



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

CANDIDATE  
NAME

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--

\* 2 4 0 3 6 3 2 6 8 1 \*

**ENVIRONMENTAL MANAGEMENT**

**8291/01**

Paper 1 Lithosphere and Atmosphere

**October/November 2007**

**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.

Write your answers in the spaces provided.

- 1 (a) State **one** way in which land can be regarded as a renewable resource .....
- .....
- a non-renewable resource. ....
- .....[2]

(b) Fig. 1.1 shows how some of the world's largest cities have increased in population since 1950 and how they are expected to have changed by 2015.

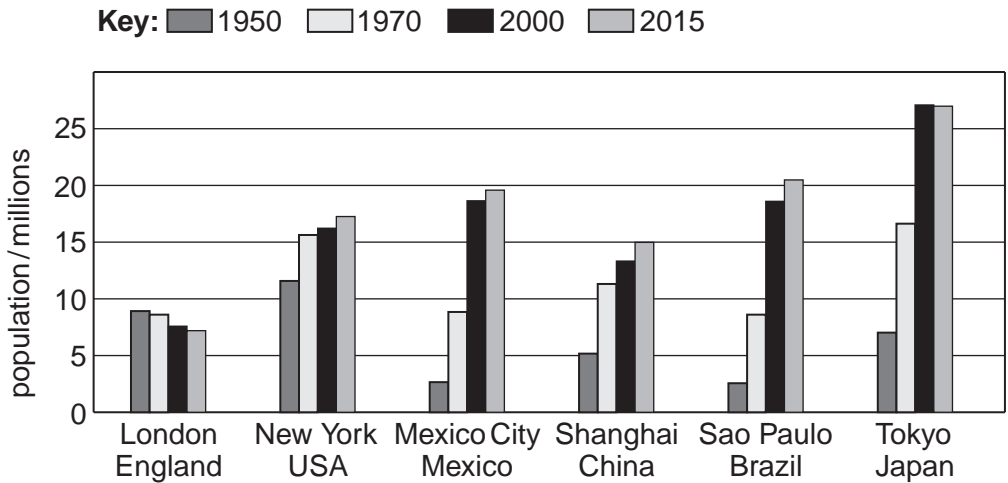


Fig. 1.1

- (i) Which city had the largest increase in population between 1950 and 1970? .....
- .....[1]
- (ii) By how much did the population of Mexico City grow between 1970 and 2000? .....
- .....[1]

(iii) Describe how the populations of London, New York and Tokyo change between 1950 and 2015.

.....

.....

.....

.....

.....

.....

.....[3]

(c) Fig. 1.2 shows some features of the Sao Paulo Metropolitan Area.

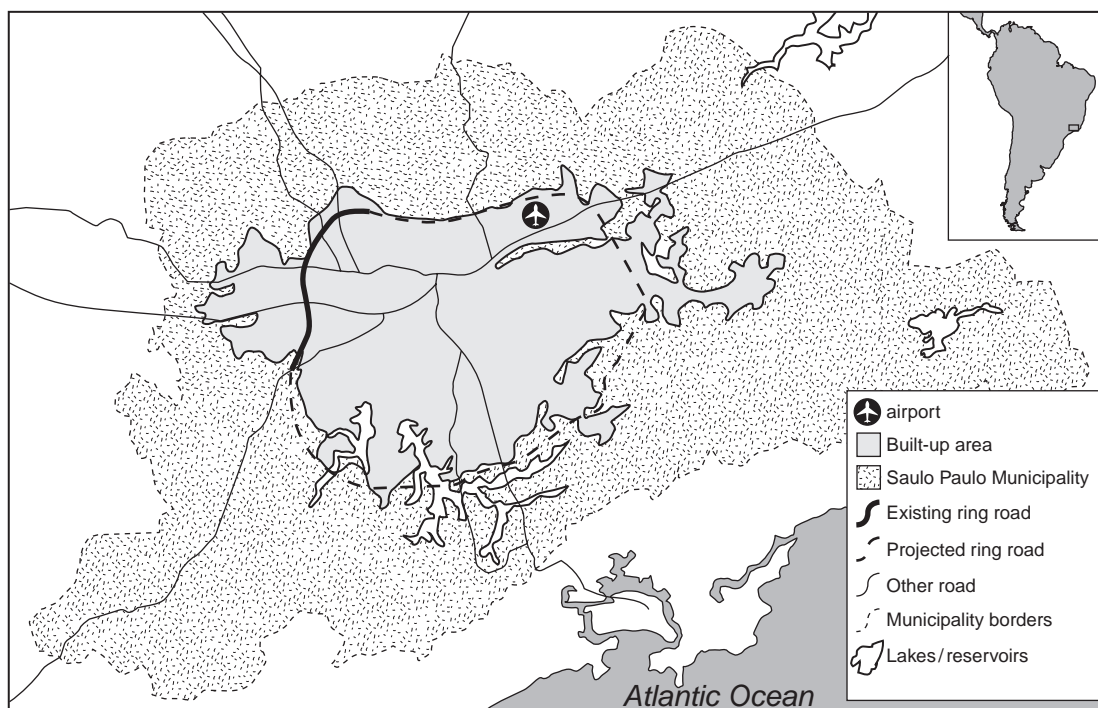


Fig. 1.2

List **three** effects that the growth of Sao Paulo is likely to have on land

- within the built up area of the city,

.....

.....

.....

.....

.....[3]

- in the zone between the built up area and the edge of the Metropolitan Area

.....

.....

.....

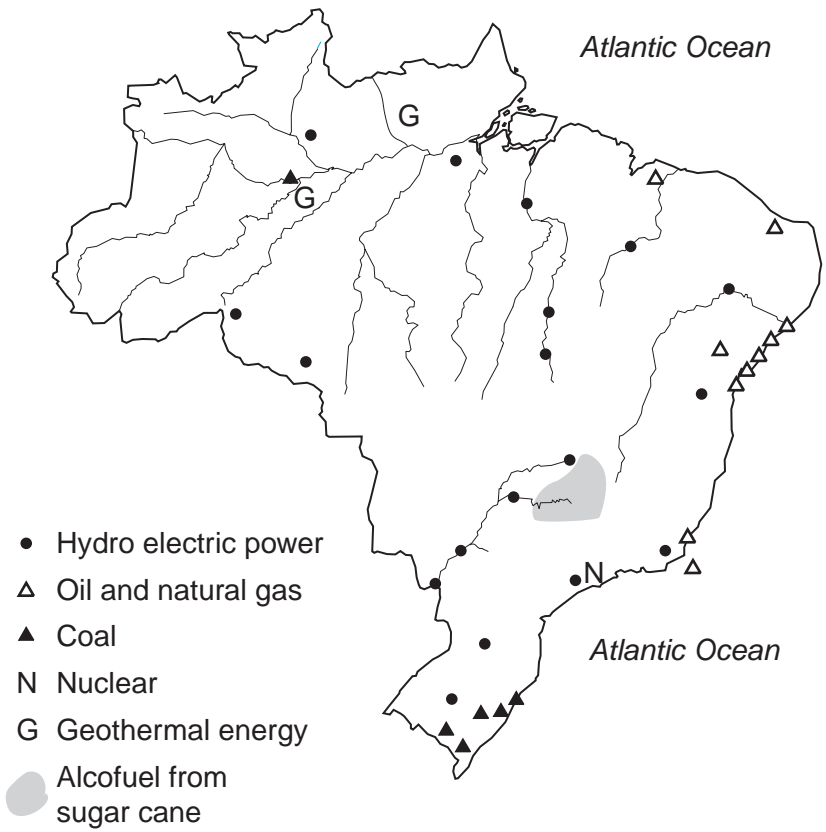
.....

.....[3]

(d) Rapid population growth, accompanied by urbanisation, places huge demands on the current and future provision of energy. In 2001, Brazil was the third largest energy consumer in the western hemisphere and the largest in Central and South America. Fig. 1.3 locates some of Brazil's major sources of energy. Table 1.1 lists the primary sources of energy by percentage.

**Table 1.1**

primary sources of energy	% of total
<b>renewable</b>	<b>61.7</b>
hydro-electric power	37.8
wood	12.7
sugar cane	9.8
others	1.4
<b>non-renewable</b>	<b>38.3</b>
oil	30.5
natural gas	2.4
coal	5.3
nuclear	0.1
<b>total</b>	<b>100%</b>



**Fig. 1.3**



2 (a) Fig 2.1 shows the effect of latitude upon incoming solar radiation on June 21st.

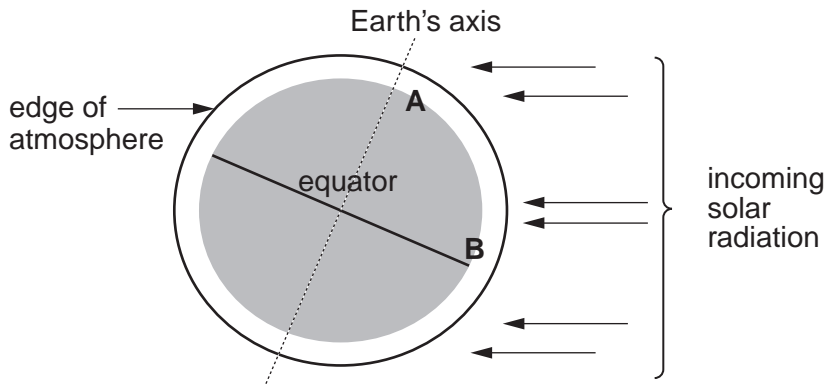


Fig. 2.1

(i) Explain why the length of day and night at point A is different to point B.

.....

.....

.....

.....[2]

(ii) Explain why summertime temperatures at point A are lower, on average, than at point B.

.....

.....

.....

.....[2]

(b) Fig.2.2 shows the generalised energy budget of the Earth.

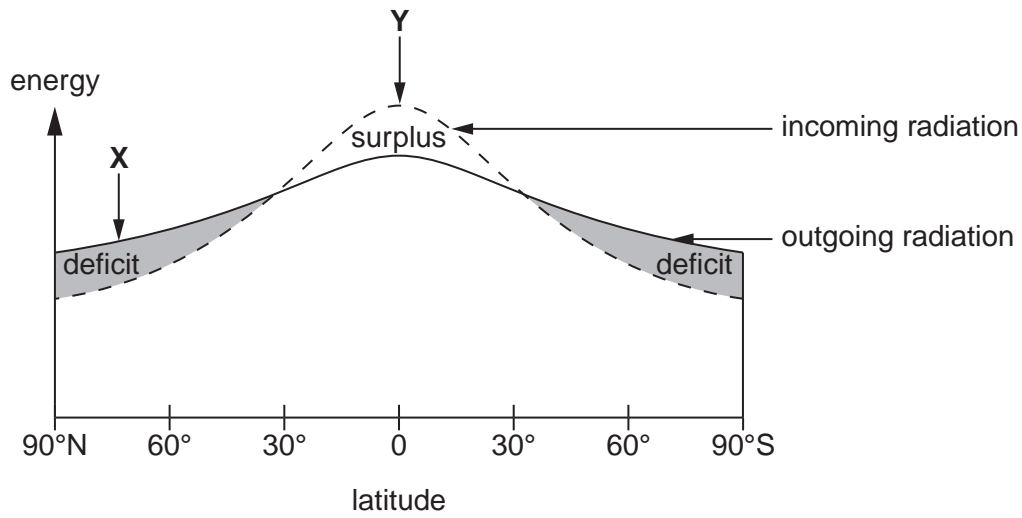


Fig. 2.2

(i) What is meant by the term *energy budget*?

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

(ii) Explain why there is

- an energy deficit at point X

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

- an energy surplus at point Y.

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

- (iii) A great deal of the energy the Earth receives is transferred from low latitudes to high latitudes; this balances the energy surplus and deficit. Using examples describe **two** ways in which this energy is transferred.

.....

.....

.....

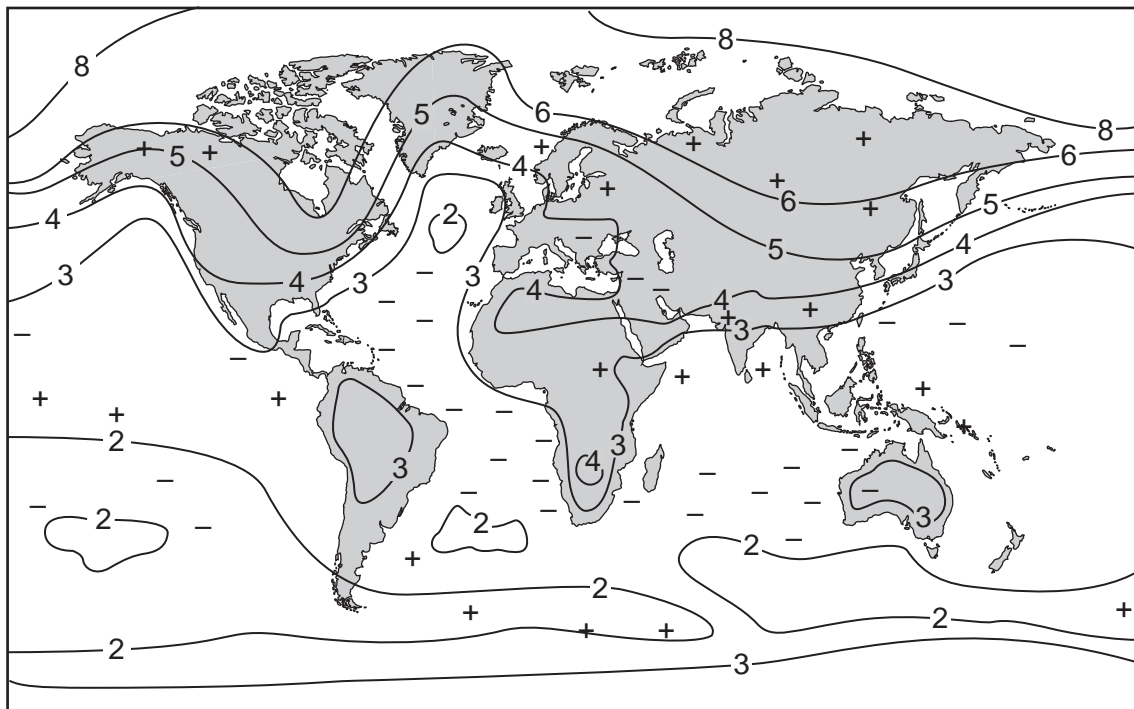
.....

.....

.....

.....[4]

- (c) With reference to Fig. 2.3, describe how the Earth's temperatures and precipitation might change as a result of enhanced global warming.



**Key**

- + potential increases in rainfall
- potential decreases in rainfall
- 3- potential increases in temperature/°C

**Fig. 2.3**





## Section B

Answer **one** question from this section.

Answers must be in continuous prose.

Write your answers on the separate answer paper provided.

- 3 (a) Fig. 3.1 shows the distribution of continents 200 million years ago and at the present. Outline **three** pieces of evidence that would support this model of the change in the distribution of the continents. [10]

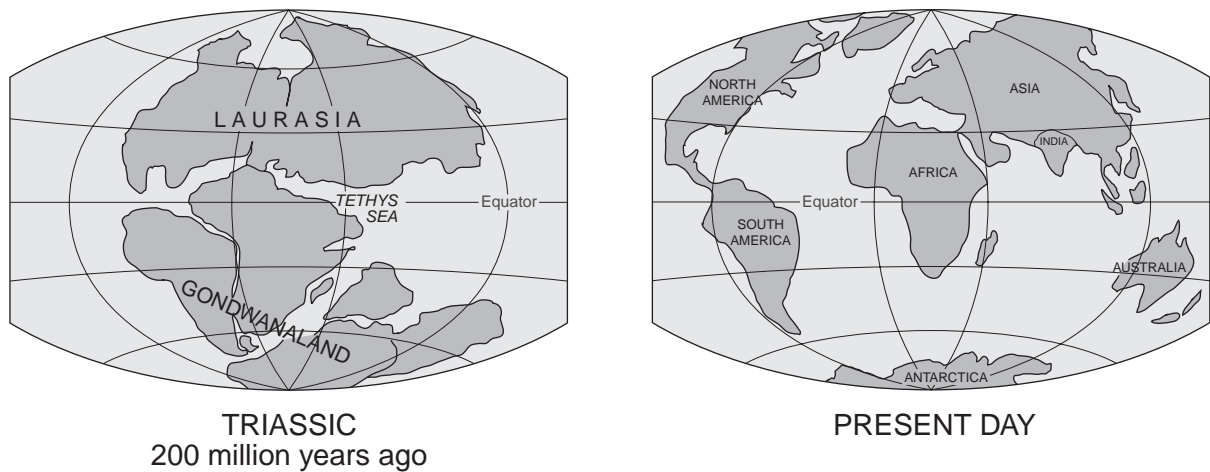


Fig. 3.1

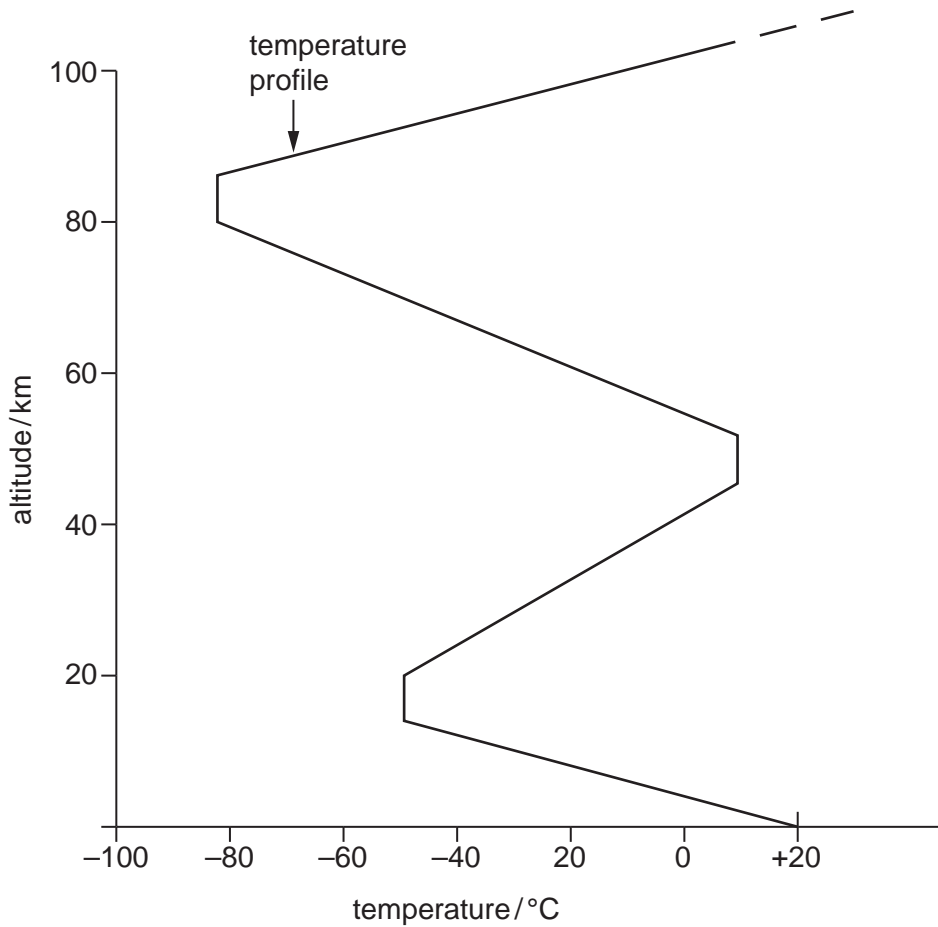
- (b) Describe and explain the causes and effects of **one** named volcanic **or** earthquake disaster with which you are familiar. Describe and evaluate the measures that were used to enable the area affected to recover. [30]

[40 marks]

- 4 (a) List **three** different types of atmospheric pollution commonly found in major towns and cities. Briefly describe the sources and effects of these three types of pollution. [10]
- (b) Describe and evaluate the policies that have been adopted in major urban areas to improve energy efficiency and help reduce atmospheric pollution. Illustrate your answer with examples of named urban areas and adopted policies. [30]

[40 marks]

- 5 (a) Fig. 5.1 shows how the temperature of the Earth's atmosphere changes with altitude. Identify by altitude **three** layers of the Earth's atmosphere and briefly describe the characteristics of each layer you have identified.



**Fig. 5.1**

- (b) What is the evidence for the view that human activity has modified and continues to modify atmospheric processes? Explain why it is important that international agreements on the management of the atmosphere are adopted by all nations. Use examples to illustrate your answer. [30]

[40 marks]

---

*Copyright Acknowledgements:*

Question 3                      Fig. 3.1 © <http://pubs.usgs.gov/gip/dynamic/historical.html>

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.