Cambridge International AS Level

**Cambridge International Examinations**
Cambridge International Advanced Subsidiary Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER



**ENVIRONMENTAL MANAGEMENT** **8291/12**

Paper 1 Lithosphere and Atmosphere **October/November 2018**

**1 hour 30 minutes**

Additional Materials: Answer Booklet/Paper

**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.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

**Section A**
Answer **all** questions in this section.
Write your answers in the spaces provided on the question paper.

**Section B**
Answer **one** question from this section.
Write your answers on the separate answer paper provided.

At the end of the examination,
1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid.

| | For Examiner's Use |
|---|---|
| Section A | |
| 1 | |
| 2 | |
| Section B | |
| | |
| Total | |

This document consists of **13** printed pages and **3** blank pages.




CAMBRIDGE International Examinations

## Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

**1** **(a)** Fig. 1.1 shows cross-sections of two volcanoes, **A** and **B**.

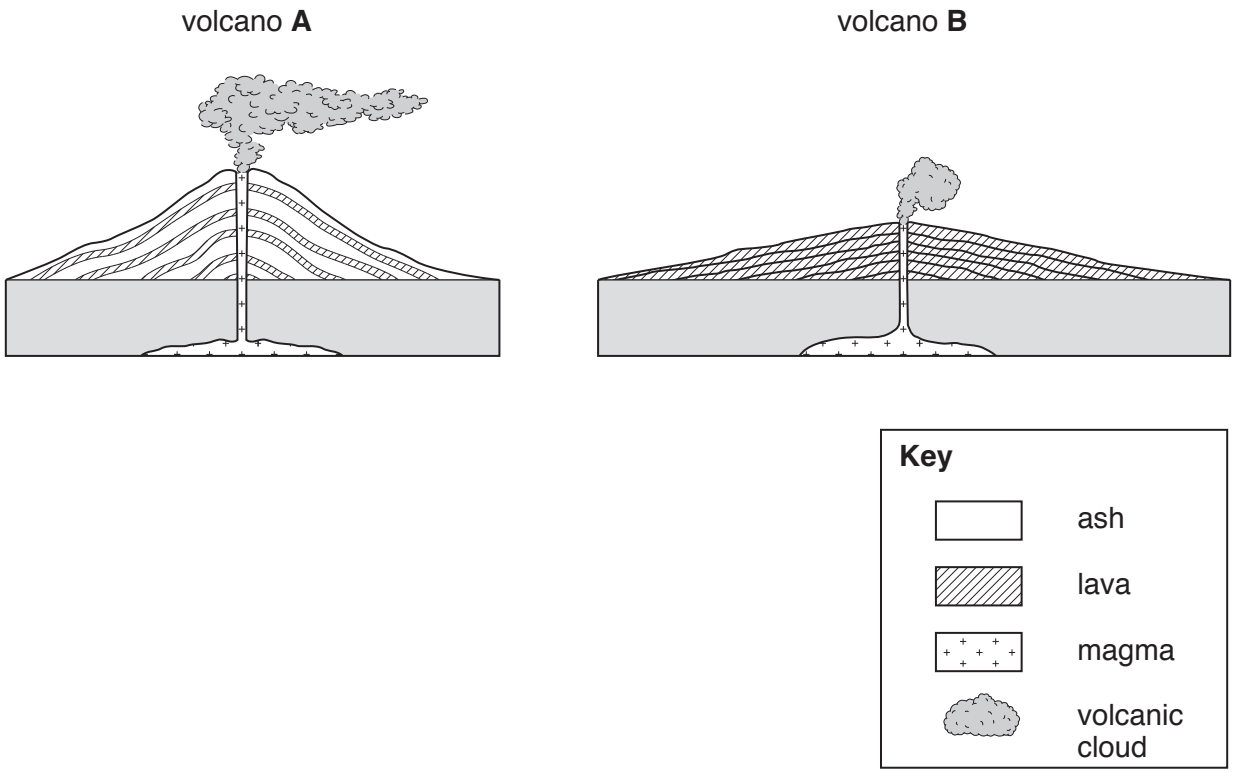


**Fig. 1.1**

**(i)** Name the type of plate boundary where you would expect to find volcano **A**, shown in Fig. 1.1.

..... [1]

**(ii)** State **two** differences between volcano **A** and volcano **B**, shown in Fig. 1.1.

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..... [2]

**(iii)** Describe how **three** hazards associated with the eruption of volcano **A**, shown in Fig. 1.1, can affect people.

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..... [6]

**(b)** Fig. 1.2 shows the distribution of volcanoes in the Kamchatka Peninsula in north east Russia.

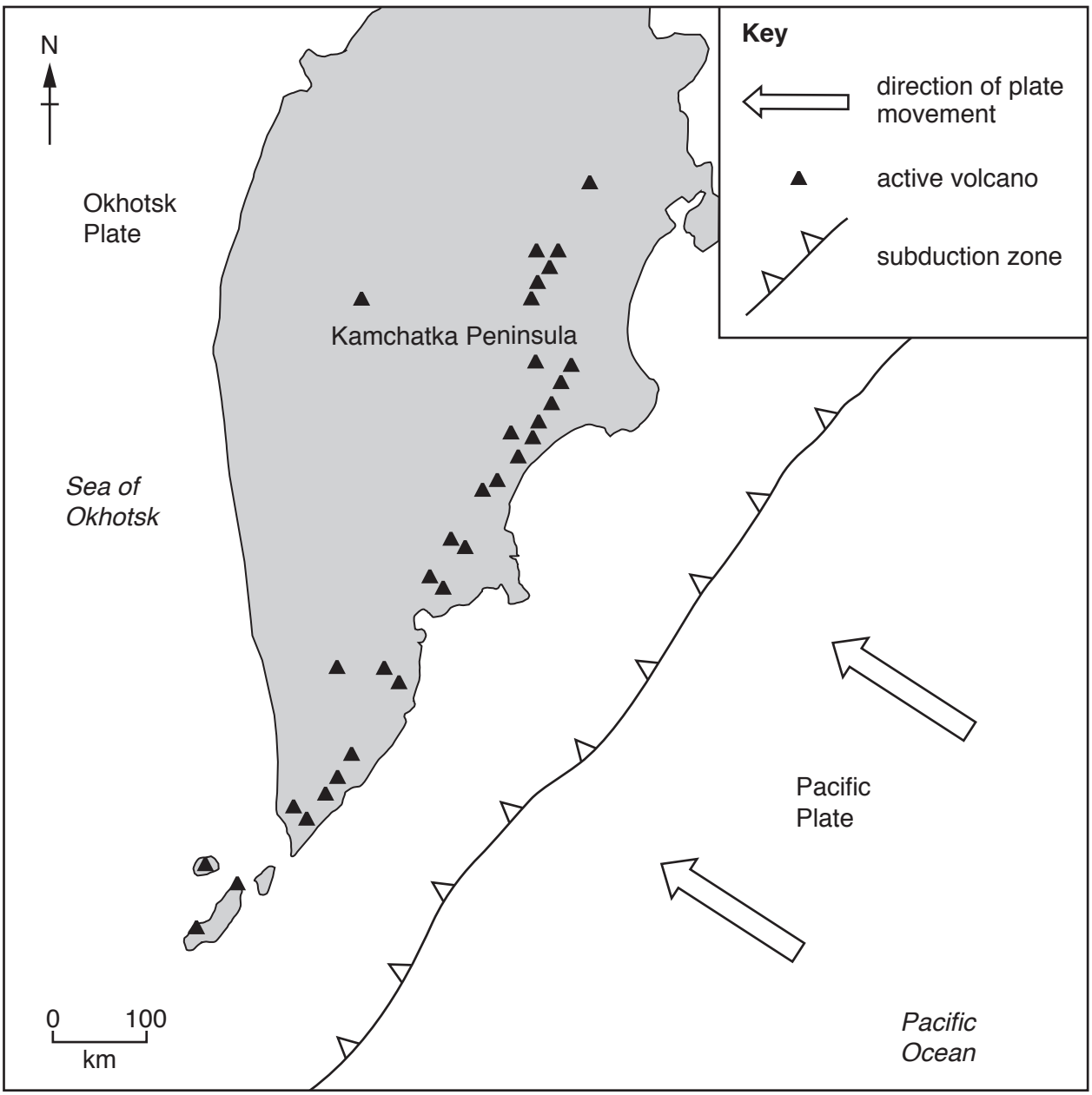


**Fig. 1.2**

**(i)** Describe the distribution of the volcanoes in Fig. 1.2.

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..... [3]

**(ii)** Describe the processes responsible for the volcanic activity in the Kamchatka Peninsula shown in Fig. 1.2.

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**(iii)** Describe techniques that are used to monitor volcanoes.

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[Total: 20]

**2** **(a)** Fig. 2.1 illustrates the Earth's energy budget.

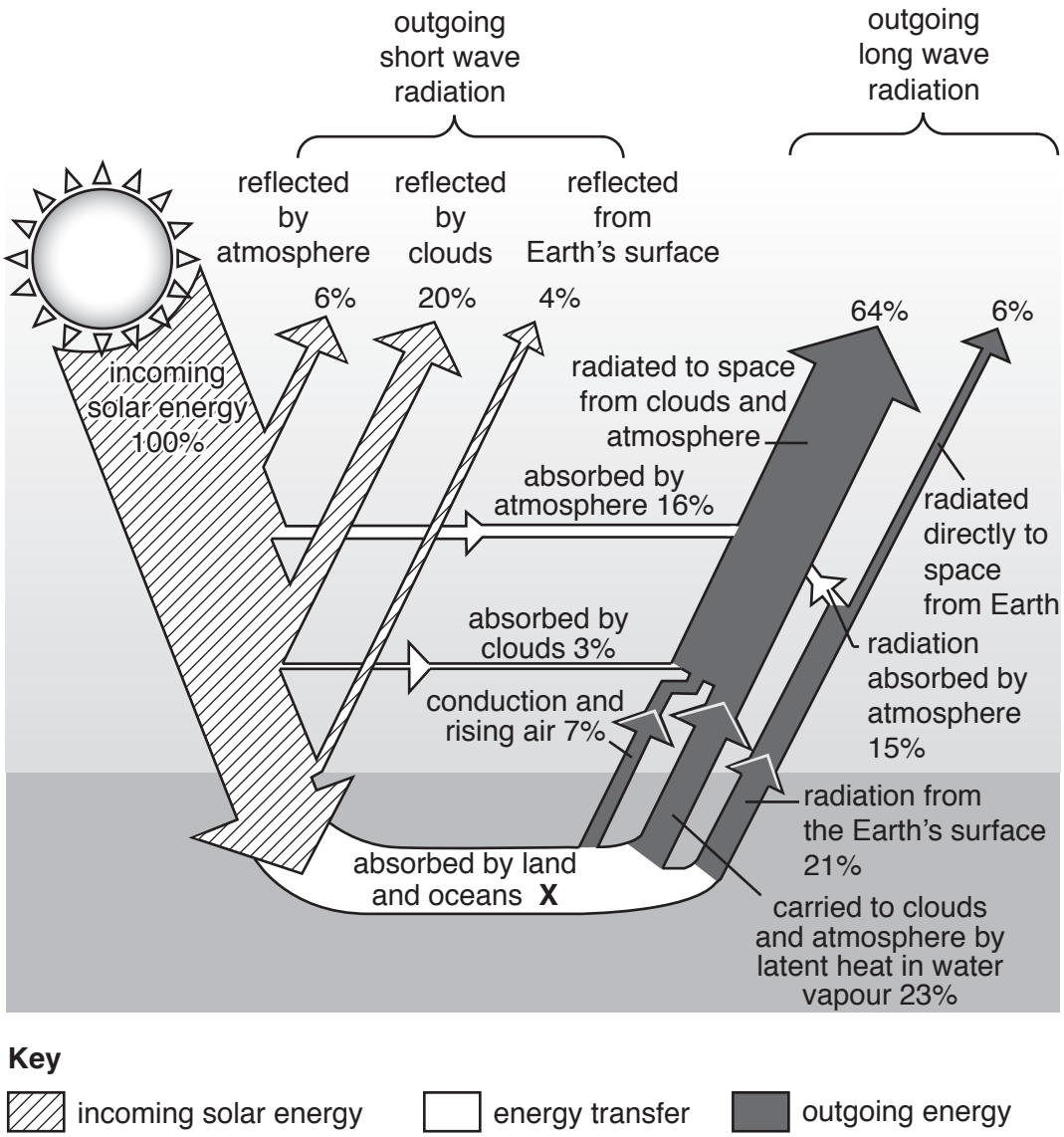


**Fig. 2.1**

**(i)** Explain how Fig. 2.1 shows that the Earth's energy budget is balanced.

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..... [2]

**(ii)** Calculate the missing value at **X** in Fig. 2.1.

Show your working.

.....% [2]

**(iii)** Explain **two** ways in which clouds affect transfers of energy within the Earth's energy budget as illustrated in Fig. 2.1.

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**(iv)** Suggest ways in which human activity might influence the Earth's energy budget.

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..... [6]

**(b)** Fig. 2.2 shows the average monthly solar radiation received at the Earth's surface in two different areas of the world.

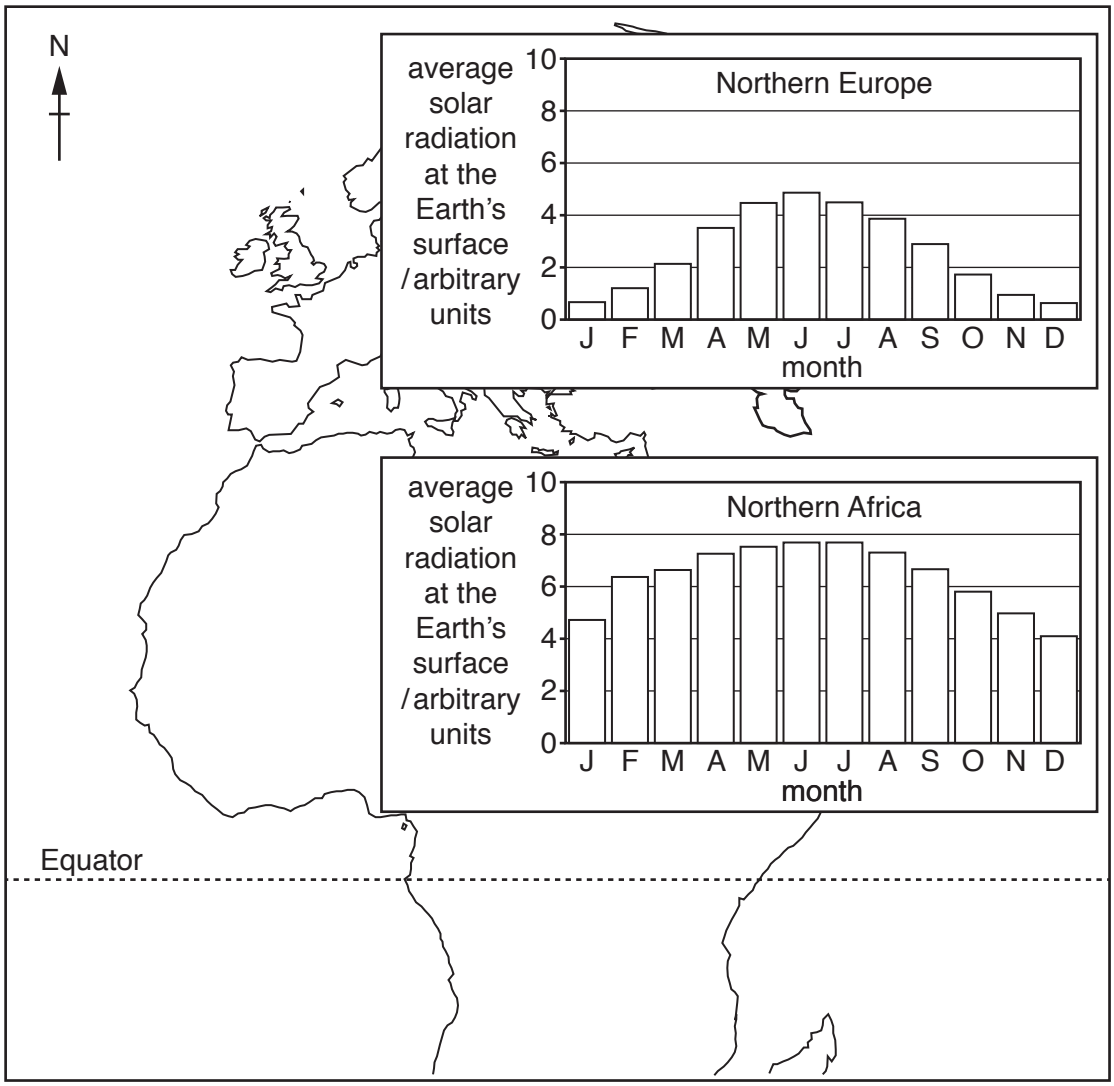


**Fig. 2.2**

**(i)** Describe and explain differences between the average solar radiation received at the Earth's surface in Northern Europe and that received in Northern Africa.

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**(ii)** Explain why the oceans warm more slowly than the land when heated by the same amount of solar radiation.

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..... [2]

[Total: 20]

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## Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

**3** Fig. 3.1 shows changes in the position of the Earth's land masses at points in time over the past 250 million years.

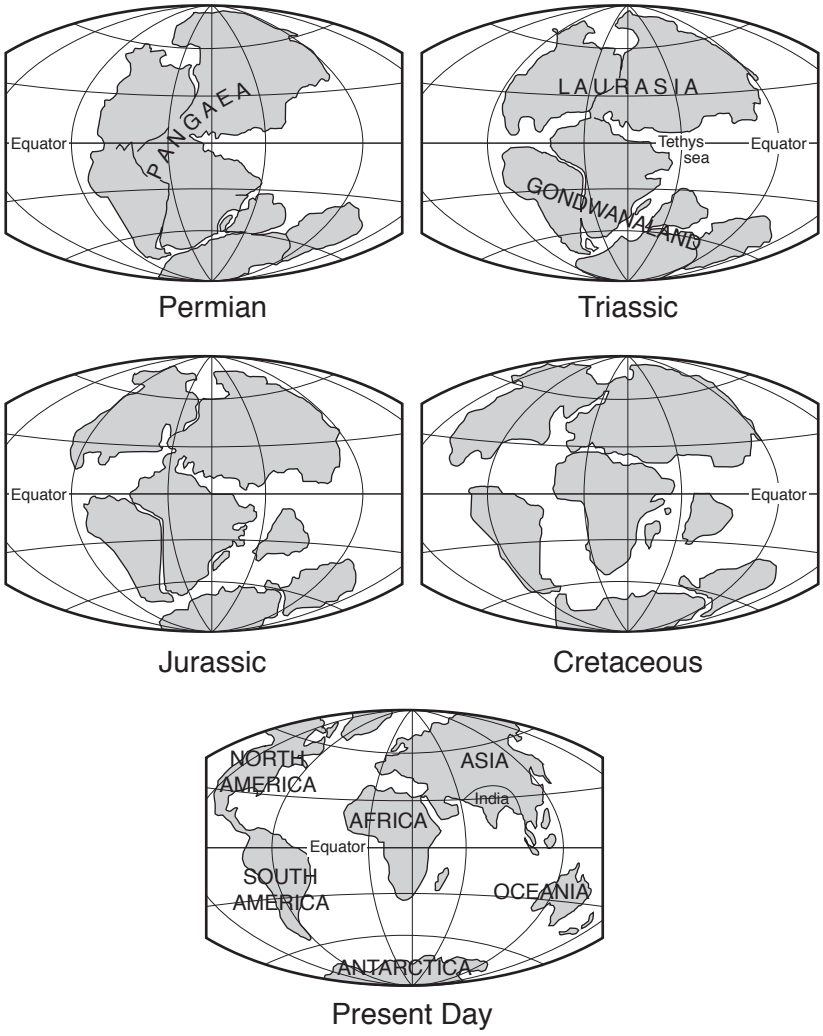



**Fig. 3.1**

**(a)** Outline the changes shown in Fig. 3.1 and describe the evidence that scientists have used to map post-Pangaea plate movements. [10]

**(b)** To what extent does an understanding of plate tectonics help with predicting, preparing for and managing earthquakes and volcanic eruptions? Refer to examples in your answer. [30]

[Total: 40]





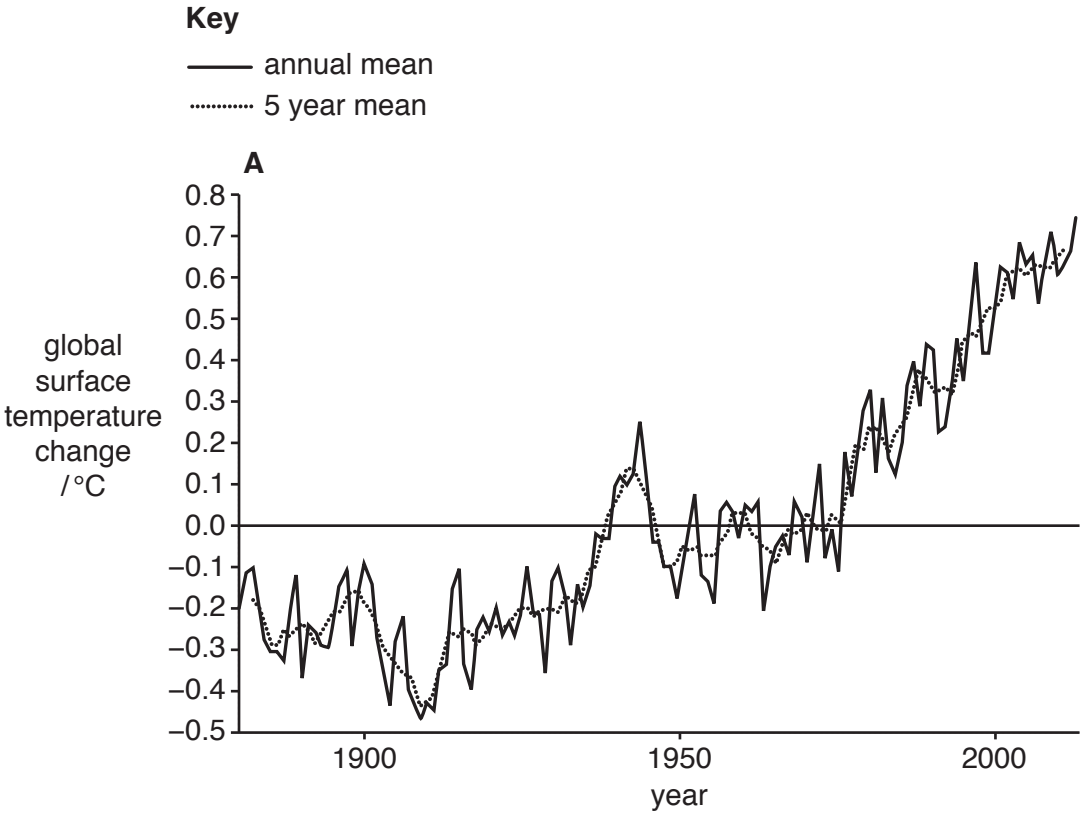
**[Turn over**

**4** Fig. 4.1 shows changes in global surface temperature in graph **A** between 1880 and 2014 and changes in global sea-level in graph **B** between 1955 and 2004.

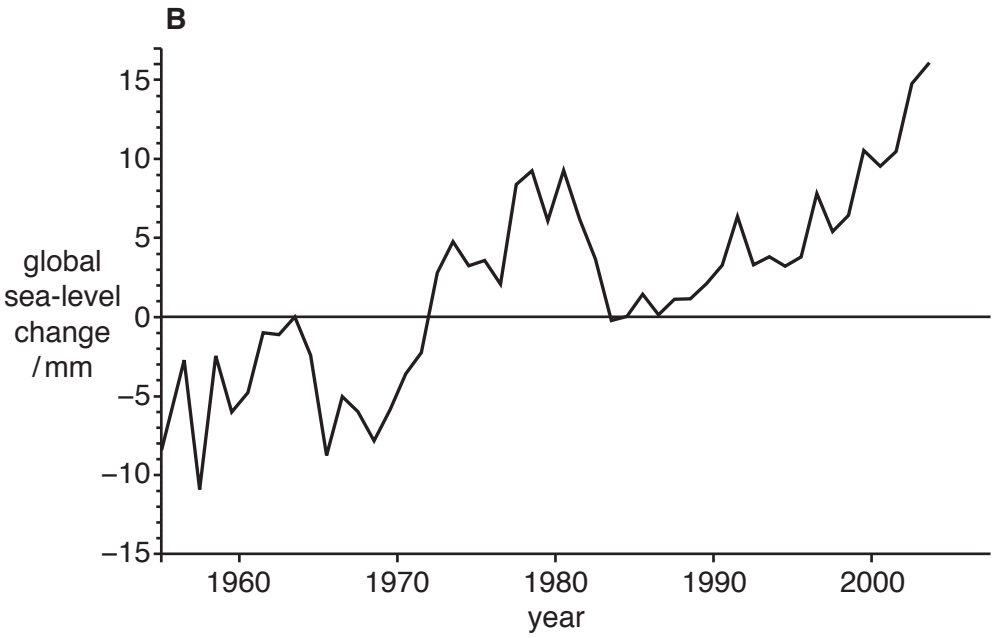
**(a)** Briefly describe the trends shown by graphs **A** and **B** in Fig. 4.1. [10]

**(b)** To what extent will the impacts of future climate change vary in different parts of the world? Refer to examples in your answer. [30]

[Total: 40]




In graph **A**, temperature changes are relative to the average temperature during the period 1951–1980.




In graph **B**, sea-level changes are relative to the average sea-level during the period 1957–1990.

**Fig. 4.1**





[Turn over

**5** Fig. 5.1 summarises how human population growth can lead to soil deterioration. This deterioration could involve soil erosion, loss of fertility, compaction and salinisation.

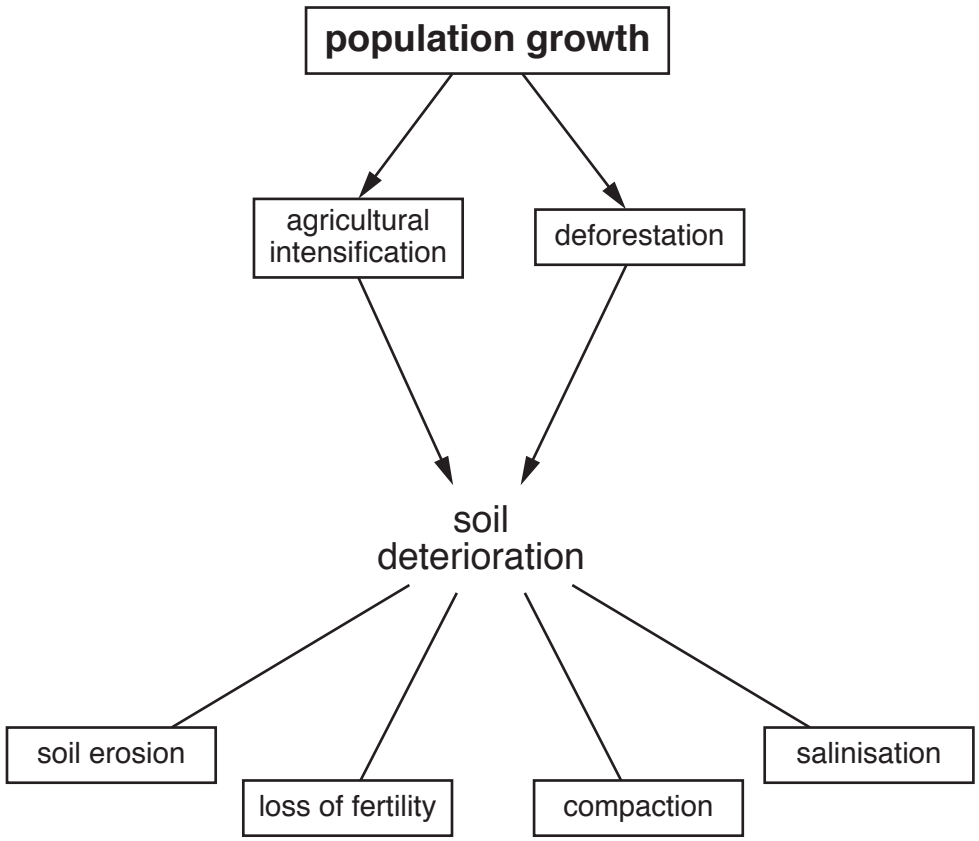



**Fig. 5.1**

**(a)** With reference to Fig. 5.1, describe and explain how population growth can lead to soil deterioration. [10]

**(b)** Discuss the view that appropriate strategies for sustainable soil management will vary between countries at contrasting levels of economic development. [30]

[Total: 40]

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