Complete the sentences about rocks.

An example of an igneous rock is .....

An example of a sedimentary rock is .....
[2]

(b) Describe the formation of a sedimentary rock.

.....

.....

.....

.....

.....

..... [3]

[Total: 5]

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2 **(a)** The photograph shows irrigation of plants in a field.



(i) State the type of irrigation shown in the photograph.

..... [1]

(ii) State **two** reasons why this is an example of sustainable agriculture.

1 .....

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2 .....

.....

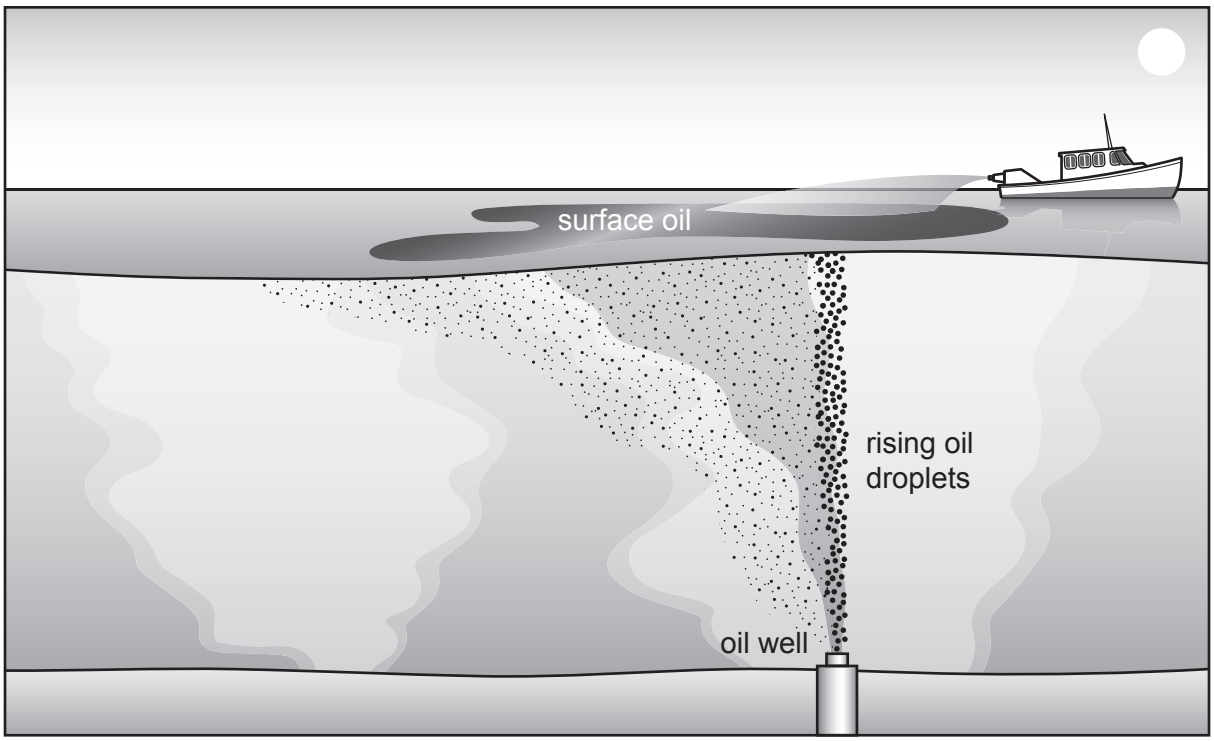
[2]

(b) State the process that releases water from plant leaves.

..... [1]

[Total: 4]

3 The diagram shows oil spilling from an oil well into the ocean.



(a) State the method of dealing with the oil spill shown in the diagram.

..... [1]

(b) State **two** other methods of dealing with oil spills on the ocean surface.

1 .....

2 .....

[2]

(c) State **three** impacts of oil pollution on marine ecosystems.

1 .....

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3 .....

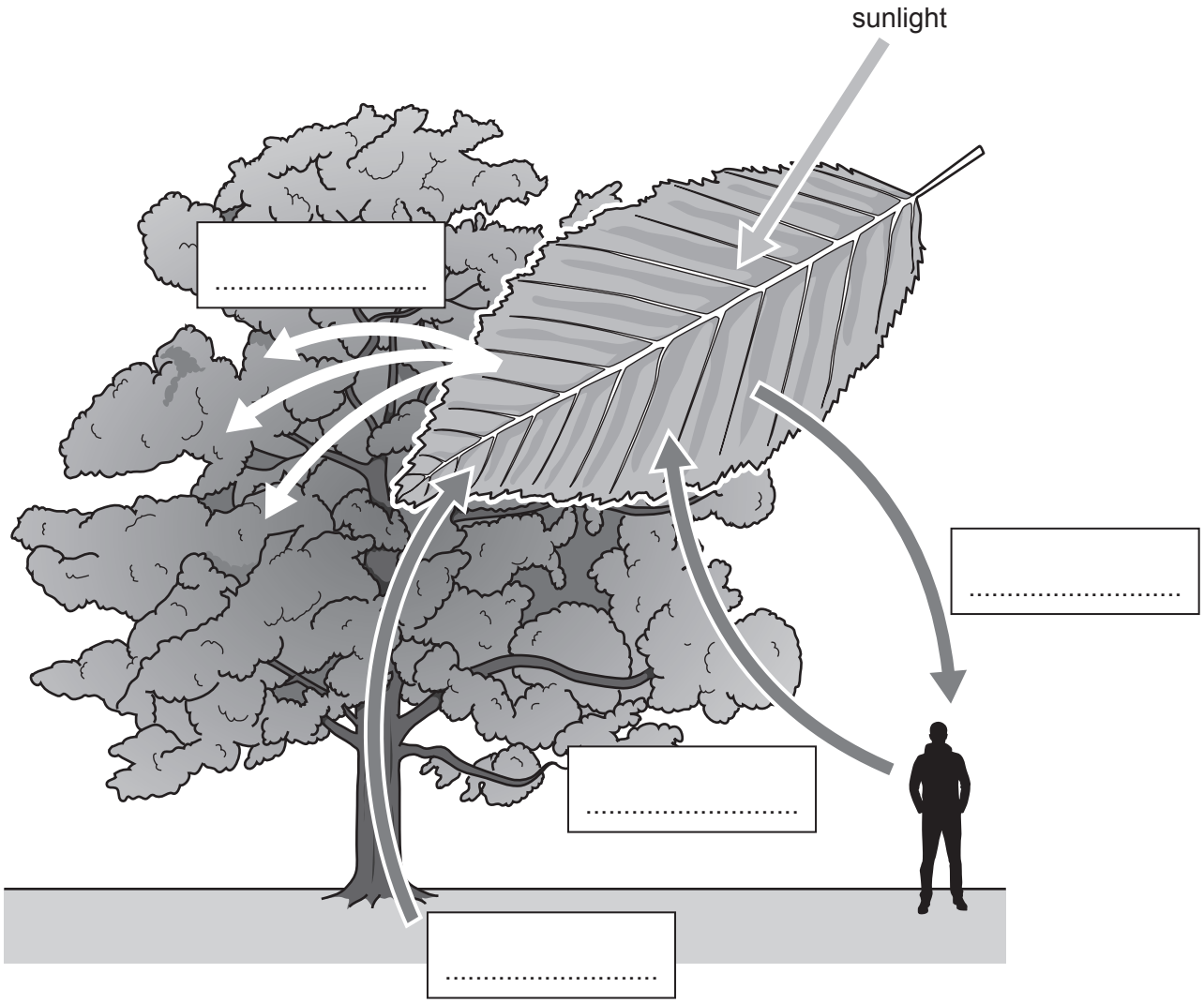
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[3]

[Total: 6]

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4 The diagram shows the process of photosynthesis.



(a) Complete the labels on the diagram. [2]

(b) State the green pigment found in leaves.

..... [1]

(c) Humans take in oxygen.

State the process that uses oxygen in living cells.

..... [1]

(d) State why trees are a carbon sink.

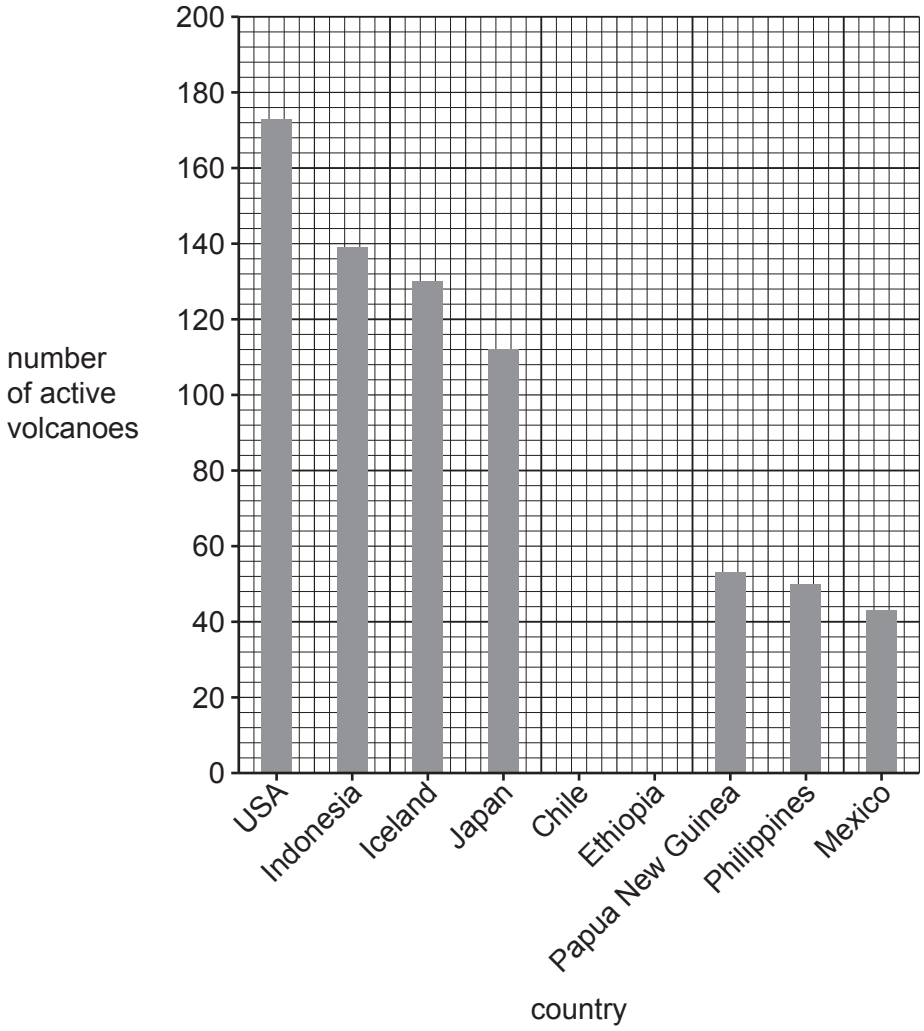
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..... [1]

[Total: 5]

Section B

5 The bar chart shows the number of active volcanoes in some countries.



(a) Complete the bar chart using the data in the table.

country	Chile	Ethiopia
number of active volcanoes	104	58

[2]

(b) Volcanoes erupt when magma rises to the Earth's surface from the mantle.

Explain how tectonic plate movement causes magma to rise to the Earth's surface.

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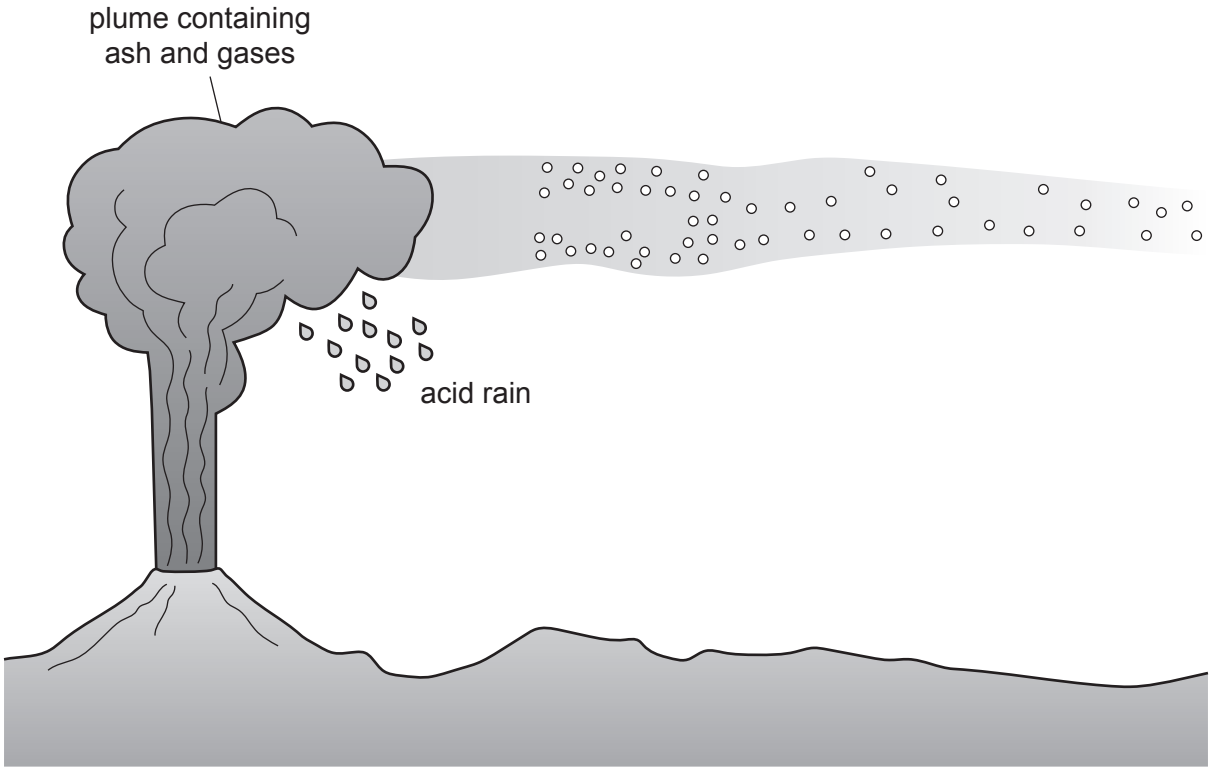
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..... [4]

(c) The diagram shows a volcano erupting.



The table shows information about four volcanic eruptions.

volcanic eruption	plume height / km	volume of material in plume / km^3
Kilauea	less than 0.1	0.000001
Stromboli	0.1 to 1.0	0.00001
Galeras	1 to 5	0.001
Mount St. Helens	more than 25	1.0

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(i) A student concludes that the Mount St. Helens eruption has a greater impact on the atmosphere than the Stromboli eruption.

Use the data to suggest if the student's conclusion is correct. Give reasons for your answer.

.....

.....

.....

..... [2]

(ii) The table shows information about the volcanic eruption index, VEI.

VEI is a measure of the explosiveness of a volcanic eruption.

VEI	0	1	2	3	4	5	6	7	8
volume of plume / km^3	less than 0.00001	more than 0.00001	more than 0.001	more than 0.01	more than 0.1	more than 1.0	more than 10.0	more than 100.0	more than 1000.0

State the VEI for Kilauea.

..... [1]

(iii) The table shows information about two earthquakes, A and B.

earthquake	**Richter magnitude**
A	2
B	4

Explain how the magnitude of earthquake A compares to the magnitude of earthquake B.

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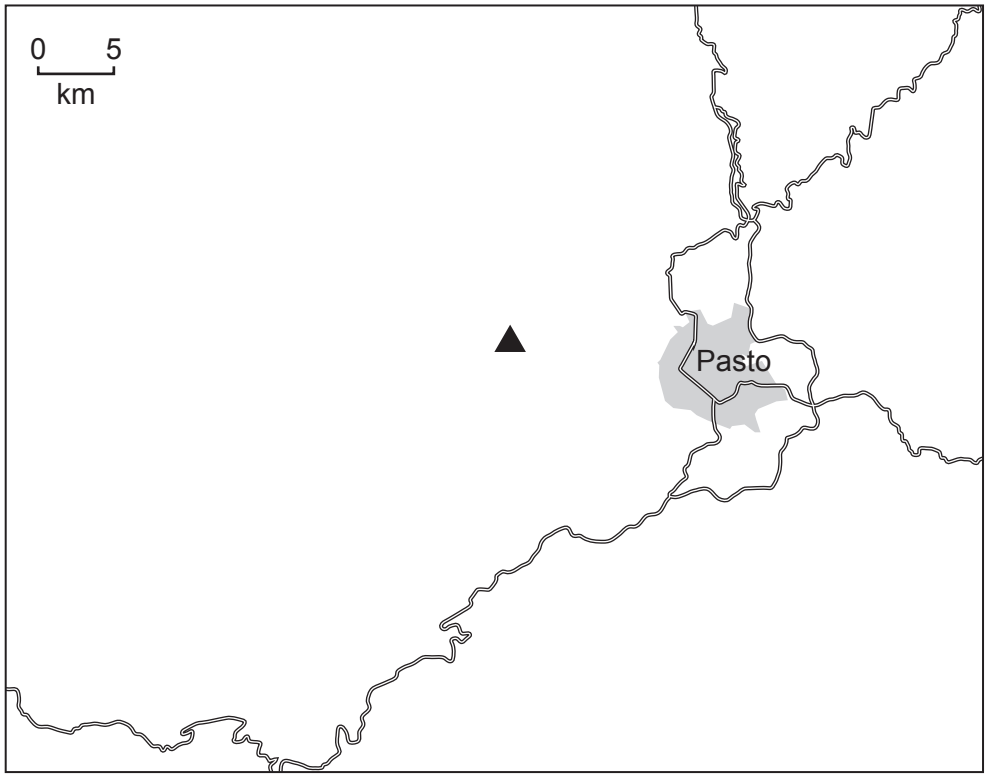
..... [3]

(iv) The map shows the location of the Galeras volcano.

Key

▲ volcano

major roads



Suggest why people living in Pasto are worried about the Galeras volcano.

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..... [2]

(v) Volcanic eruptions can cause acid rain.

Describe the formation of acid rain.

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..... [4]

(d) Suggest why many farmers grow crops near volcanoes that can erupt.

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..... [2]

(e) More economically developed countries (MEDCs) use strategies to manage the impact of earthquakes before they happen.

Explain these strategies.

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..... [5]

[Total: 25]

6 **(a)** Complete the following statements about a typhoon.

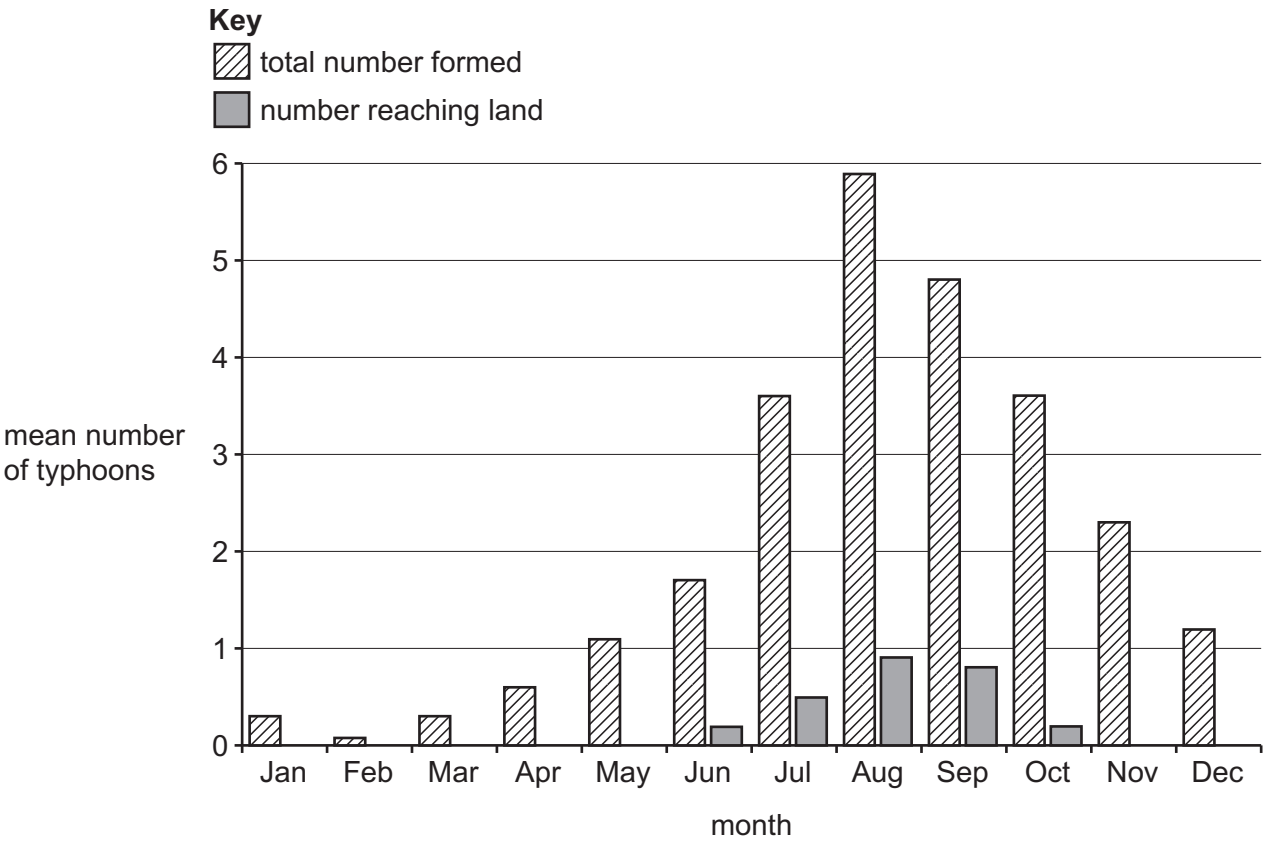
A typhoon can only form above the ocean between ……. and ……. degrees north or south of the Equator.

The ocean must be at least ……. m deep.

The surface temperature of the ocean must reach ……. °C.

[3]

(b) The graph shows data about typhoons near Japan.



(i) State the month when typhoons are most likely to form.

..... [1]

(ii) State between which months typhoons reach land.

…… and …… [1]

(iii) Estimate the percentage of the total number of typhoons formed that reach land in September.

Circle **one** percentage.

7% **17%** **27%** **37%**

[1]

(iv) Many typhoons are predicted to reach Japan.

Suggest **two** reasons why some of these typhoons do **not** reach Japan.

1 .....

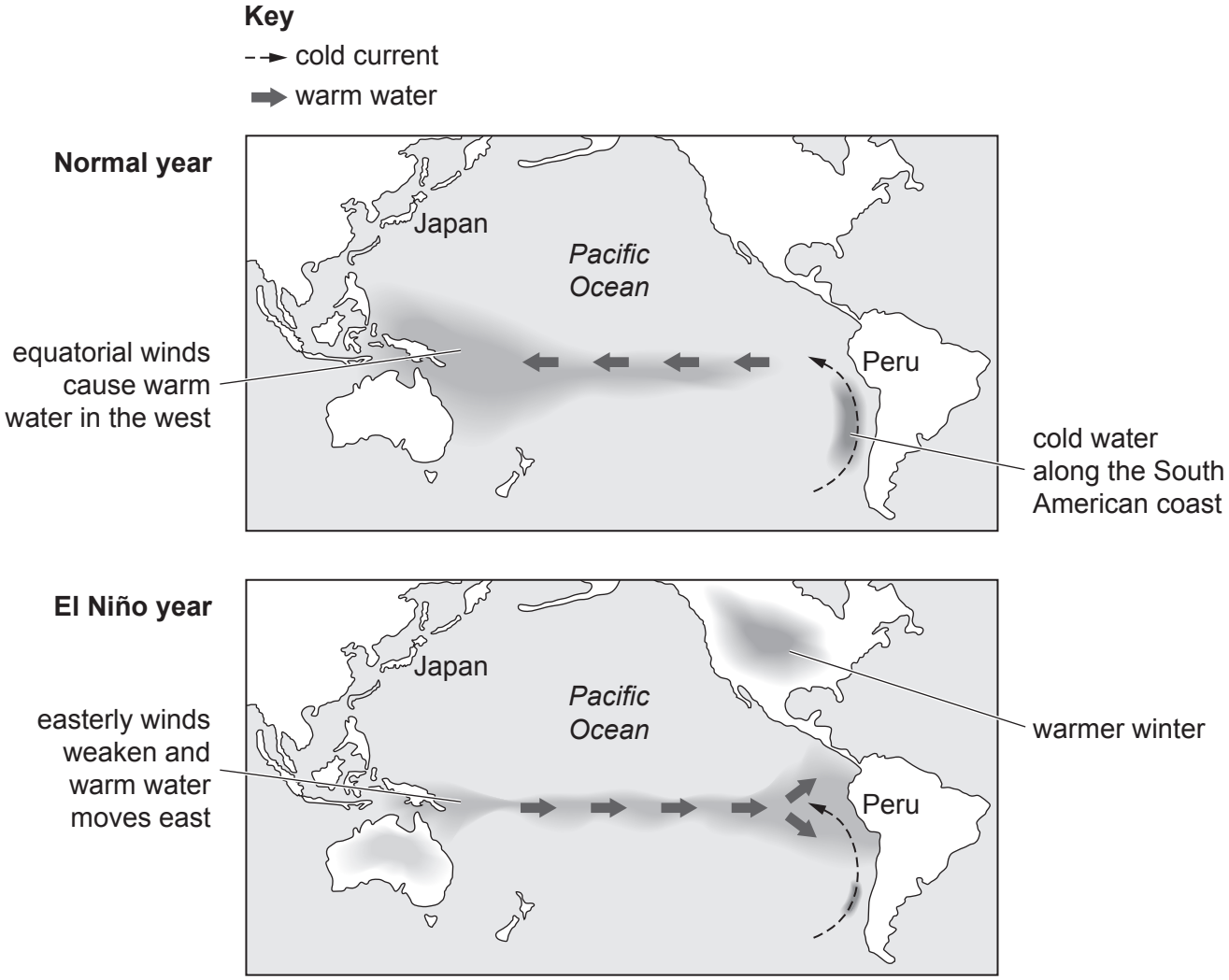
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2 .....

.....

[2]

(c) The diagram shows the change in the (surface) water temperature in the Pacific Ocean in a normal year and an El Niño year.



(i) Suggest how an El Niño year affects the number of typhoons expected to reach Japan.

Give reasons for your answer.

.....

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..... [2]

(ii) Suggest **one** impact of El Niño on the people living in Peru.

.....

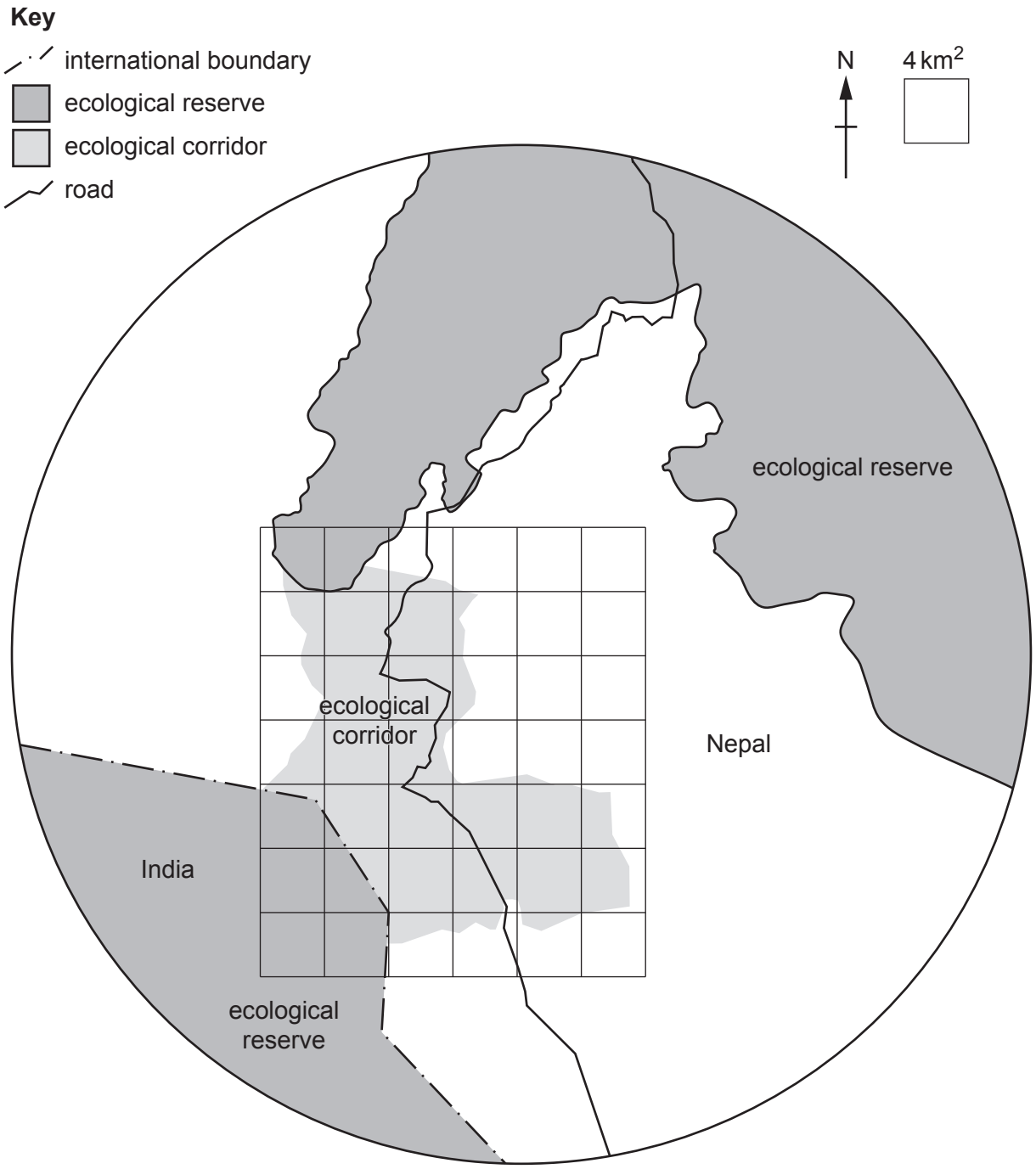
..... [1]

[Total: 11]

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7 The map shows a corridor between ecological reserves in both Nepal and India.



(a) Use the scale to estimate the area of the corridor.

Show your working.

..... km^2 [2]

(b) Suggest why an international agreement was needed to set up the corridor shown on the map.

.....

..... [1]

(c) A reforestation programme began in 2000 when the corridor was created.

Local people were employed to plant trees.

Local people have seen an increase in tigers in the corridor.

There has also been an increase in the tiger population in both reserves.

(i) Explain the benefits to tigers of connecting the two ecological reserves by a corridor.

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..... [3]

(ii) Ecotourists visit the reserves to see the tigers. The ecotourists stay in houses in villages in the corridor.

Suggest reasons why this type of ecotourism is a sustainable activity.

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..... [2]

[Total: 8]

8 **(a)** The table shows ten countries with the most nuclear reactors in power stations in 2022.

country	nuclear reactors in power stations
Canada	19
China	28
France	58
India	21
Japan	43
Russia	34
South Korea	24
UK	16
Ukraine	15
USA	99

(i) State the number of countries that have more than 30 nuclear reactors in power stations.

..... [1]

(ii) State the fuel used in a nuclear reactor in a power station.

..... [1]

(iii) Suggest why nuclear power is a non-renewable energy resource.

.....

..... [1]

(iv) State **two** other non-renewable energy resources.

1 .....

2 .....

[2]

(v) Suggest **two** reasons why many countries do **not** have nuclear power stations.

1 .....

.....

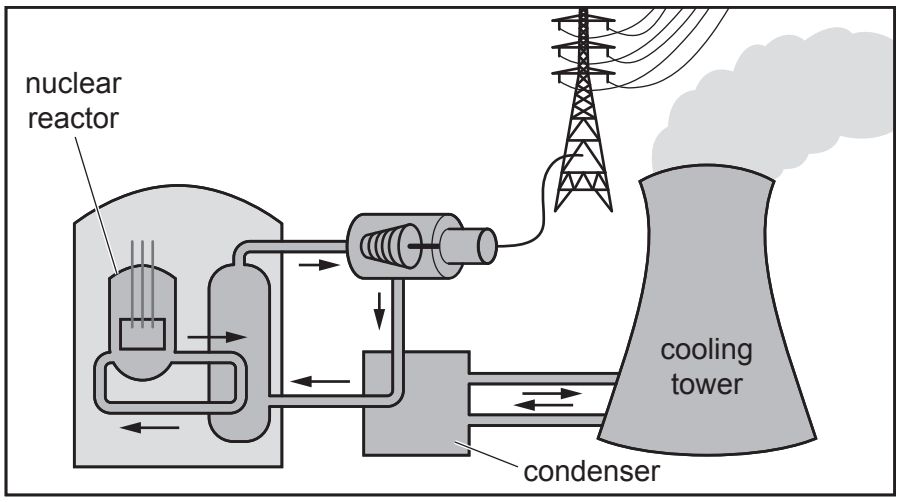
2 .....

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[2]

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(b) The diagram shows a nuclear power station generating electricity.



Describe how this power station generates electricity.

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..... [3]

(c) A student says:

> Building more nuclear power stations is the best way of reducing the world's carbon dioxide emissions.

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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