



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

CANDIDATE  
 NAME

CENTRE  
 NUMBER

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CANDIDATE  
 NUMBER

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**ENVIRONMENTAL MANAGEMENT**

**8291/02**

Paper 2 Hydrosphere and Biosphere

**October/November 2009**

**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, table 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

1 (a) Fig. 1.1 shows a plant succession within a temperate climatic region.

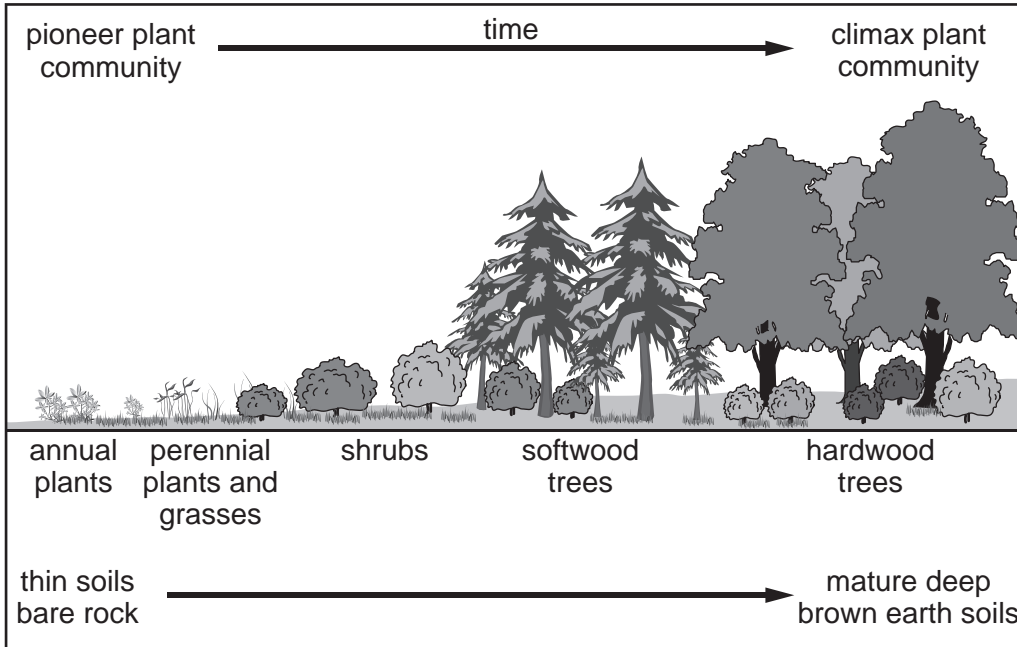


Fig. 1.1

(i) With regard to plant communities, what is meant by *pioneer* and *climax*?

pioneer plant community .....

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.....

.....

climax plant community .....

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..... [4]



(b) Fig. 1.2 and Fig. 1.3 contain information on the Florida Everglades in South East

Comprising most of Southern Florida, the Everglades cover about 4000 square miles, much of which consists of wetlands. Wetlands can be described as areas of marsh, fen, peat or water, the depth of which at low tide does not exceed six metres.



Fig. 1.2

A wetland scene within the Everglades National Park



Fig. 1.3

Everglades City is a mile-long mangrove island with crab houses, shops, restaurants, motels, marinas, museums, an airport, canoe & kayak guided adventures, aerotours, boat tours, airboat rides, canoe/kayak/bicycle rentals and nice walking paths.

(i) Explain how **one** natural biotic and **one** natural abiotic factor are important in maintaining the ecology of the wetland area shown in Fig. 1.2.

biotic factor .....

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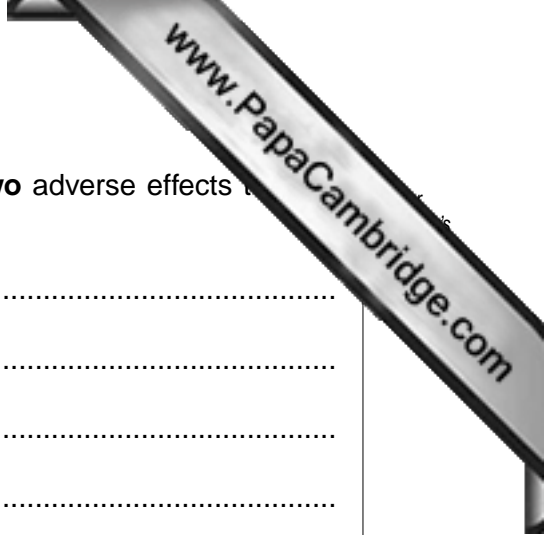
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abiotic factor .....

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..... [4]



(ii) Using the information contained in Fig. 1.3, describe **two** adverse effects that might have on the ecosystems shown in Fig. 1.2.

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..... [4]

(iii) Identify and justify **one** strategy that might be employed within the Everglades to help conserve its ecosystems.

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

[Total: 20]



(b) Fig. 2.1 contains information on the Three Gorges Dam in China.

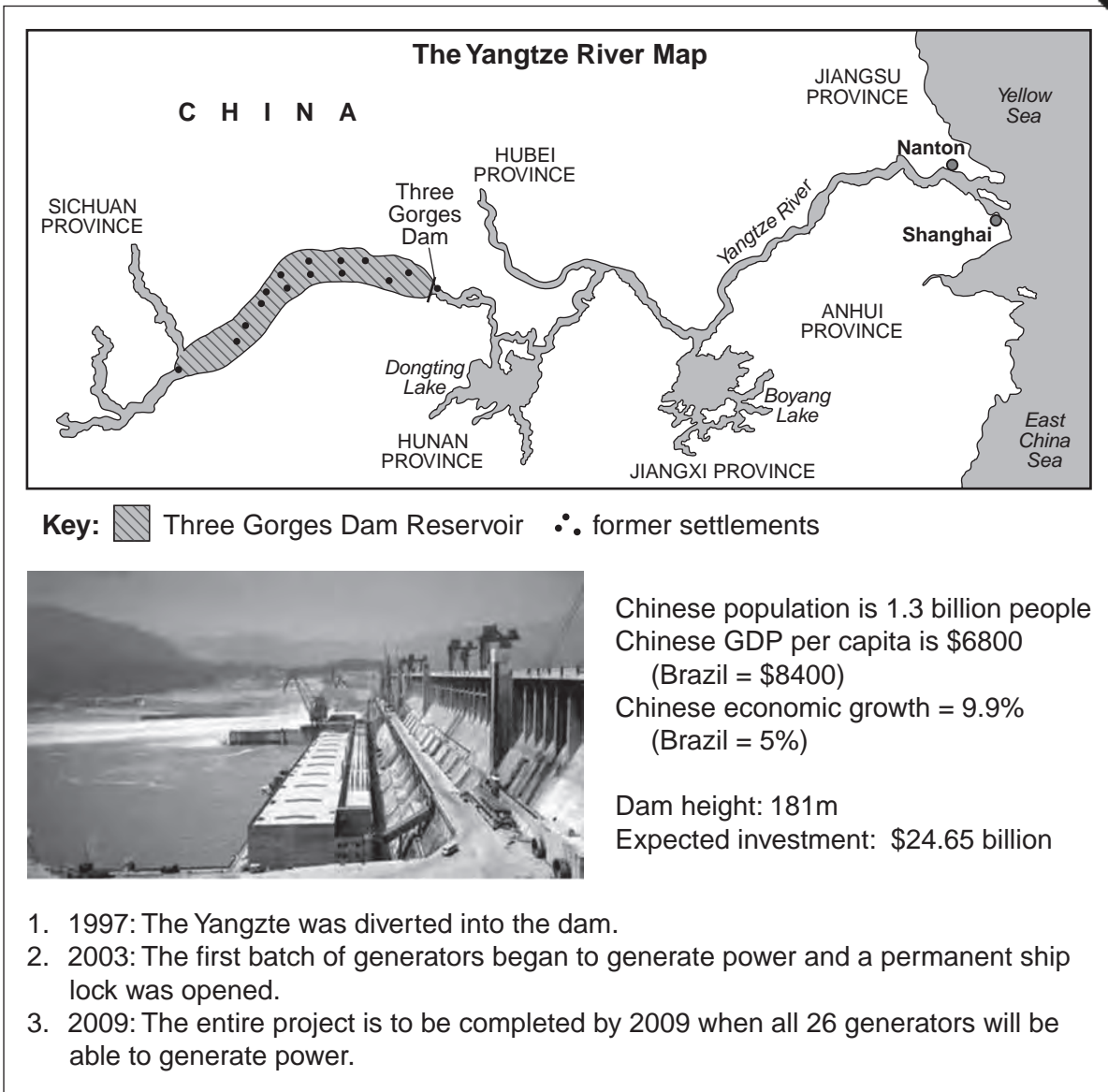


Fig. 2.1

(i) Describe **three** benefits that might be obtained from the project.

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- (ii) Outline **one** negative environmental effect and **one** negative social effect of the Three Gorges scheme.

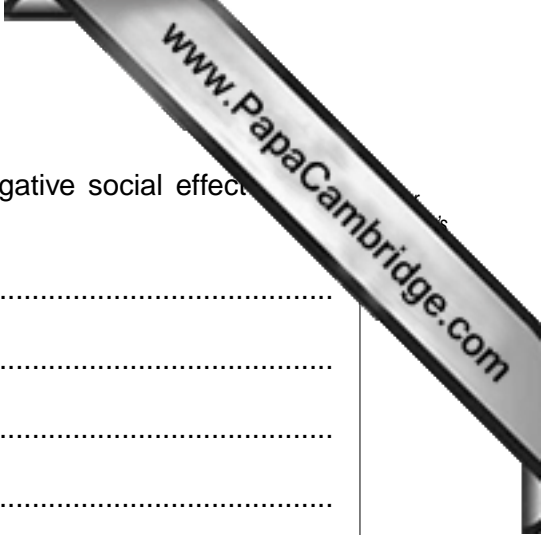
Negative environmental effect .....

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.....  
.....

Negative social effect .....

.....  
.....  
..... [4]

[Total: 20]





## Section B

Choose **one** question from this section

- 3 (a) The Exxon Valdez oil tanker accident on 24th March 1989 was regarded as a major ecological disaster. Fig. 3.1 contains information on this oil tanker accident.

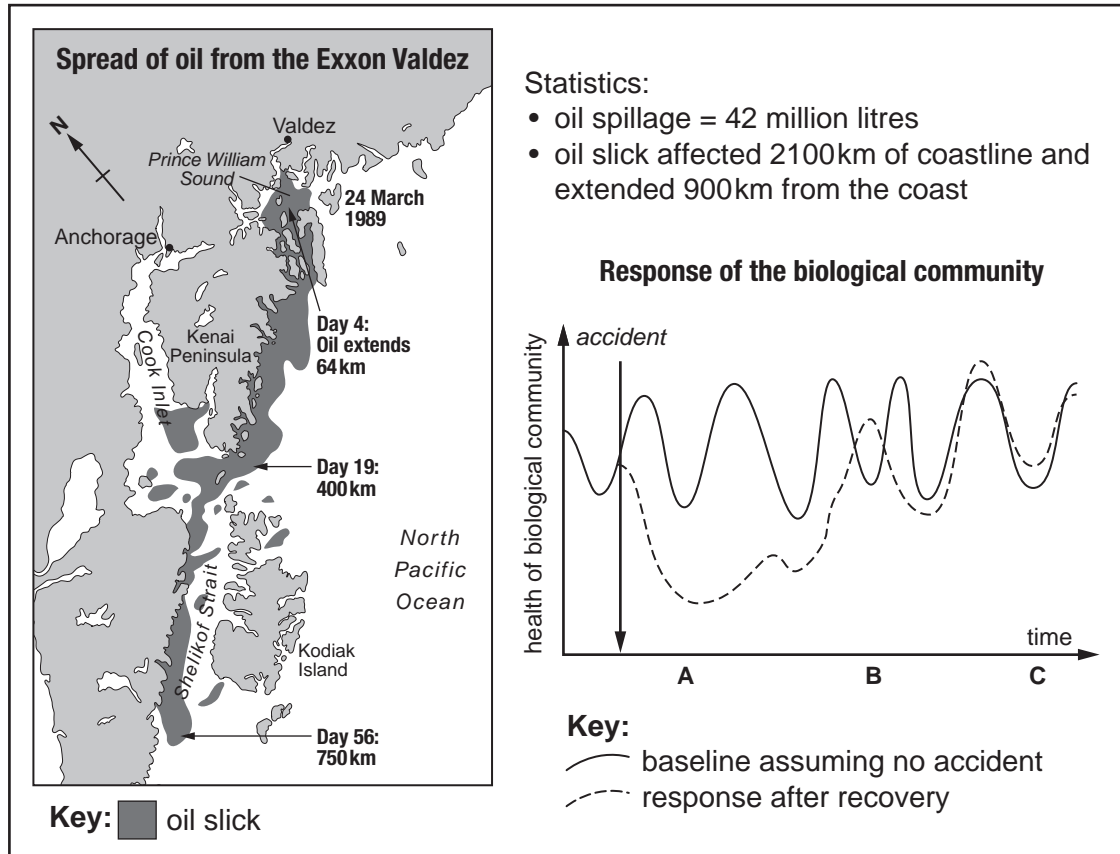


Fig. 3.1

- (i) Briefly describe the spread of the oil slick between 24th March and Day 56. [4]
- (ii) Suggest reasons for the response of the biological community at stages **A**, **B** and **C** on the graph in Fig. 3.1. [6]
- (b) Explain why it is difficult to control marine pollution. Describe and assess the effectiveness of **two** measures that have been used to combat the effects of marine pollution hazards. Use examples in your answer. [30]

[Total: 40]

- 4 (a) Fig. 4.1 shows the losses and gains in forest area, by continent, between 2000 and 2010.

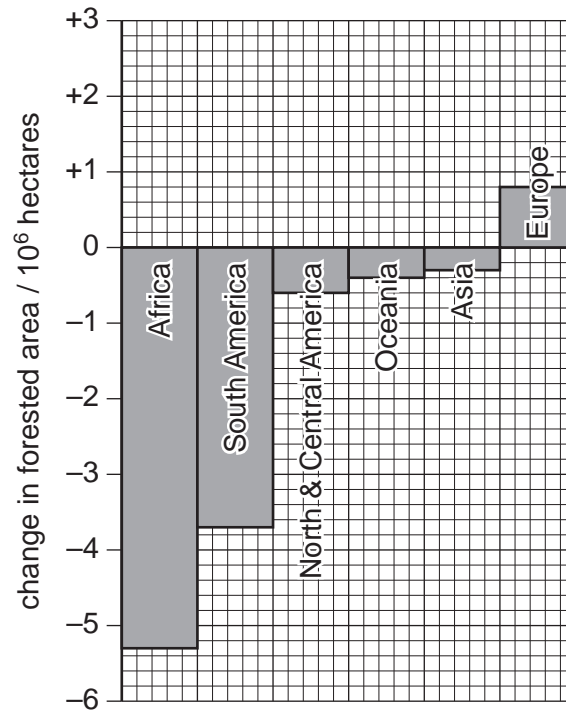


Fig. 4.1

Briefly describe and explain the changes in the areas of forest shown in Fig. 4.1. [10]

- (b) With reference to **one** biome you have studied, describe how ecosystems are affected by the development and expansion of commercial agriculture. For the biome you have chosen, discuss the extent to which it is possible to maintain its ecosystems. [30]

[Total: 40]

- 5 (a) Fig. 5.1 contains information on the Alaskan tundra.

Describe how global warming might affect the natural environment of the area shown.

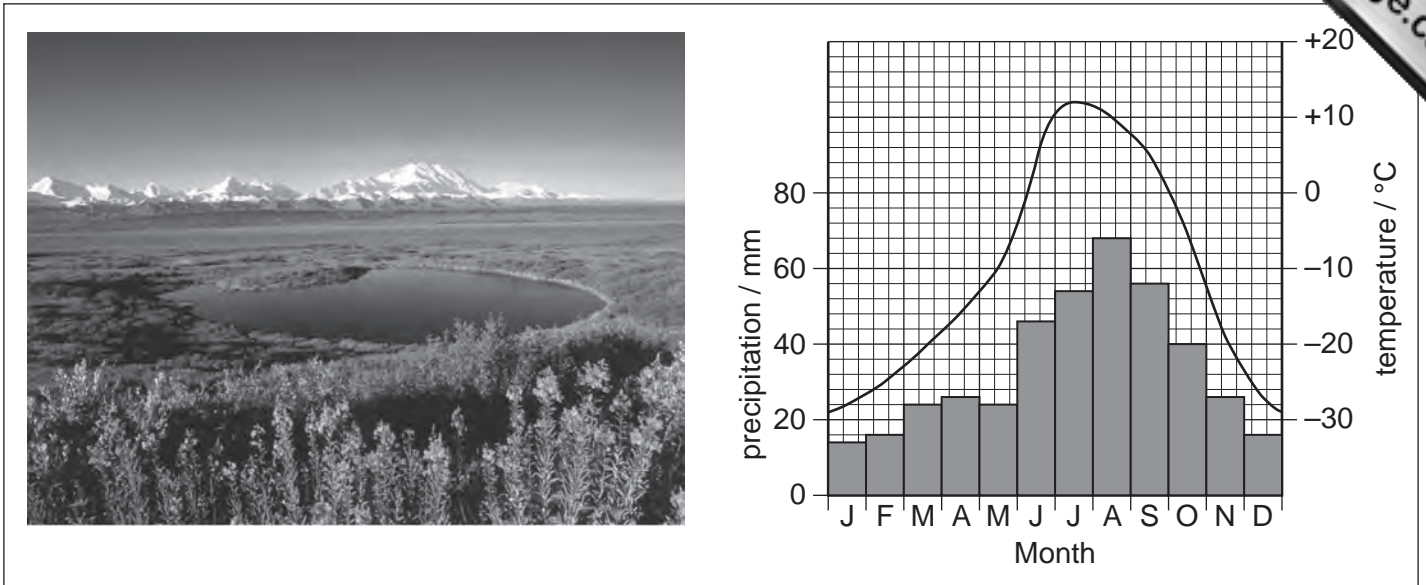


Fig. 5.1

- (b) Using examples, assess the extent to which pressure groups have been effective in highlighting the adverse effects of human activity upon the Earth's biosphere. Describe and evaluate **one** conservation method that could be used to protect endangered ecosystems. [30]

[Total: 40]

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