

CANDIDATE  
NAME

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**ENVIRONMENTAL MANAGEMENT**

**8291/13**

Paper 1 Lithosphere and Atmosphere

**May/June 2014**

**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.  
Write your answers in the spaces provided on the question paper.

**Section B**

Answer **one** question from this section.  
Answer the question 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 opposite.

	For Examiner's Use
<b>Section A</b>	/
<b>1</b>	
<b>2</b>	
<b>Section B</b>	/
<b>Total</b>	

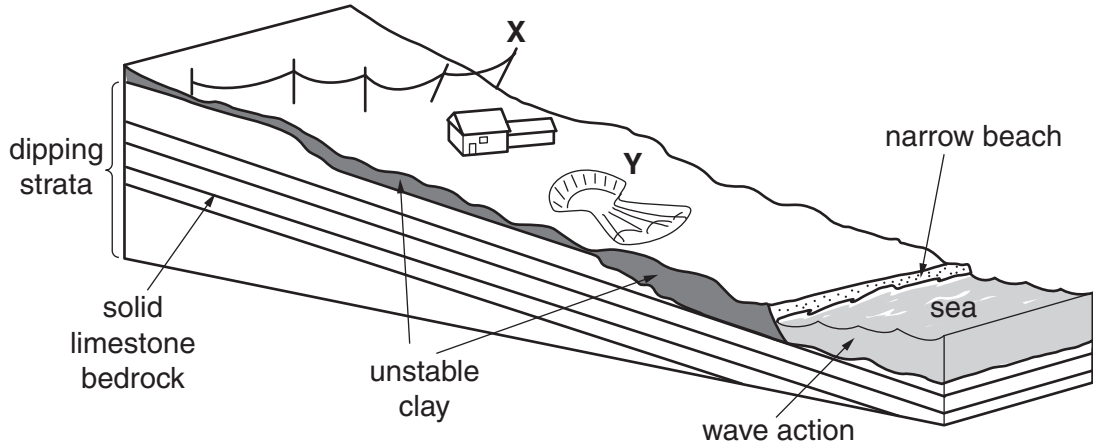
This document consists of **12** printed pages.

**Section A**

Answer **all** questions.

Write your answers in the spaces provided.

1 (a) Fig. 1.1 shows a section of slope which is unstable.



**Fig. 1.1**

(i) State **one** type of mass movement that might be responsible for the leaning telegraph pole at **X** on Fig. 1.1.

..... [1]

(ii) State the type of mass movement occurring at **Y** on Fig. 1.1.

..... [1]

(iii) With reference to Fig. 1.1, explain why the slope shown is unstable.

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(iv) Explain how weather conditions can also contribute to the slope instability shown in Fig. 1.1.

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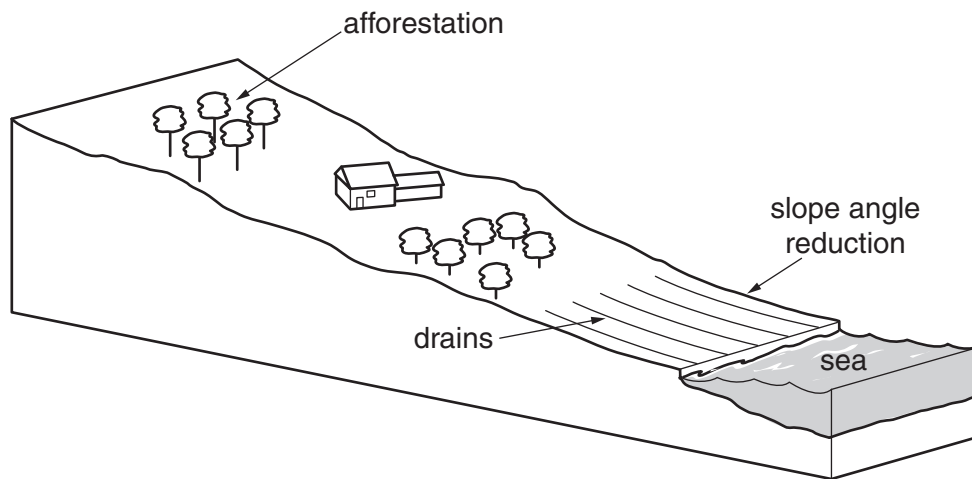
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..... [3]

(b) Fig. 1.2 shows slope management methods designed to stabilise the slope.



**Fig. 1.2**

- (i) Explain how afforestation, drainage, and slope angle reduction could prevent future mass movements on the slope shown in Fig. 1.2.

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- (ii) Suggest **two** factors that need to be considered before deciding on the slope management methods in Fig. 1.2.

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[Total: 20]

2 (a) Fig. 2.1 shows the pattern of winter temperatures in Europe.

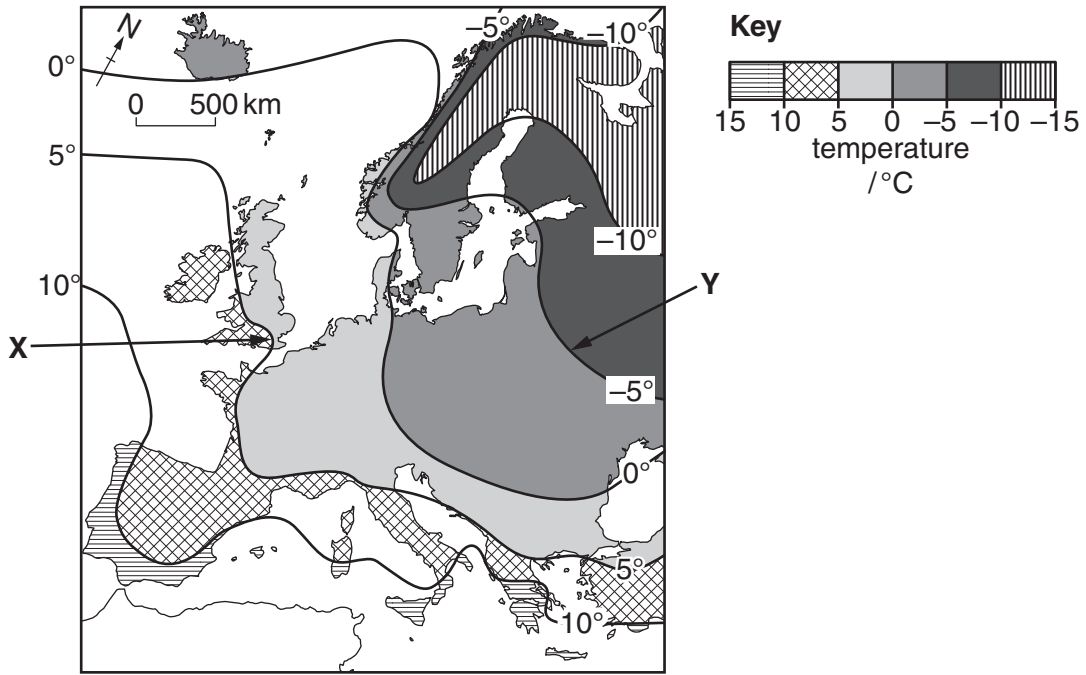


Fig. 2.1

(i) State the temperature difference in winter between X and Y shown in Fig. 2.1.

..... [1]

(ii) Using the information in Fig. 2.1, describe the pattern of winter temperatures in Europe.

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(iii) Suggest **two** reasons for the differences in temperature between **X** and **Y** in Fig. 2.1.

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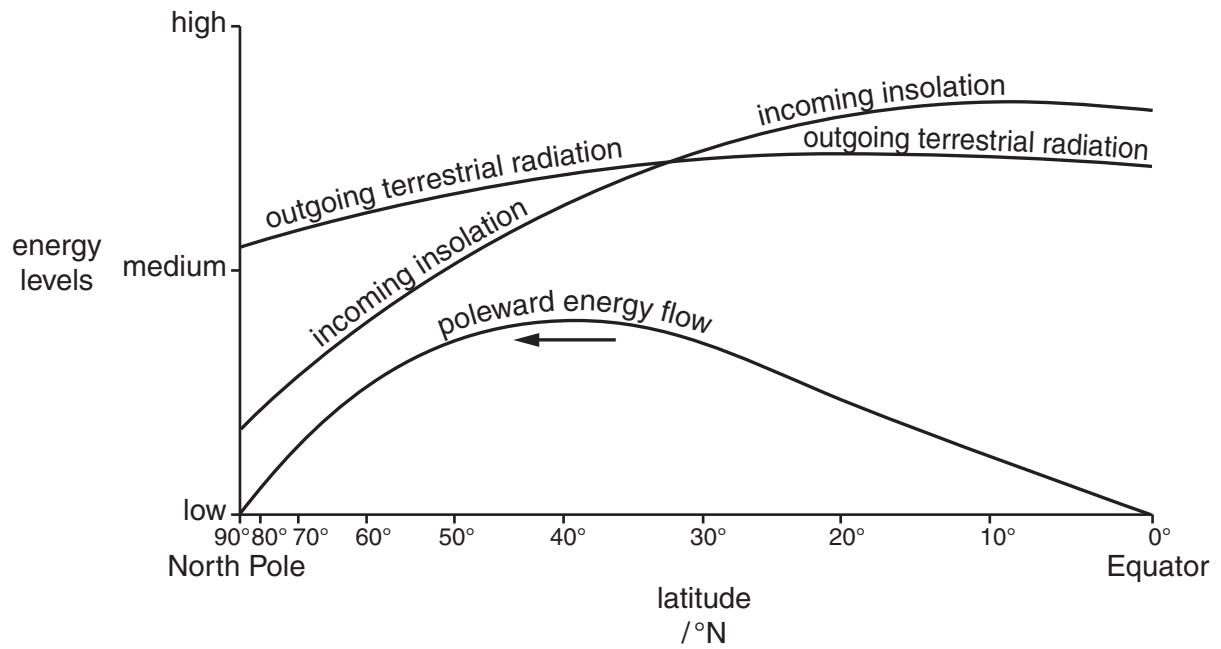
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..... [4]

(b) Fig. 2.2 compares incoming solar radiation and outgoing terrestrial radiation at different northern latitudes and the pattern of energy flow required to balance the Earth's energy budget.



**Fig. 2.2**



(i) Compare the pattern of incoming insolation with that of outgoing terrestrial radiation.

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(ii) Briefly explain why the amount of incoming solar radiation reaching the Earth’s surface is affected by the presence of cloud cover.

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(iii) Outline **three** methods by which the flow of energy from equatorial latitudes towards polar latitudes, shown in Fig. 2.2, might be achieved.

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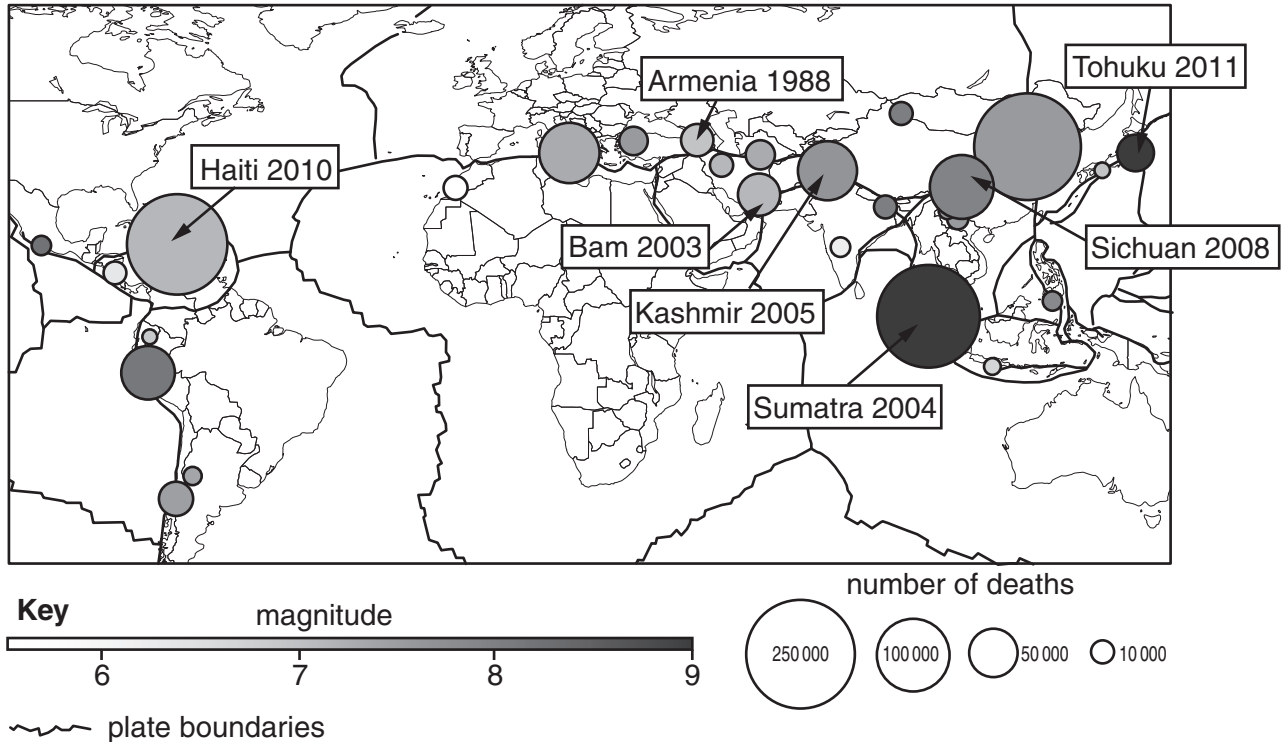
[Total: 20]

**[Turn over**

## Section B

Answer **one** question from this section.

- 3 Fig. 3.1 provides information about the magnitude of a number of recent earthquake events and the number of resulting human deaths.



**Fig. 3.1**

- (a) With reference to Fig. 3.1, describe and suggest reasons for the relationship shown between earthquake magnitude and the number of human deaths. [10]
- (b) With reference to **two** recent natural disasters arising from tectonic events, assess the success of strategies employed to limit damage and loss of human life. [30]

[Total: 40]

- 4 Fig. 4.1 shows a graph which compares global surface temperatures and global ocean heat content with atmospheric concentrations of carbon dioxide.

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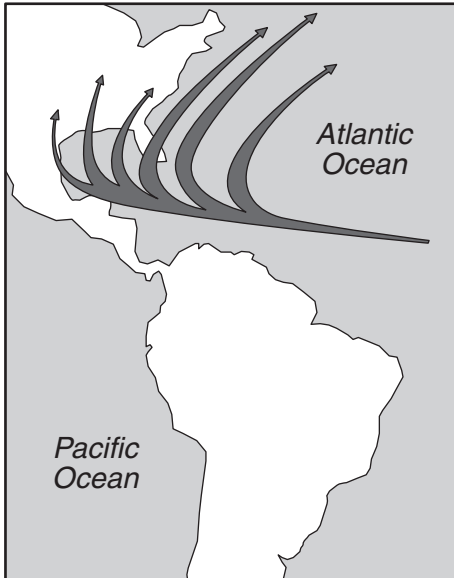
**Fig. 4.1**

- (a) Describe and explain the relationship shown in Fig. 4.1 between atmospheric carbon dioxide, global surface temperature and global ocean heat content. [10]
- (b) With reference to parts of the world with which you are familiar, assess the likely impact of global warming on the natural environment. [30]

[Total: 40]

- 5 Fig. 5.1 provides some historical data about the location and frequency of tropical cyclones (hurricanes) in the Atlantic Ocean.

### frequent tracks of tropical cyclones



### number of tropical cyclones

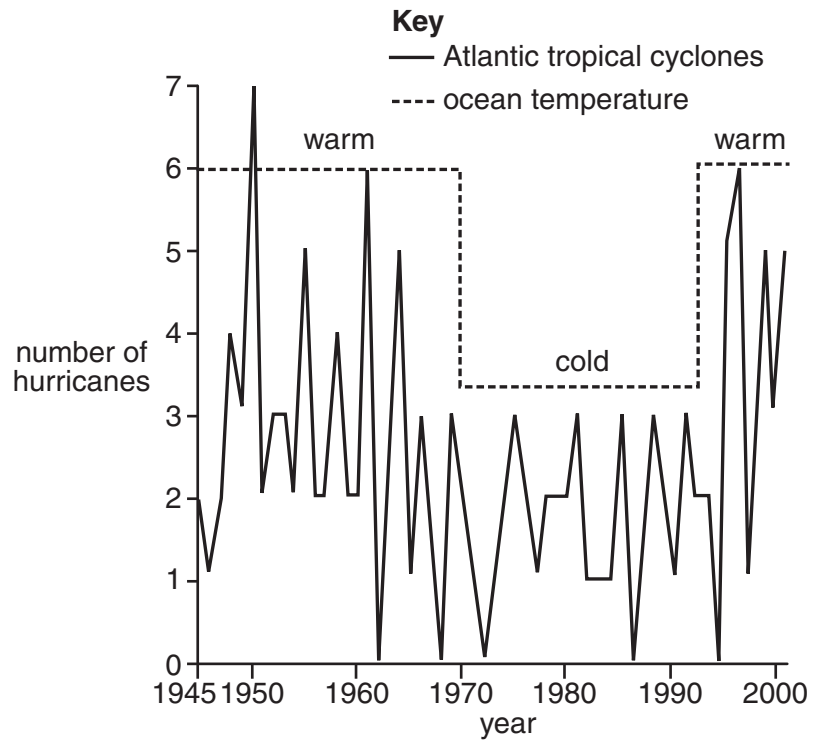


Fig. 5.1

- (a) Briefly describe the usefulness of the data in Fig. 5.1 for forecasting future tropical cyclones. Outline **two** additional sources of information that could be used to make accurate tropical cyclone forecasts. [10]
- (b) To what extent are MEDCs more able to cope with tropical cyclones than LEDCs? Use examples from both groups of countries to support your answer. [30]

[Total: 40]