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

CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

ENVIRONMENTAL MANAGEMENT   **8291/02**

Paper 2   Hydrosphere and Biosphere   **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.

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International Examinations

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Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

1 (a) Fig. 1.1 contains information on the African savanna biome.
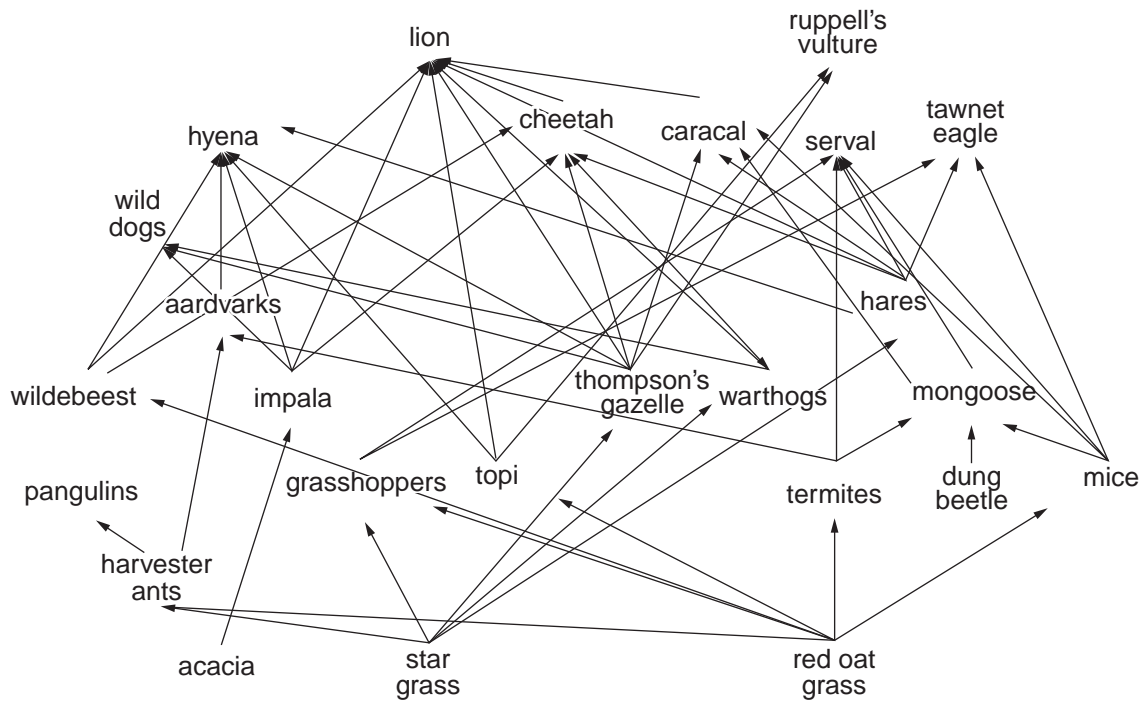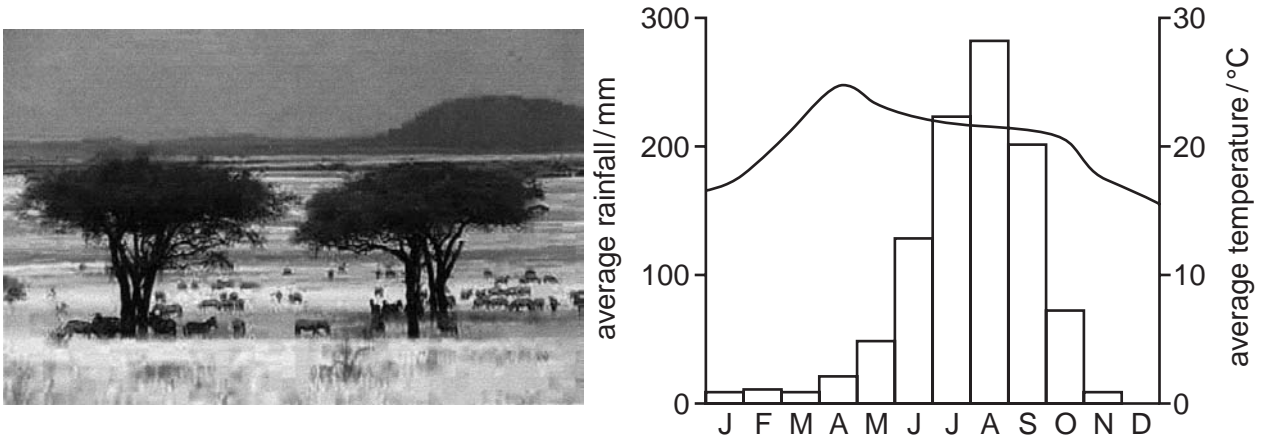
Fig. 1.1

(i) What is meant by the term *food web*?

....

....

....

....[2]

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(ii) From the food web in Fig. 1.1 identify:

• one producer ....

• one primary consumer ....[2]

(iii) Using the climatic chart in Fig. 1.1, describe the climate of the African savanna biome.

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....[2]

(iv) Using the information in Fig. 1.1;

• state the identity of the predominant type of vegetation of the savanna biome

....[1]

• suggest why the behaviour of impala and wildebeest might cause excessive consumption of savanna vegetation.

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....

....[2]

(v) Suggest **two** explanations of how the animals at the highest trophic level have established niches in the savanna biome.

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....[2]

(vi) What effect might increasing aridity have upon the food web of savanna areas?

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....[3]

(b) Fig. 1.2 contains data on critically endangered species, by group, in three regions. The numbers of endangered species are shown by the values in the quadrants.


Fig. 1.2

Give **three** reasons for the regional differences in the data shown in Fig. 1.2.

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....[6]

[Total: 20]

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2   **(a)** Table 2.1 contains data about global water stores.

Table 2.1

store	volume /million km^3	% of total
oceans	1370	97.25
ice caps	29	2.05
deep groundwater	5.3	0.38
shallow groundwater	4.2	0.30
lakes	0.125	0.01
soil moisture	0.065	0.005
atmosphere	0.013	0.001
rivers	0.0017	0.0001
biosphere	0.0006	0.00004

   (i) Explain the term *global water store*.

   ....

   ....[2]

   (ii) With reference to Table 2.1, outline the possible impact of a decrease in temperature
   on the oceans and ice caps.

   ....

   ....

   ....

   ....[2]

   (iii) Name the water store that is most important in supplying water

   • for industrial activity,

   ....

   • directly to growing crops.

   ....[2]

(iv) With reference to Table 2.1, describe and explain the possible effects of an increase in temperature upon the groundwater and soil moisture stores.

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....[3]

(v) To what extent will a slight increase in temperature affect the water stored in the atmosphere and biosphere?

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....[3]

(b) Describe how a balance between inputs and outputs of water would be maintained in the woodland area shown in Fig. 2.2.

Fig. 2.2

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....[4]

(c) Fig. 2.3 shows the annual soil moisture balance for Cuddalore in southern India.
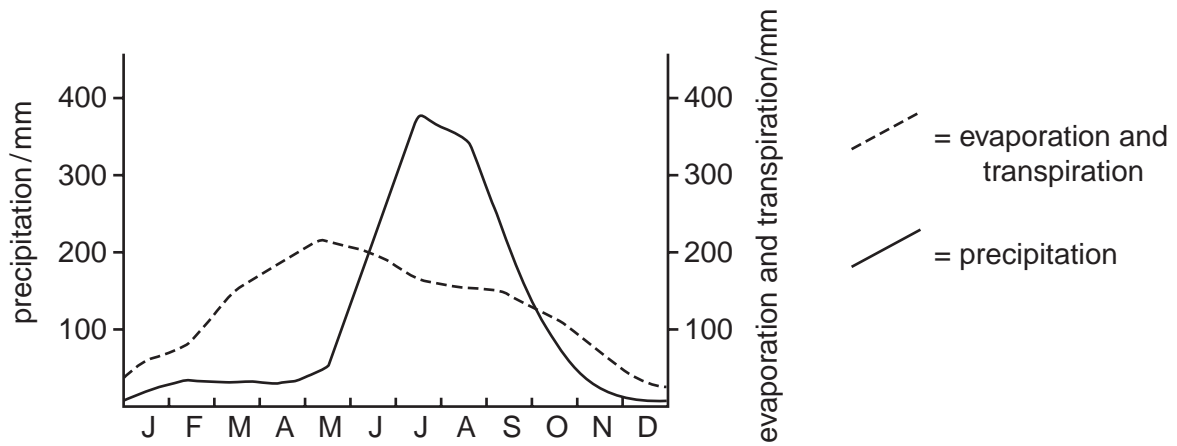
Fig. 2.3

Agriculture is an important all year activity in Cuddalore. Using Fig. 2.3, discuss the effect of a decrease in precipitation upon agricultural activity in this region.

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....[4]

[Total: 20]

Section B

Choose **one** question from this section.

Write your answers on the separate answer paper provided.

3 **(a)** Some people in SE Asia, Latin America, Europe and Africa do not have access to an adequate, safe water supply. Fig. 3.1 shows how these people are distributed across these regions.
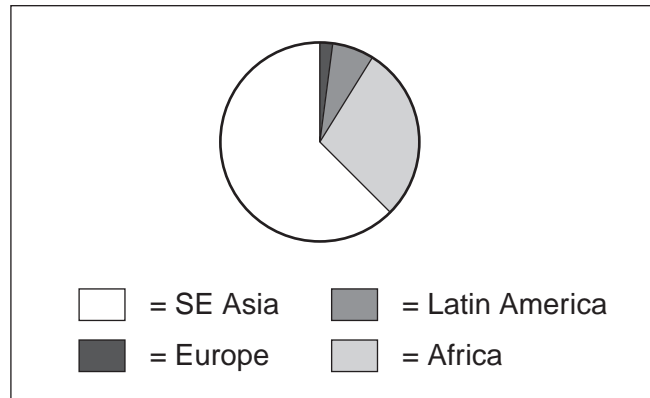
Fig. 3.1

Using the pie chart in Fig. 3.1, outline **three** reasons for this distribution. [10]

(b) With reference to examples from **either** LEDCs **or** MEDCs, describe and evaluate the measures that countries attempt in order to satisfy their increasing demand for water. [30]

[Total: 40]

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4 **(a)** Fig. 4.1 shows an area of forest.

Fig. 4.1

With the exception of human activity, describe **three** factors that would maintain the ecological stability of the area of forest shown. [10]

(b) Describe the effects of human activity upon **one** natural ecosystem you have studied.
Assess the extent to which it has been possible to manage and conserve the important aspects of your chosen ecosystem. [30]

[Total: 40]

5 **(a)** Choose **three** of the issues listed below and for each outline **one** reason why it is seen to exert pressure on the global environment.

- Global output of goods has increased by a factor of 6 since 1980
- Use of paper has increased by a factor of 6 since 1980
- Global life expectancy at birth, now 66 years, is projected to reach 73 years by 2025.
- Fossil fuel burning has increased by almost a factor of 4 since 1980
- 80% of natural resources are consumed by 25% of the world's population. [10]

(b) To what extent have meetings between nations been successful in managing the impact of human activity upon the biosphere? [30]

[Total: 40]

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