



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

CANDIDATE
 NAME

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ENVIRONMENTAL MANAGEMENT

8291/01

Paper 1 Lithosphere and Atmosphere

October/November 2010

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 **12** printed pages.



Section A

Answer **all** questions in this section

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1 (a) Fig. 1.1 contains information on fossil fuel consumption for selected areas in 2004.

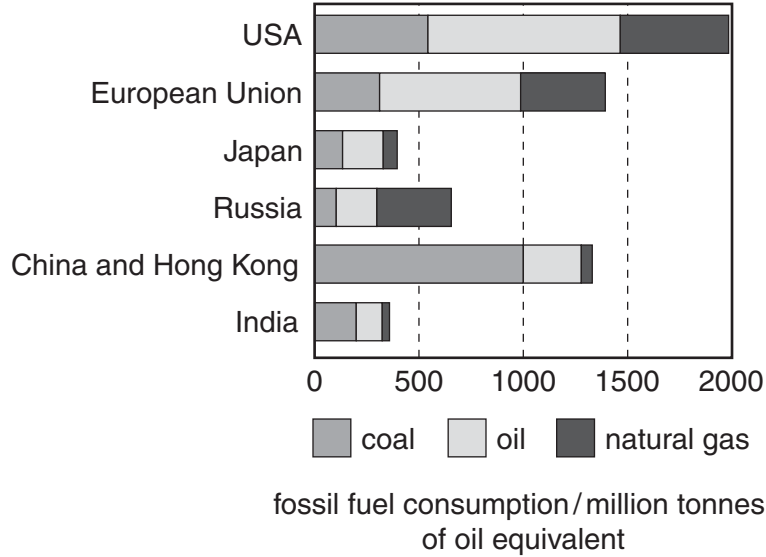


Fig. 1.1

(i) Which areas had the highest consumption of coal, oil and natural gas?

coal

oil

natural gas..... [3]

(ii) Outline **one** way in which fossil fuel consumption in the United States is similar to that in the European Union. Give **three** reasons for this.

Similarity.....

.....

Reason 1

.....

Reason 2.....

.....

Reason 3.....

..... [4]

(iii) What is the difference in total fossil fuel consumption between India and China?
Outline **two** reasons for this difference in fossil fuel consumption.

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..... [5]

- (b) Table 1.1 contains data on renewable energy consumption for the United States (USA) for the year 2006.

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Table 1.1

renewable energy source	2006 consumption / 10^{15} kJ	percentage change 2005–2006 / %
total	10.676	6.9
biomass	3.457	5.2
biofuels	0.800	27.6
waste	0.426	0.3
wood derived fuels	2.230	–0.1
geothermal	0.368	1.8
hydroelectric	3.049	6.9
solar/ photovoltaic	0.074	6.5
wind	0.272	45.1

- (i) Which **three** sources contribute over 80% of the renewable energy used in the USA?

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

- (ii) Suggest why the percentage change in the use of these three sources, as stated in (i), is relatively small.

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

- (iii) Suggest why geothermal energy and energy from waste have shown a small percentage change in the period 2005 to 2006. Give **one** reason for each.

geothermal

.....
.....

waste

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

- 2 (a) Explain why, at the surface of the Earth, some regions of the atmosphere are said to be at high pressure, whereas other regions are said to be at low pressure.

high atmospheric pressure

 [1]

low atmospheric pressure.....

 [1]

- (b) Fig. 2.1 shows the global horizontal circulation of air.

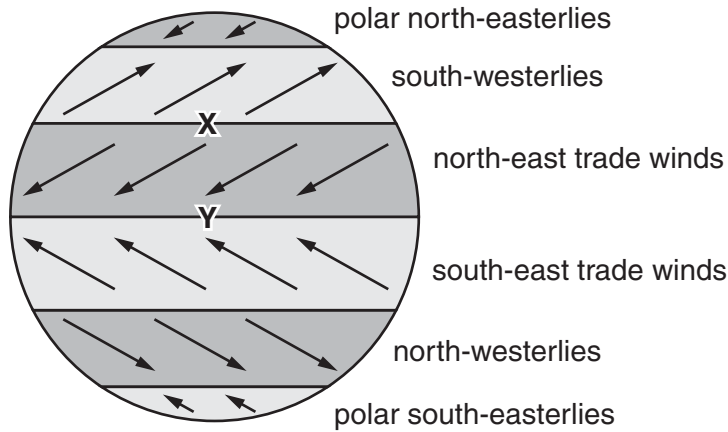


Fig. 2.1

- (i) State the type of atmospheric pressure that is generally found at X and Y in Fig. 2.1.

X
 Y [2]

- (ii) Explain how differences in atmospheric pressure contribute to the global horizontal circulation of air shown in Fig. 2.1.

.....

 [2]

(iii) Describe the influence the Earth's rotation has upon the global horizontal circulation of air.

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..... [2]

(ii) Using the information in Fig. 2.2, describe **one** social and **one** economic hazard that might derive from the climate of this region.

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social hazard

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

economic hazard

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

[6]

[Total: 20]

Section B

Select **one** question from this section

- 3 (a) Describe and explain the characteristics of the tectonic activity that occurs at locations **X**, **Y** and **Z** on Fig. 3.1. [10]

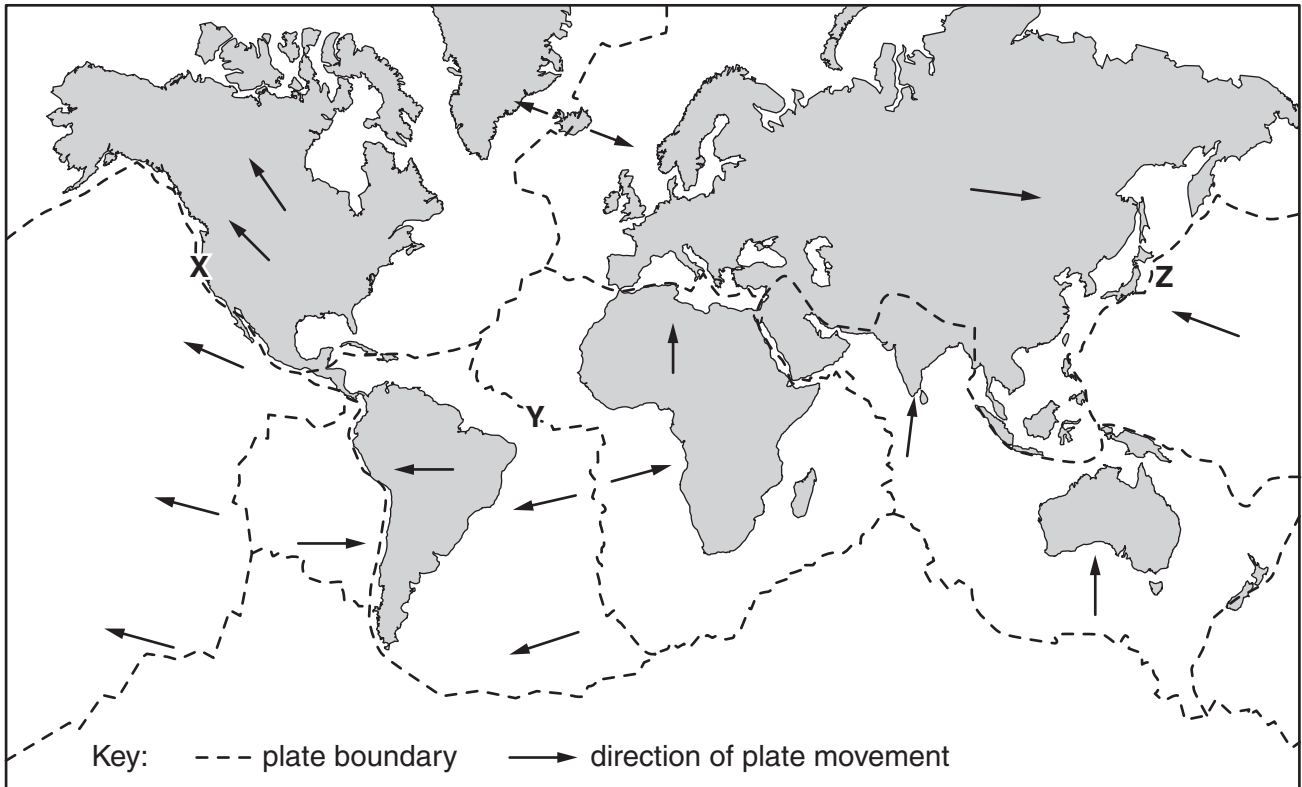
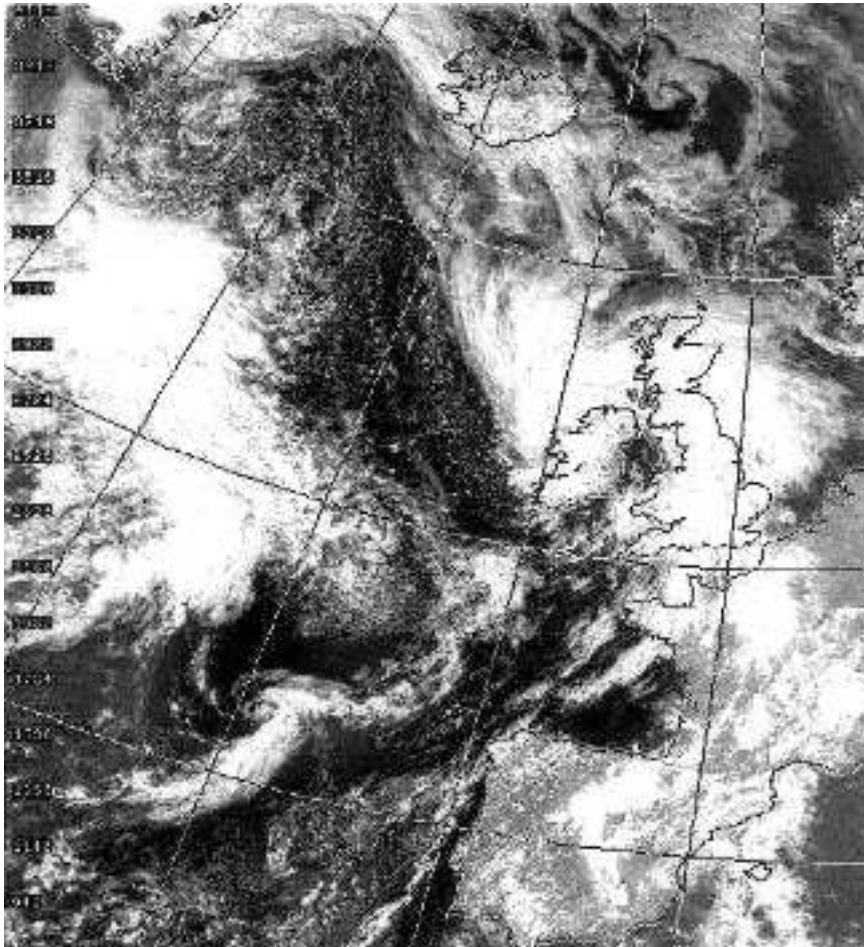


Fig. 3.1

- (b) Select either an earthquake hazard **or** a volcanic hazard with which you are familiar. Assess the extent to which the perceptions of, and responses to, your chosen hazard depend more on the wealth of the country than on any other factor. [30]

[Total: 40]

- 4 (a) Describe **three** ways in which the information contained in satellite images, such as that shown in Fig. 4.1, can be used to interpret current and future weather. [10]



white areas are cloud; black areas are clear sky

Fig. 4.1

- (b) Describe the characteristic features and causes of **two** different atmospheric hazards you have studied. Assess the strategies that have been adopted to limit their effects. [30]

[Total: 40]

- 5 (a) Briefly describe the effects the open-cast mine, shown in Fig. 5.1, would have upon its local environment. [10]



Fig. 5.1

- (b) Using examples of where economic activity has caused land to become degraded, describe and assess the methods that would enable its:

- sustainable exploitation
- restoration.

[30]

[Total: 40]

Copyright Acknowledgements:

Question 4 Figure 4.1 © Satellite map, Dundee Satellite Receiving Station.
 Question 5 Figure 5.1 Photograph © www.kujmf.se.

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