



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
 General Certificate of Education  
 Advanced Subsidiary Level and Advanced Level

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**ENVIRONMENTAL MANAGEMENT**

**8291/01**

Paper 1 Lithosphere and Atmosphere

**October/November 2008**

**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 a soft pencil for any diagrams, graphs, tables or rough working.  
 Do not use staples, paper clips, highlighters, glue or correction fluid.  
**DO NOT WRITE IN ANY BARCODES.**

**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>	
1	
2	
<b>Section B</b>	
<b>Total</b>	

This document consists of **11** printed pages and **1** blank page.



**Section A**

Answer **all** questions in this section

*For  
Examiner's  
Use*

1 (a) (i) State the type of atmospheric pollution commonly caused by

- carbon dioxide and methane;

.....

- particulates.

..... [2]

(ii) Describe how acid rain might affect the terrestrial and aquatic environments shown in Fig. 1.1.

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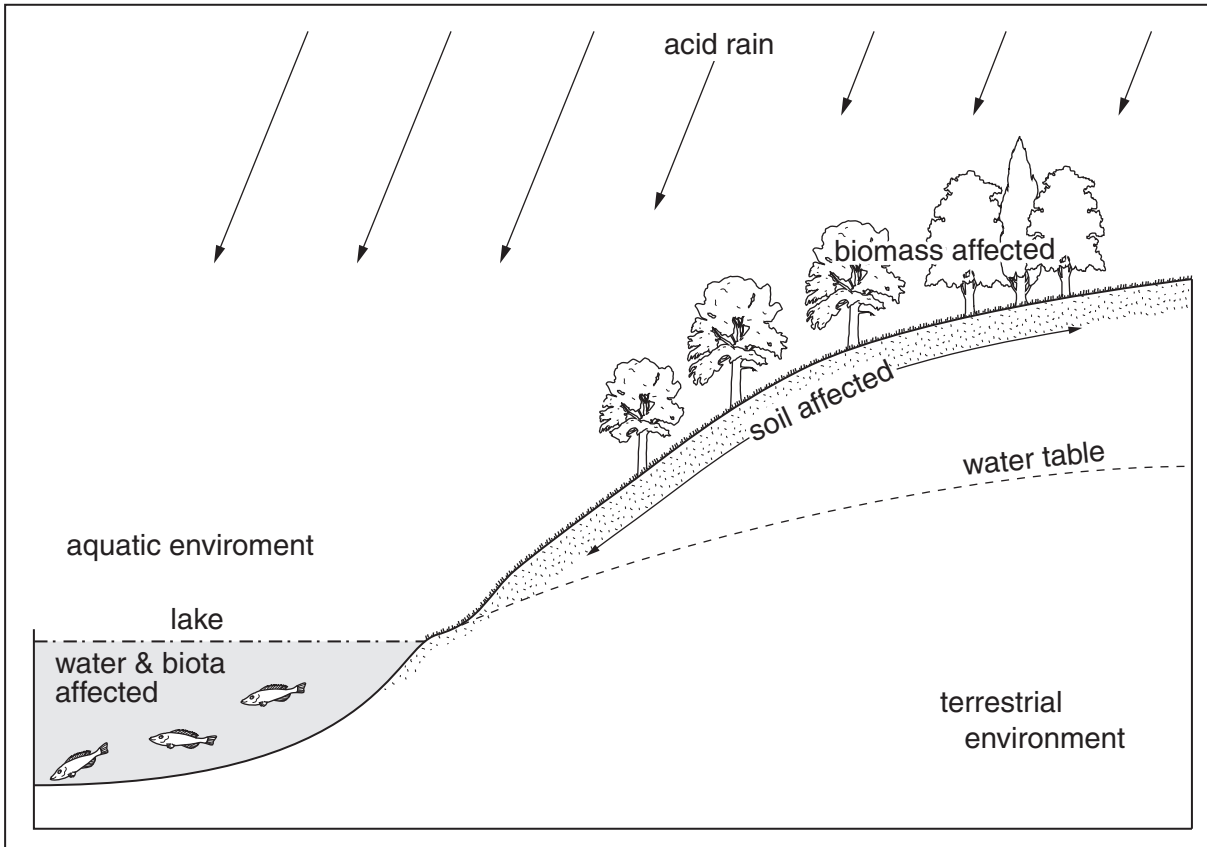


Fig. 1.1

terrestrial environment .....

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.....  
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aquatic environment .....

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[6]

(b) Suggest **two** reasons for the distribution of atmospheric acidity as shown in the map of the USA in Fig. 1.2.

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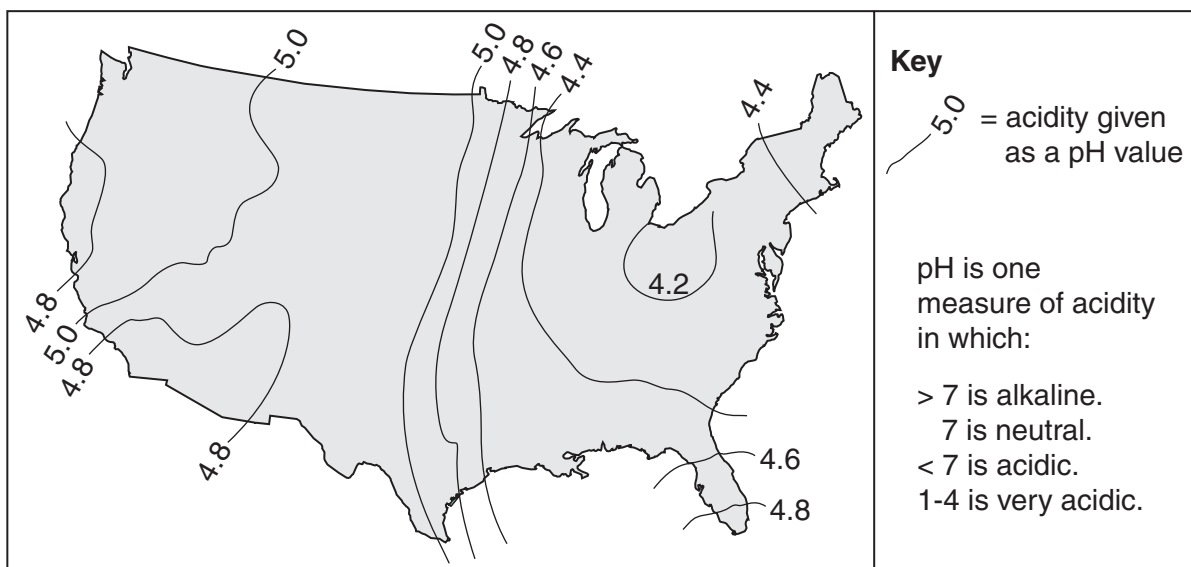


Fig. 1.2

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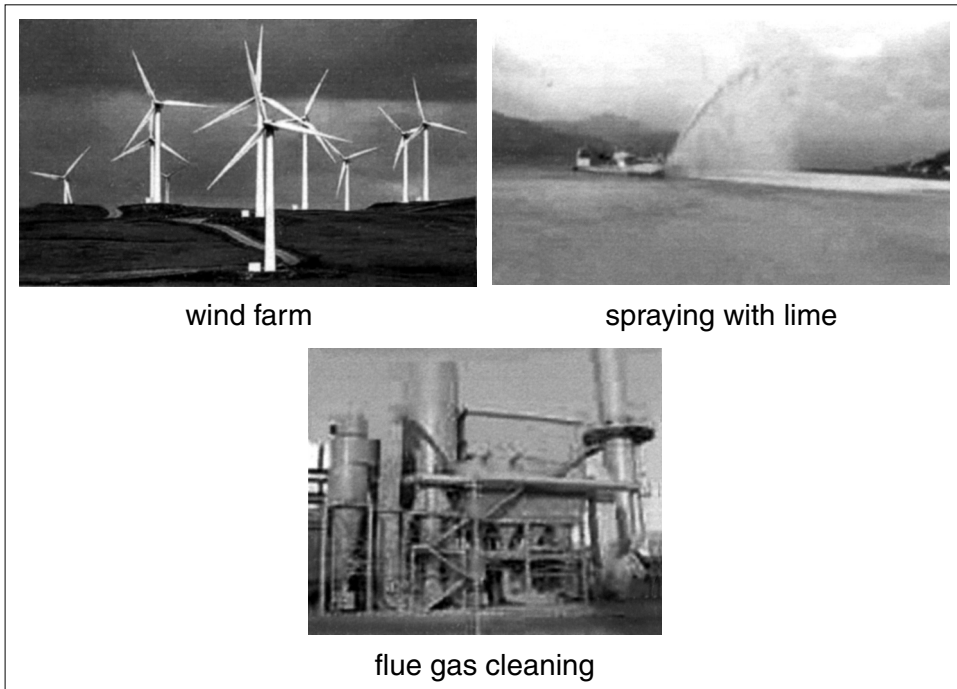
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[3]

(c) Explain how each of the methods shown in Fig. 1.3 can assist in reducing the effects of acid rain.

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**Fig. 1.3**

wind farm .....

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spraying with lime .....

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flue gas cleaning .....

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[9]

[20 marks]

**[Turn over**

2 (a) Fig. 2.1 shows a seismograph record of a shallow focus earthquake.

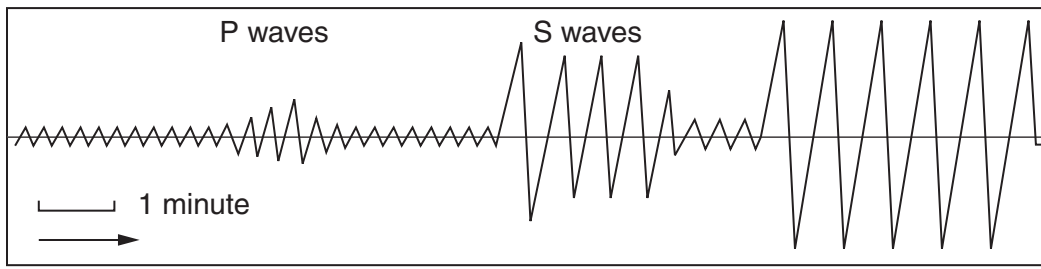


Fig. 2.1

(i) What is meant by the terms *shallow focus earthquake* and *seismic waves*?

shallow focus earthquake .....

.....

.....

seismic waves .....

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..... [2]

(ii) State **three** factors that distinguish between P waves and S waves.

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..... [3]

(iii) Describe how seismograph recordings can be used to locate the focus of an earthquake. You may wish to use a diagram to illustrate your answer.

*For  
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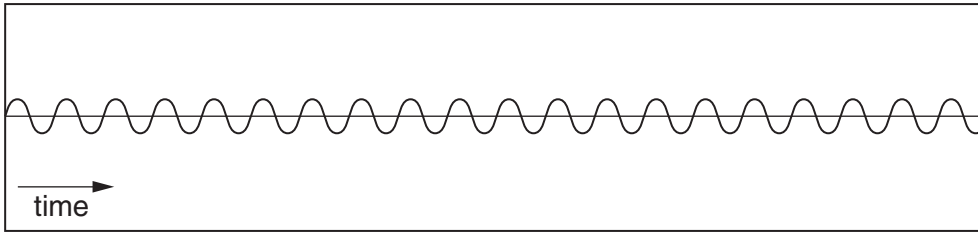
.....

.....

.....[3]

(b) Fig. 2.2 shows a seismograph recorded near a volcano in the period preceding an eruption.

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Examiner's  
Use*



**Fig. 2.2**

(i) State the name of this form of seismic wave activity and explain this pattern.

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..... [3]

(ii) Describe how the pattern of seismic waves would change at the onset and during a volcanic eruption.

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..... [3]



(c) Fig. 2.3 is a photograph showing the damage caused to an urban area by a severe earthquake.

For  
Examiner's  
Use



Fig. 2.3

With reference to Fig. 2.3, describe and justify **three** urban planning strategies that could be adopted to prevent loss of life in future earthquakes.

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..... [6]

[20 marks]

## Section B

Choose **one** question from this section.

Answers must be in continuous prose.

Write your answers on the separate answer paper provided.

- 3 (a) Outline **three** effects on the environment of the opencast method of rock extraction shown in Fig. 3.1. [10]

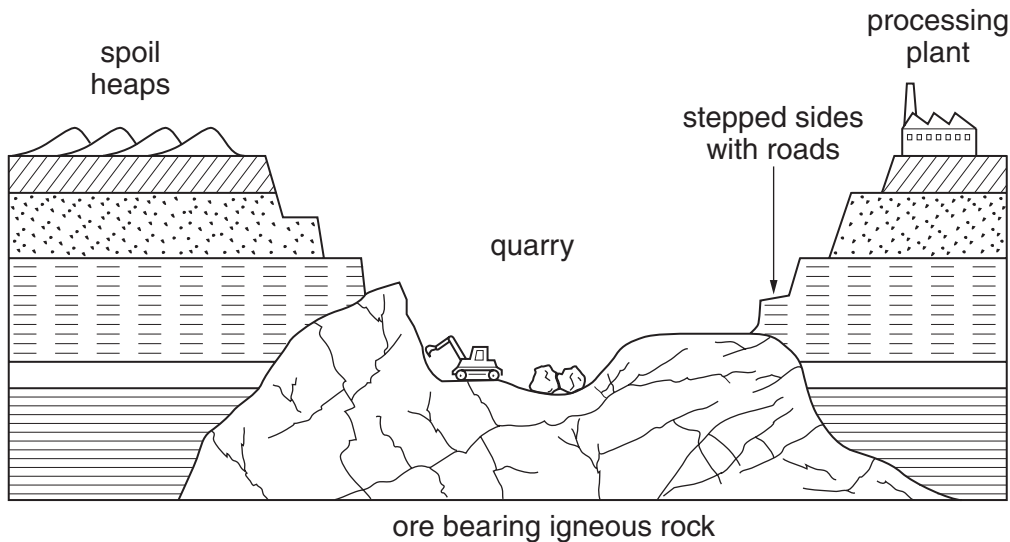


Fig. 3.1

- (b) Using examples with which you are familiar, describe and evaluate the strategies that have been adopted to limit the impact of economic development on land. [30]

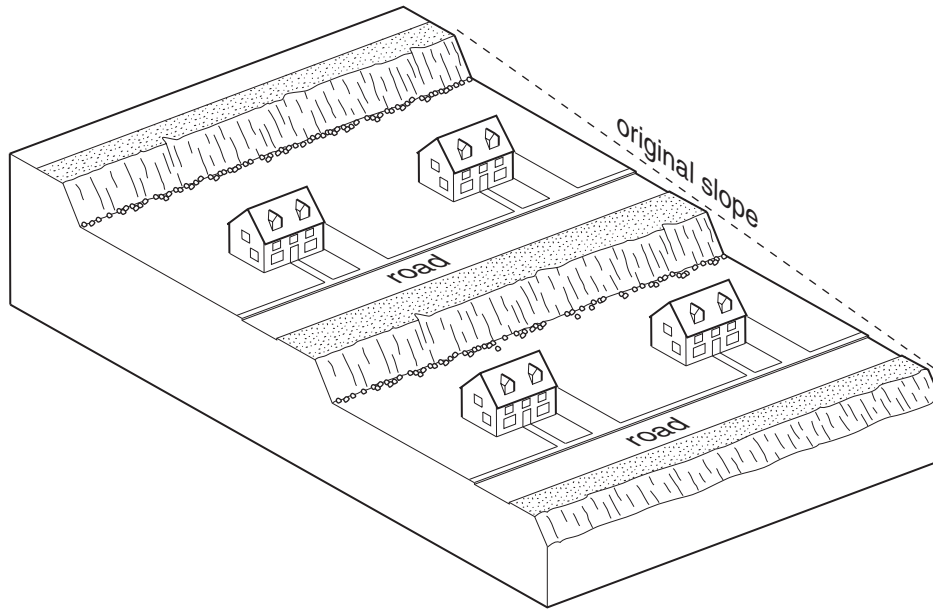
[40 marks]

- 4 (a) Outline **three** ways in which short term changes to the weather can be monitored. [10]

- (b) Using recent evidence, assess the extent to which human activity has had a damaging effect upon the Earth's atmosphere. [30]

[40 marks]

- 5 (a) Fig. 5.1 shows how some sloping ground has been developed.



**Fig. 5.1**

Briefly outline how this development might lead to slope instability.

[10]

- (b) The three different events mentioned in Fig. 5.2 each refer to slope instability.

“An estimated 20000 slopes in Hong Kong are dangerous, many of them have not been examined and another landslip disaster could strike any day”

“One person was killed and 31 injured when two passenger trains collided after a landslip caused by heavy rain in the Lake District”

“A mountain village in SW Colombia was reported to have been swept away in a landslide of rocks, ice and mud, following an earthquake”

**Fig. 5.2**

Assess the techniques that can be used to limit the damaging effects of landslips and landslides. Illustrate your answer with suitable examples. [30]

[40 marks]

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