

CANDIDATE
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ENVIRONMENTAL MANAGEMENT

8291/13

Paper 1 Lithosphere and Atmosphere

May/June 2017

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 **12** printed pages.

Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 shows a diagram of a soil profile divided into separate horizons.

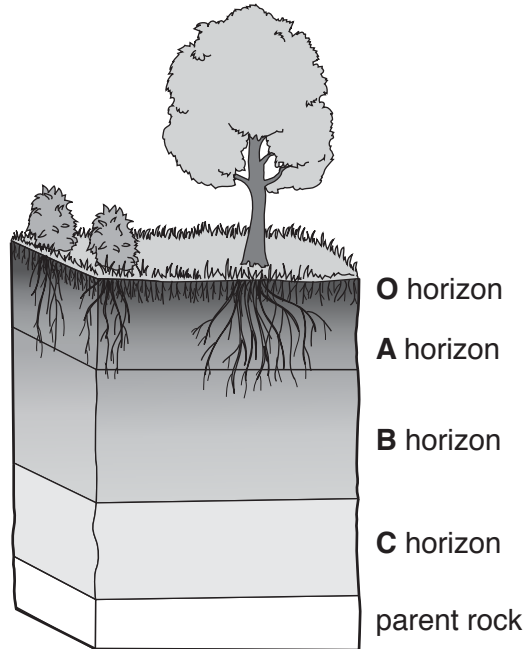


Fig. 1.1

- (i) With reference to Fig. 1.1, describe the characteristics of soil horizons **A** and **C**.

A horizon

.....

.....

.....

.....

C horizon

.....

.....

.....

.....

[4]

- (ii) State in which horizon in Fig. 1.1 you would expect to find the highest concentration of humus.

Explain your answer.

.....
.....
.....
.....[2]

- (iii) Explain **two** ways in which the vegetation shown in Fig. 1.1 may influence the development of the soil.

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.....[4]

- 2 (a) Fig. 2.1 shows information about tropical cyclone (hurricane) activity in different ocean regions of the northern hemisphere between 1988 and 2011.

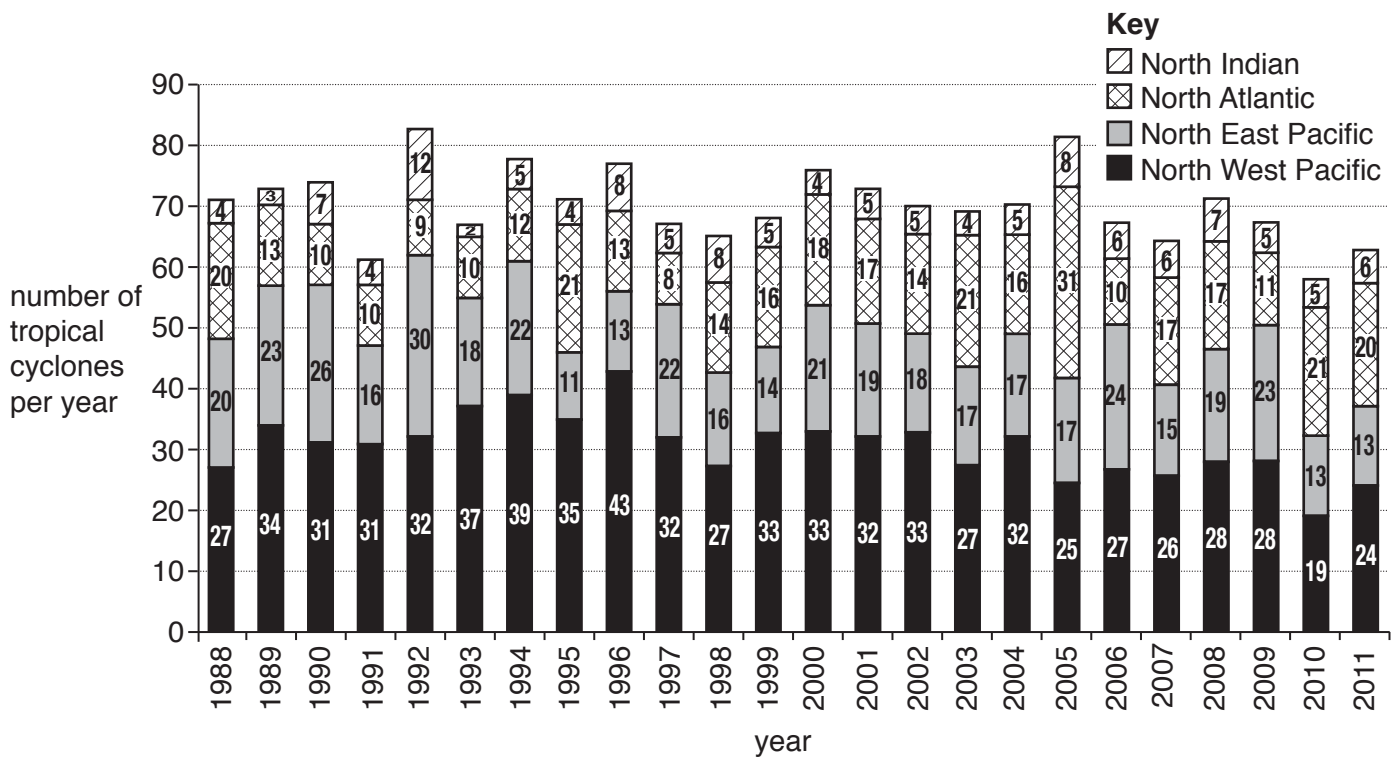


Fig. 2.1

- (i) In Fig. 2.1, which region experienced the highest number of tropical cyclones between 1988 and 2011?
[1]
- (ii) State the year with the lowest number of tropical cyclones between 1988 and 2011.
[1]
- (iii) Describe trends in the pattern of tropical cyclone activity in the North Atlantic between 1988 and 2011 shown in Fig. 2.1.

[3]

(iv) Outline **one** factor that might explain the variability of tropical cyclone activity as shown in Fig. 2.1.

.....

.....

.....

.....[2]

(b) Fig. 2.2 shows a weather chart for the North Atlantic on 6 September 2012 at 12:00.

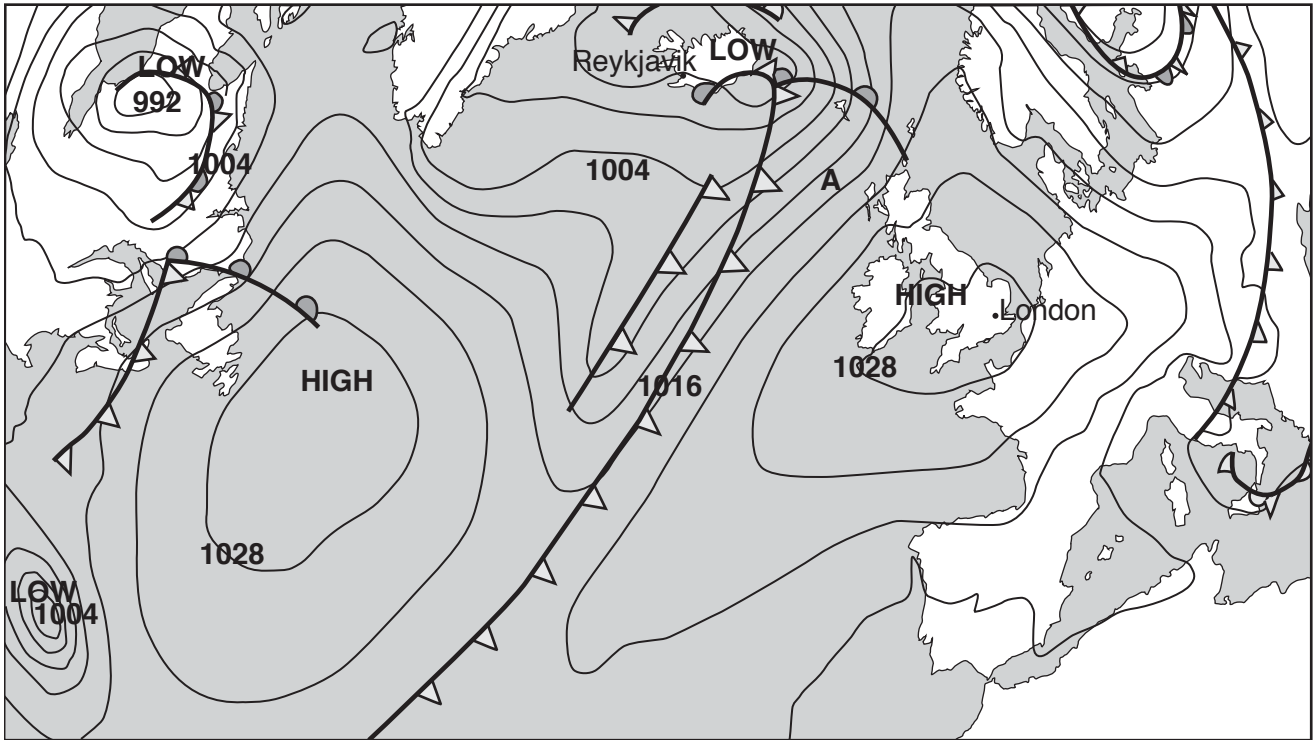


Fig. 2.2

(i) Insert each of the letters **W**, **X**, **Y** and **Z** onto appropriate locations in Fig. 2.2.

- | | |
|--------------------------------|----------|
| a temperate frontal depression | W |
| an anticyclone | X |
| a cold front | Y |
| a warm front | Z |

[4]

(ii) Draw an arrow onto Fig. 2.2 to show the direction of air movement at point **A**.

[1]

(iii) Describe the characteristics of the air at point **A** in Fig. 2.2.

.....

.....

.....

..... [2]

- (iv) With reference to Fig. 2.2, describe the likely weather conditions in Reykjavik and London on 6 September 2012 at 12:00.

Reykjavik.....

.....
.....
.....
.....
.....
.....

London

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.....

[6]

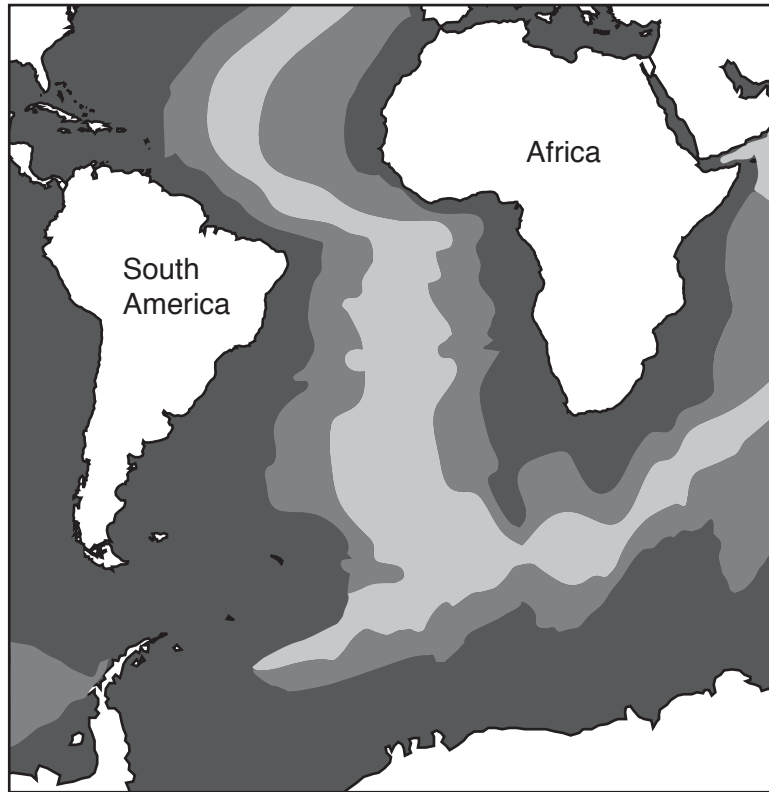
[Total: 20]

Section B

Answer **one** question from this section.

Write your answers on the separate answer paper provided.

- 3 Fig. 3.1 shows the ages of the rocks that form the ocean floor of the South Atlantic Ocean.



Key

age of rocks in millions of years

	0–40.0
	40.1–83.0
	83.1–180.0

Fig. 3.1

- (a) With reference to Fig. 3.1, describe and explain the pattern shown in the ages of the rocks that form the ocean floor. [10]
- (b) With reference to examples, assess the extent to which the hazards associated with volcanic activity can successfully be managed. [30]

[Total: 40]

- 4 Fig. 4.1 shows the actual and predicted pattern in the use of global energy resources between 1970 and 2030.

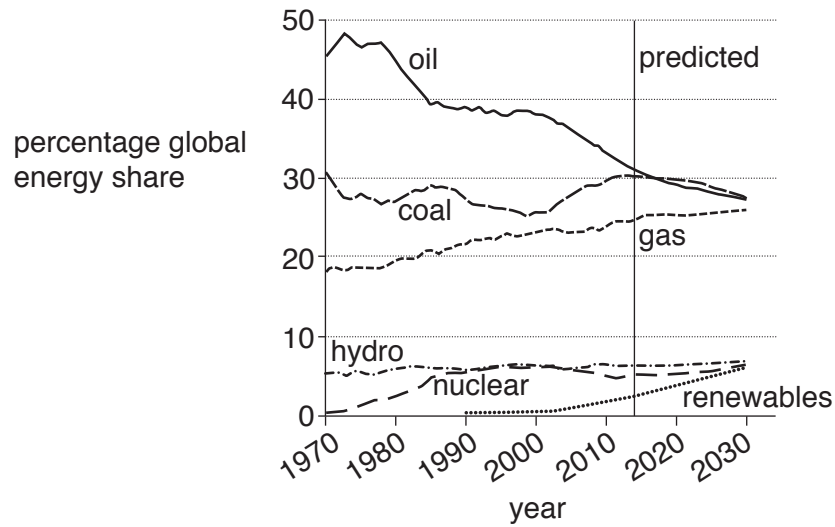


Fig. 4.1

- (a) Briefly describe the changing pattern of global energy use shown in Fig. 4.1 and suggest reasons for the changes. [10]
- (b) With reference to examples, explain why countries choose different energy policies in their search for an affordable and sustainable energy supply. [30]

[Total: 40]

- 5 Fig. 5.1 shows the contributions made by different sources of two greenhouse gases, carbon dioxide and methane.

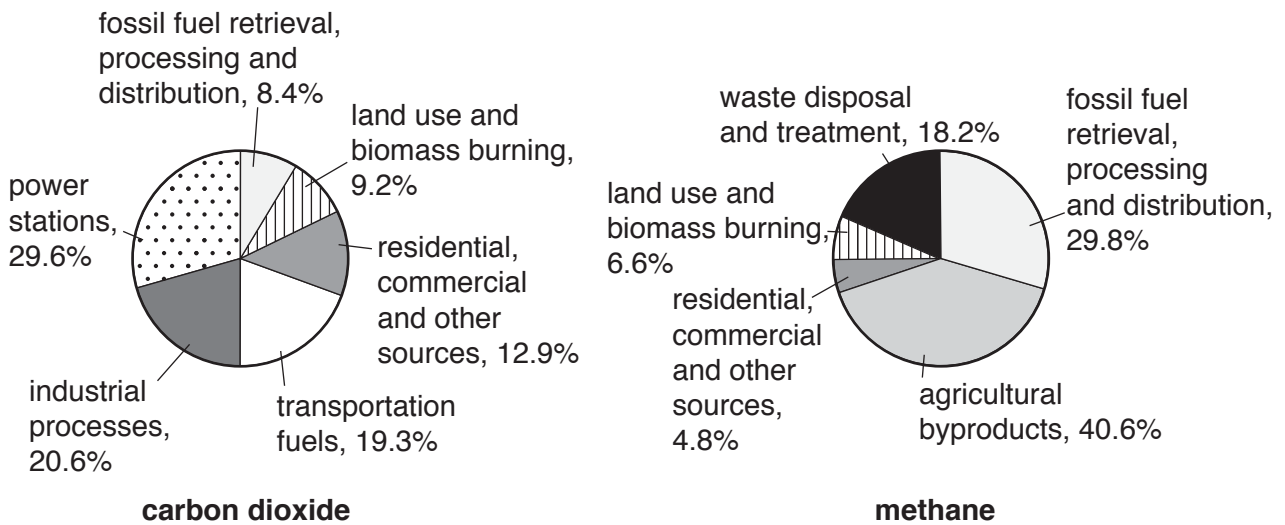


Fig. 5.1

- (a) Using the information in Fig. 5.1, suggest reasons for the differences in the content of each pie graph. [10]
- (b) To what extent have international agreements and protocols been successful in finding a solution to the issue of global warming? [30]

[Total: 40]

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