



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

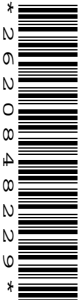
CANDIDATE
 NAME

CENTRE
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ENVIRONMENTAL MANAGEMENT

8291/01

Paper 1 Lithosphere and Atmosphere

May/June 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	
Section A	
1	
2	
Section B	
Total	

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



Section A

Answer **all** questions in this section

For
Examiner's
Use

- 1 Soil texture can be determined by the method shown in Fig. 1.1 and represented on the triangular diagram in Fig. 1.2.

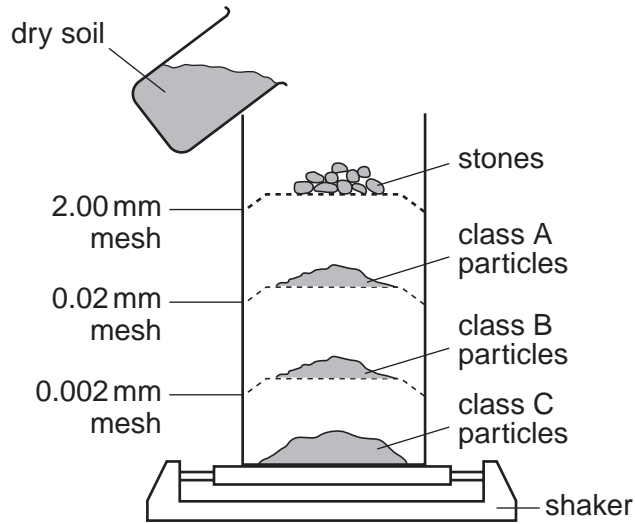


Fig. 1.1

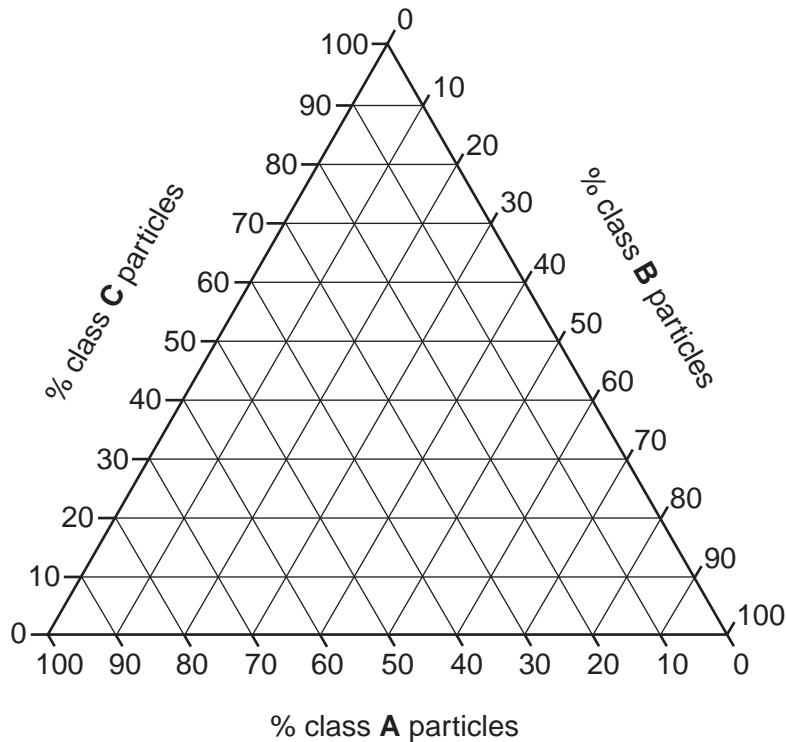


Fig. 1.2

(a) (i) What is meant by the term *soil texture*?

.....
..... [1]

(ii) Describe how the apparatus in Fig. 1.1 separates a soil into textural classes.

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

(iii) A 100g sample of dry soil was separated into 20g of class A particles, 60g of B particles and 20g of C particles.

Locate the composition of the soil by marking an **X** on Fig. 1.2. [1]

(iv) Write the labels **sand** and **clay** into their correct positions within the triangle shown in Fig. 1.2. [2]

(b) Fig. 1.3 shows a profile of a soil that has formed under moist temperate conditions.

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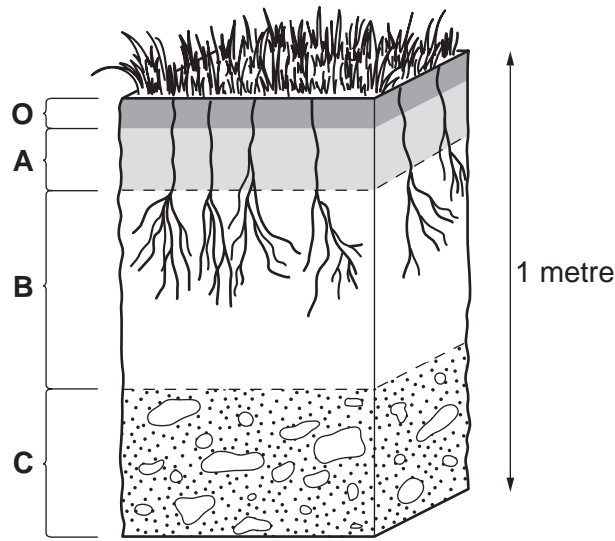


Fig. 1.3

(i) Describe and explain the characteristics of layers **A** and **B** in Fig. 1.3.

layer A

.....

.....

.....

.....

layer B

.....

.....

.....

..... [4]

(ii) Outline **three** ways in which the soil profile in Fig. 1.3 might change as a result of the removal of the overlying cover of vegetation.

1

.....

2

.....

3

..... [3]

- (c) (i) Explain how a combination of human activity and natural processes caused the soil erosion shown in Fig. 1.4.

For
Examiner's
Use



Fig. 1.4

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.....[4]

- (ii) Outline **one** strategy that could be adopted in order to prevent soil erosion to the extent shown in Fig. 1.4.

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.....[3]

[Total: 20]

2 Fig. 2.1 is a barometric chart showing weather conditions across part of Europe.

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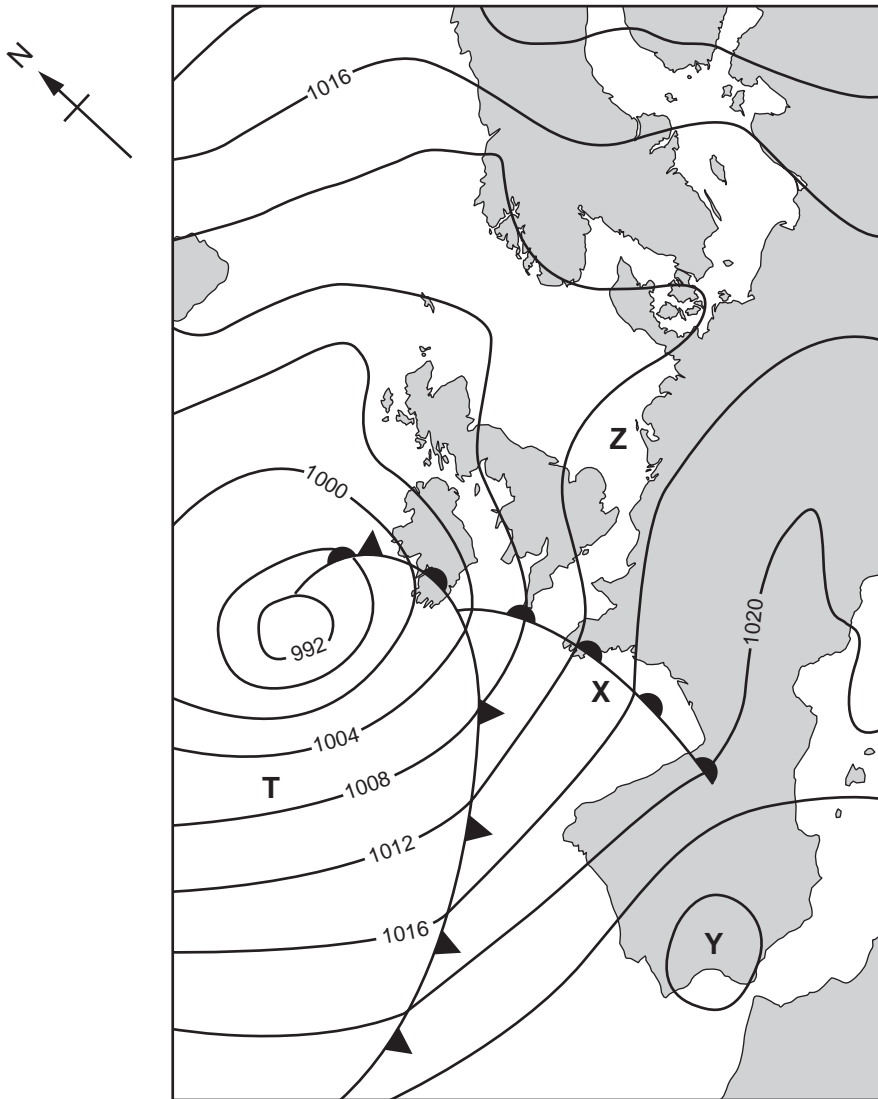


Fig. 2.1

- (a) (i) Write the labels **anticyclone**, **cyclone** and **cold front** in their correct positions on the barometric chart (Fig. 2.1). [3]
- (ii) Draw an arrow to indicate surface wind direction at position **T** on Fig. 2.1. [1]
- (iii) Describe the weather conditions that are likely to occur at positions **X** and **Y** in Fig. 2.1.

.....

.....

.....

..... [2]

(iv) Use Fig. 2.1 to forecast how the weather conditions at position **Z** are likely to change over the following 24 hours.

.....

.....

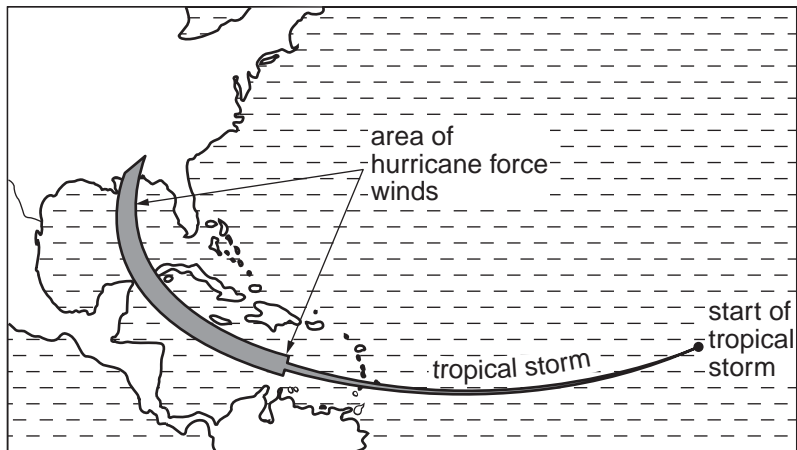
.....

..... [2]

(b) Fig. 2.2 contains a satellite photograph of Hurricane Ivan and a map to show its path and development from a tropical storm into a hurricane.



Hurricane Ivan satellite image



Tracking Hurricane Ivan

Fig. 2.2

(i) State **two** conditions that encourage a tropical storm to intensify into a hurricane.

.....

..... [2]

(ii) Why are wind speeds in excess of 100km per hour characteristic of hurricane conditions?

.....

.....

.....

..... [2]

(iii) Describe the weather conditions in the eye of the hurricane.

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

(iv) Storm surges are one of the damaging effects produced by hurricanes.
A storm surge is caused by the rise in sea level generated by a hurricane.
Explain why this rise in sea level occurs and why it can be damaging.

.....
.....
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.....[3]

(c) Explain **one** way in which nations can limit the damaging effects of hurricanes.

.....
.....
.....
.....
.....
.....
.....
.....[3]

[Total: 20]

Section B

Choose **one** question from this section

- 3 (a) Levels of atmospheric pollution can vary from place to place in the urban area shown in Fig. 3.1.



Fig. 3.1

Outline **three** reasons for these variations. [10]

- (b) With reference to **one** or **more** urban areas, with which you are familiar, evaluate the measures that have been used to reduce atmospheric pollution. [30]

[Total: 40]

- 4 (a) Fig. 4.1 is a scatter plot of energy consumption and wealth for a number of nations. These nations can be grouped into three general types (labelled **A**, **B** and **C** in Fig. 4.1).

Give reasons for the relationship between energy consumption and wealth for the three types of nations. [10]

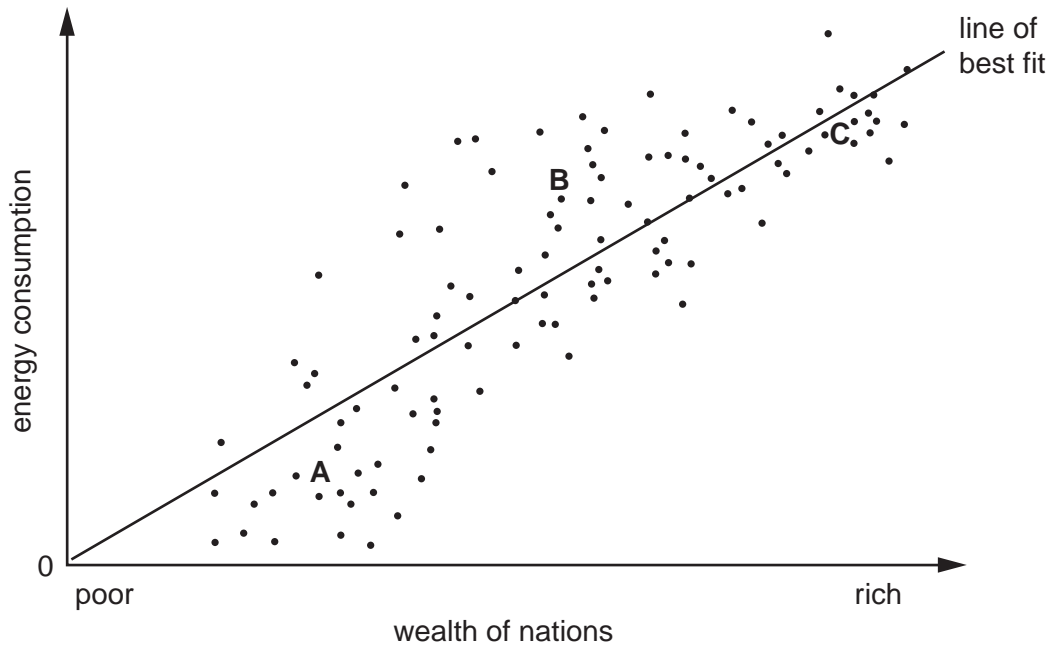


Fig. 4.1

- (b) Assess the extent to which More Economically Developed Countries (MEDCs) have different attitudes and policies towards the sustainable use of fossil fuels than Less Economically Developed Countries (LEDCs). [30]

[Total: 40]

- 5 (a) Seismic zonation involves mapping areas that are most vulnerable to seismic activity. Suggest reasons for the distribution of severe, moderate and weak seismic activity shown on the map of the San Francisco region in Fig. 5.1. [10]

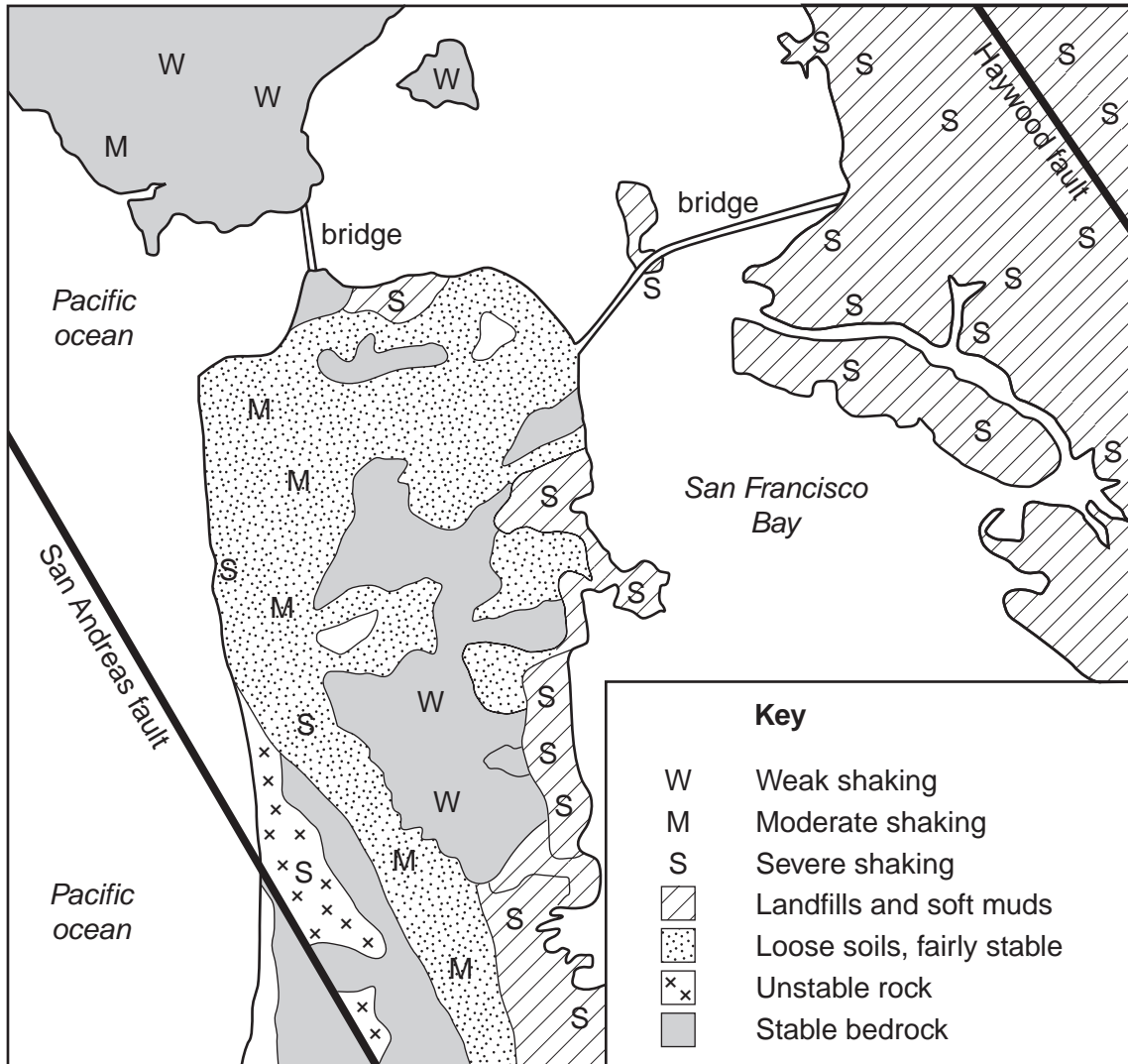


Fig. 5.1

- (b) Assess the methods that can be adopted to limit the damaging effects of earthquakes in densely populated areas. Use examples from both developed countries (MEDCs) and developing countries (LEDCs) in your answer. [30]

[Total: 40]

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