



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

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

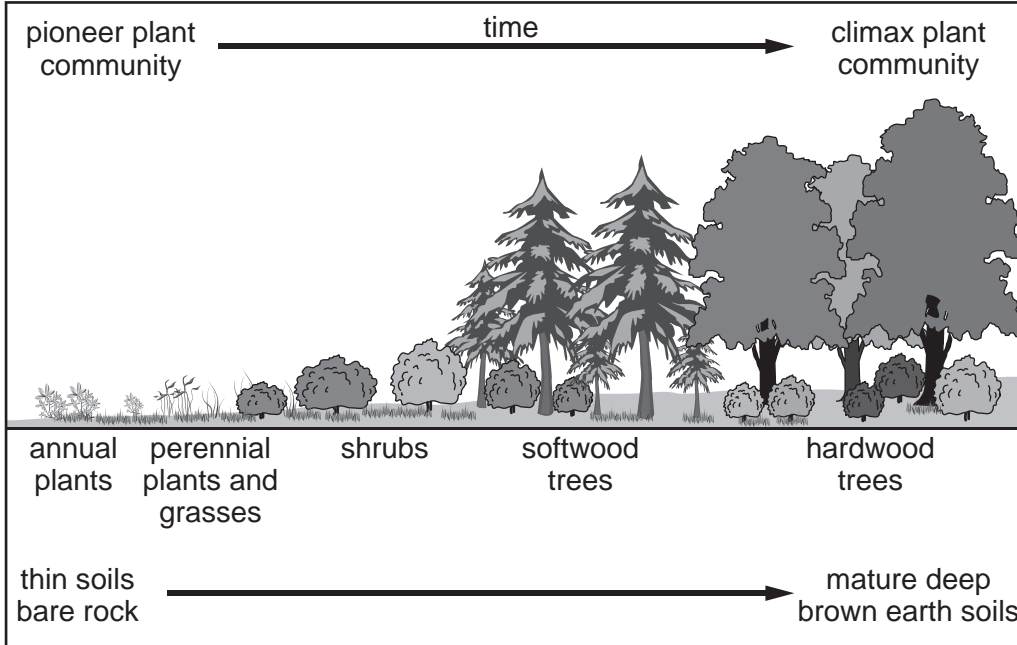


Fig. 1.1

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

pioneer plant community

.....

.....

.....

.....

climax plant community

.....

.....

..... [4]

(ii) Describe and explain how vegetation and soils adapt, through time, to enable the climax plant community to develop.

*For
Examiner's
Use*

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

..... [6]

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

For
Examiner's
Use

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.



A wetland scene within the Everglades National Park

Fig. 1.2



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.

Fig. 1.3

(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

.....

.....

.....

abiotic factor

.....

.....

..... [4]

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

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

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

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

[Total: 20]

- 2 Table 2.1 contains data for selected regions from 1990 and 2004 on the percentage of people using improved sources of drinking water.

For
Examiner's
Use

Table 2.1

	Sub-Saharan Africa	Asia				Latin America & Caribbean	Europe
		East	South-East	South	West		
1990	49	71	76	73	85	83	92
2004	56	78	82	85	91	91	92

all figures are given as percentages

(a) The following questions refer to the data in Table 2.1.

- (i) Which region had the largest change?

..... [1]

- (ii) How many times greater is the increase in use in South Asia than in West Asia?

..... [1]

- (iii) Suggest **two** reasons why Sub-Saharan Africa has the lowest percentage use in both years.

.....

 [4]

- (iv) Suggest **one** reason why Europe ranks highest and **one** reason why there has been no change between 1990 and 2004.

1

 [4]

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

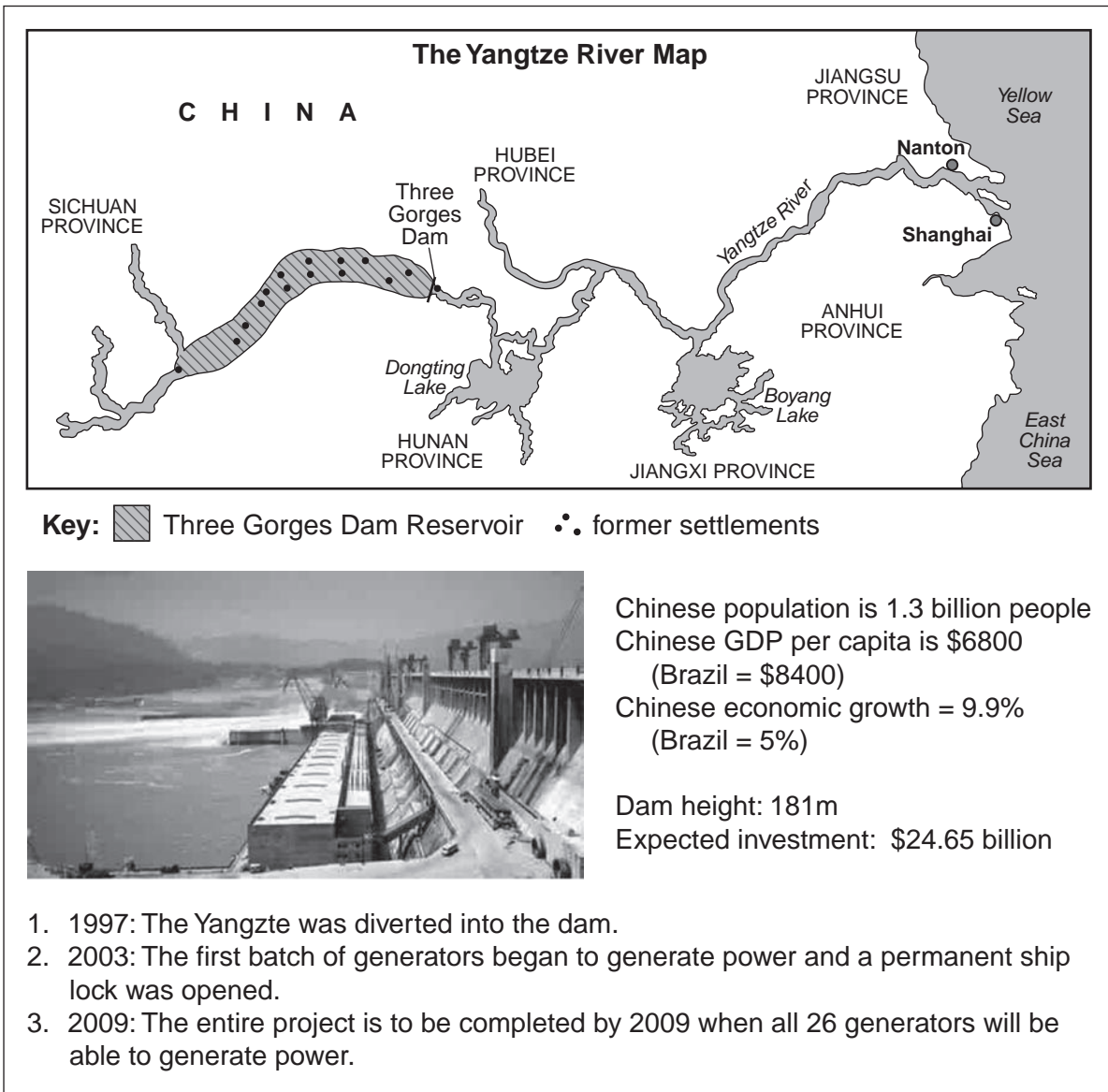


Fig. 2.1

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

.....

.....

.....

.....

.....

.....

.....

.....

[6]

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

*For
Examiner's
Use*

Negative environmental effect

.....

.....

.....

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.

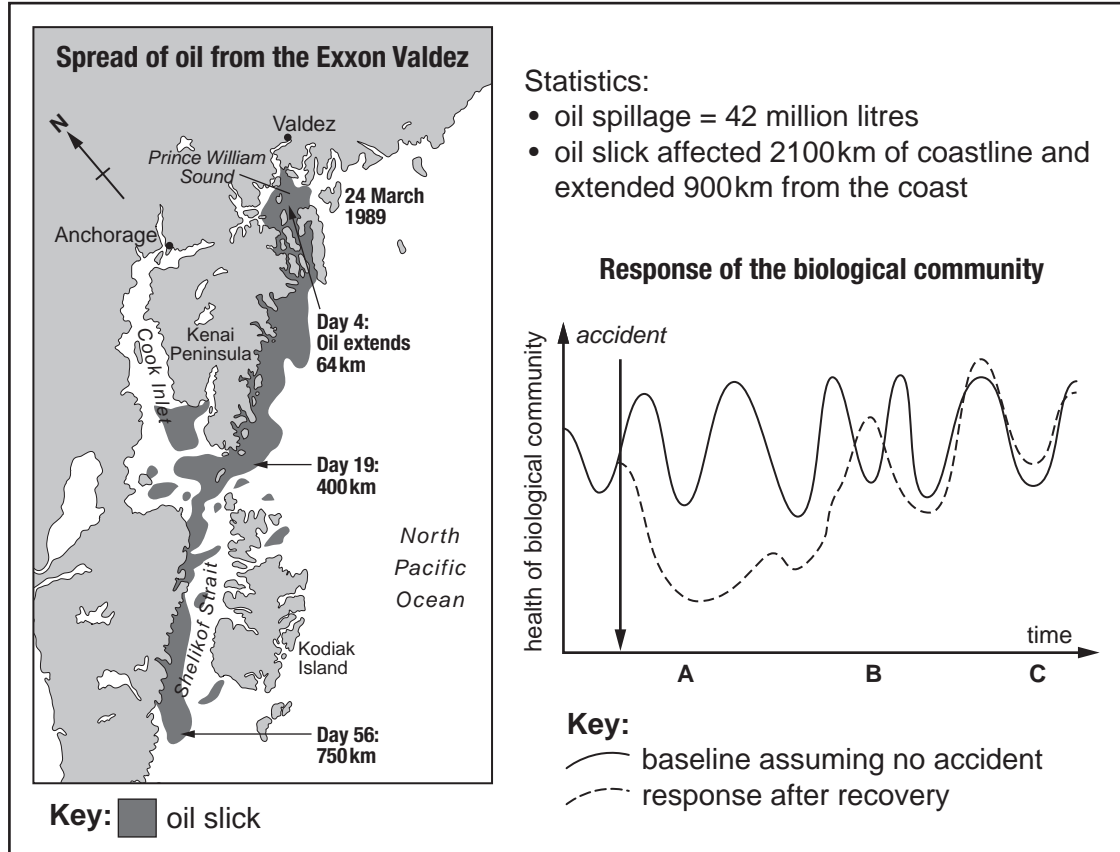


Fig. 3.1

- (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 2005.

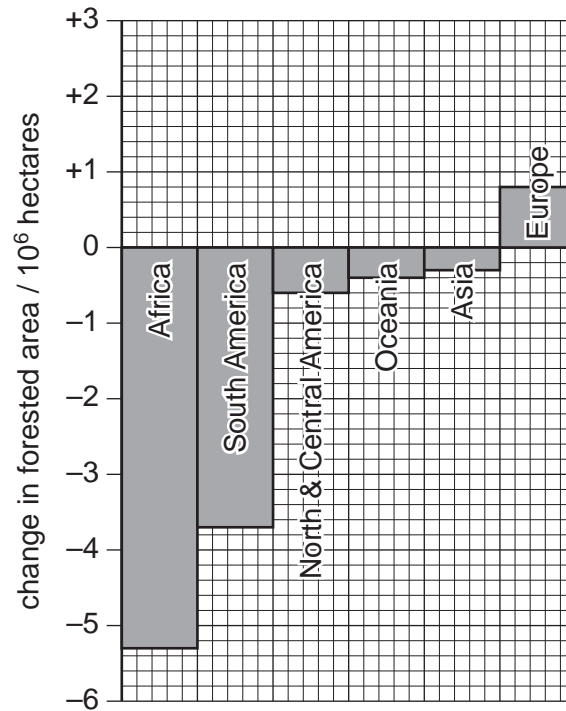


Fig. 4.1

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. [10]

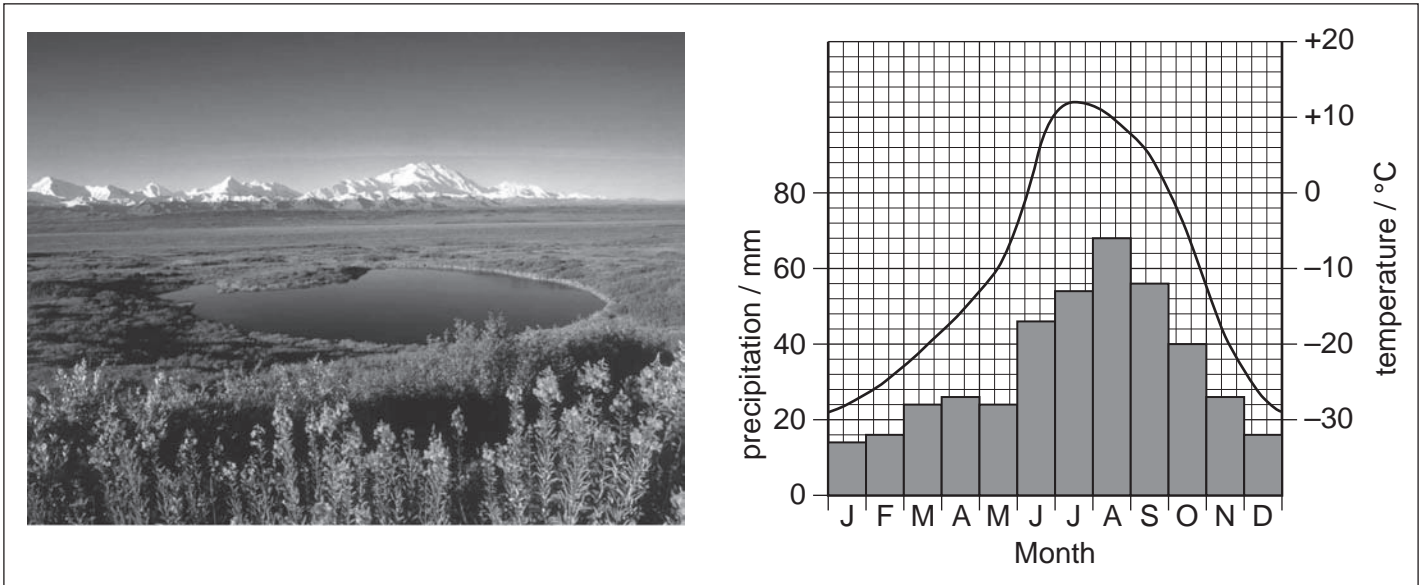


Fig. 5.1

- (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]

Copyright Acknowledgements:

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.