



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

CANDIDATE  
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**ENVIRONMENTAL MANAGEMENT**

**8291/02**

Paper 2 Hydrosphere and Biosphere

**October/November 2012**

**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 **10** printed pages and **2** blank pages.



**Section A**

Answer **all** questions in this section.

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**1** Fig. 1.1 shows the water cycle on a local scale. Use Fig. 1.1 to answer questions **(a)** to **(e)**.

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(a) What is meant by the terms water table, impermeable and submarine spring?

water table .....

impermeable .....

submarine spring .....

[3] (b) Describe the changes in the state of water (solid, liquid and gas) in the water cycle shown in Fig. 1.1. ....

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..... [6]

(c) Explain the formation of the aquifer.

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..... [3]

(d) Explain the formation of the swamp.

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..... [2]

(e) Describe the processes that might cause the coastal region to be prone to flooding.

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[Total: 20]

**[Turn over**

- 2 (a) Fig. 2.1 and Fig. 2.2 contain information on the distribution and classification of some biomes.

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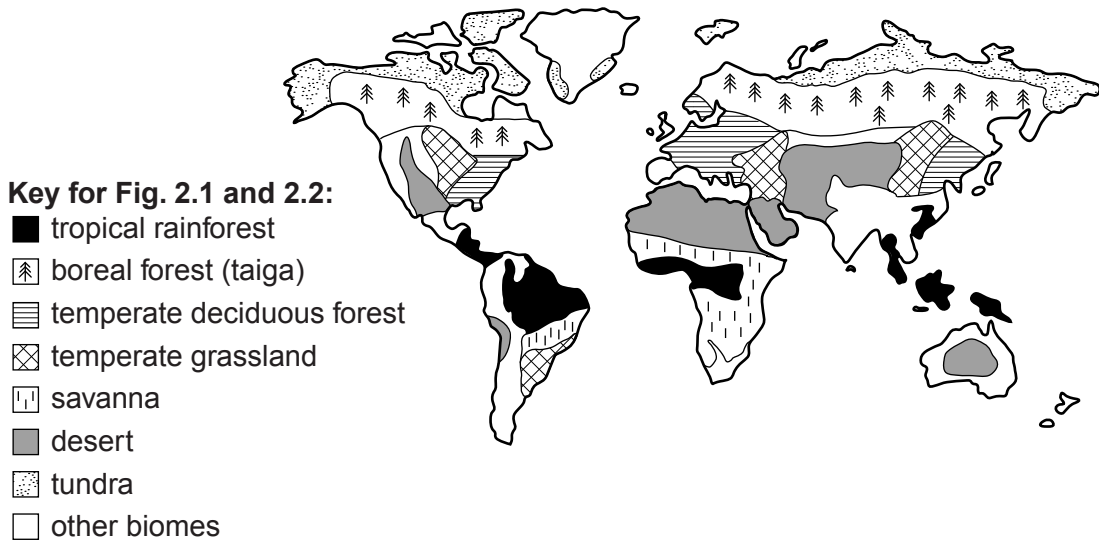


Fig. 2.1

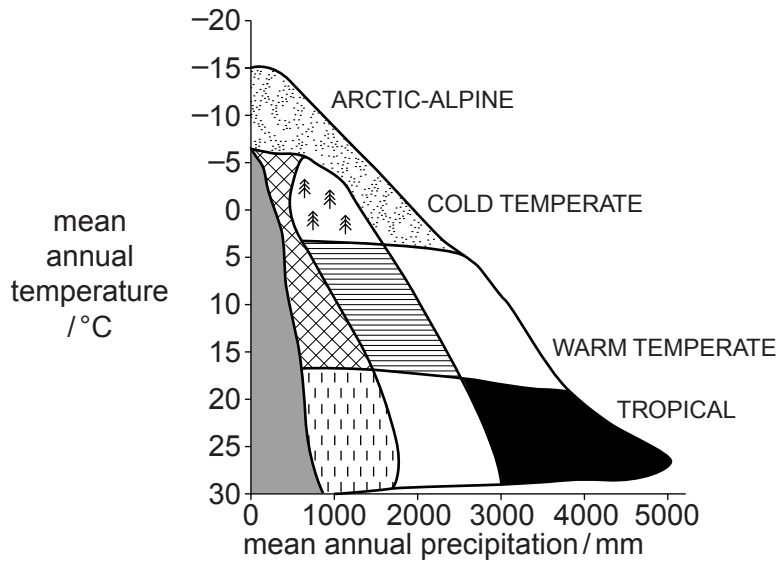


Fig. 2.2

- (i) What is meant by the term *biome*?

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..... [1]

(ii) Describe the distribution of boreal forest and desert in Fig. 2.1.

boreal forest .....  
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..... [4]

(iii) Use the data in Fig. 2.2 to explain how temperature and precipitation limit the global distribution of temperate deciduous forest and savanna.

temperate deciduous forest .....  
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(iv) Fig. 2.1 and Fig. 2.2 suggest that boundaries between each biome are distinct and very narrow. Using one example of a biome boundary assess the extent to which this is true.

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..... [2]

(b) Fig. 2.3 and Fig. 2.4 contain information on mangrove wetlands.

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Use



Fig. 2.3

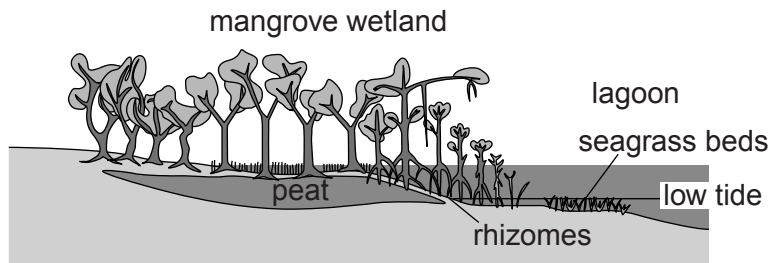


Fig. 2.4

(i) State **two** characteristic features of the ecology of the marine ecosystem shown in Fig. 2.3 and Fig. 2.4.

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..... [2]



## Section B

Answer **one** question from this section.

- 3 (a) Outline and explain the variations in the annual rate of deforestation and afforestation for the regions between 1990 and 2005 as shown in Fig. 3.1. [10]

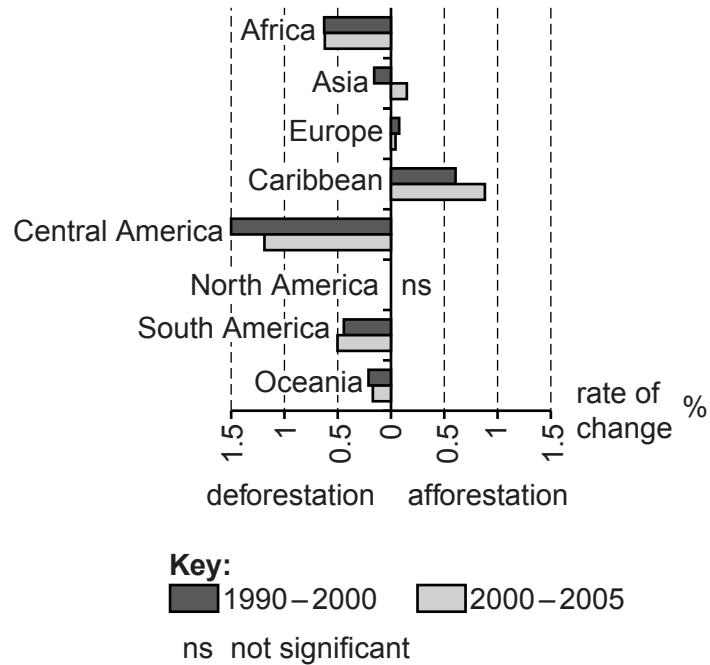


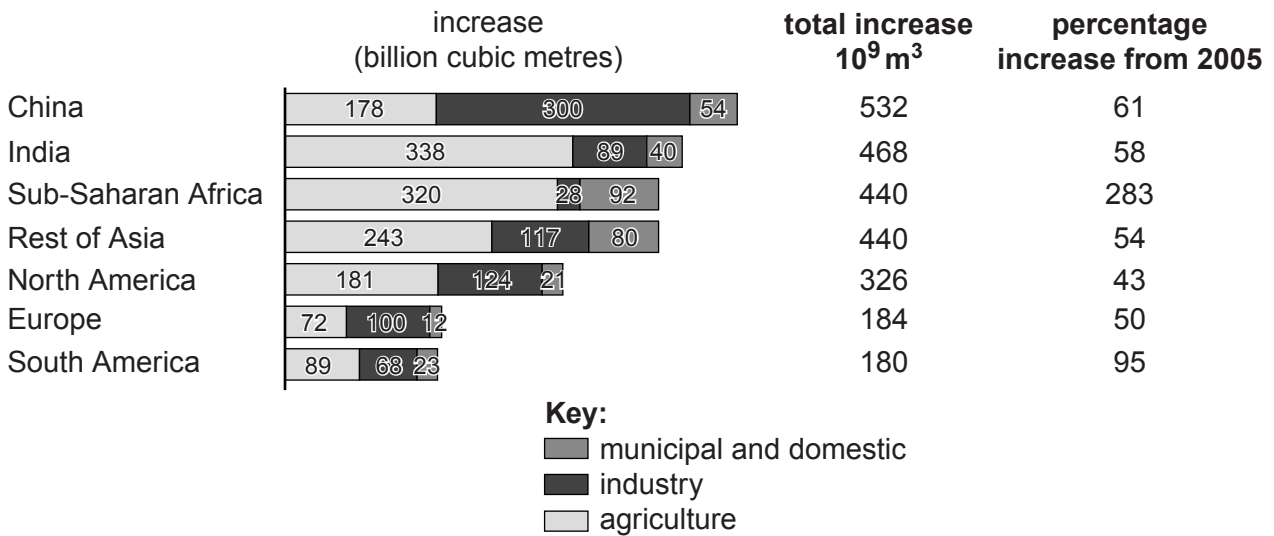
Fig. 3.1

- (b) Ecological conservation can occur on scales ranging from areas of a few square metres to global. With reference to examples you have studied, discuss the extent to which the most effective conservation methods succeed at the local scale rather than at the national or global scale. [30]

[Total: 40]



- 4 (a) Fig. 4.1 shows estimates for how much more water will be needed in 2030 compared with the demand in 2005.



**Fig. 4.1**

Suggest **three** reasons for the estimated increases in the demand for water shown in Fig. 4.1. [10]

- (b) Individual countries adopt measures to achieve a sustainable supply of water.

To what extent are the measures adopted by MEDCs to achieve a sustainable supply of water similar to those adopted by LEDCs? Refer to examples from both groups of nations in your answer. [30]

[Total: 40]

- 5 (a) With reference to Fig. 5.1, outline and explain the effects that the dumping of waste might have on the physical, chemical and biological quality of water in a river. [10]



Fig. 5.1

- (b) With reference to examples you have studied, explain and evaluate the measures that are being used to reduce river pollution. [30]

[Total: 40]

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**Copyright Acknowledgements:**

- Question 1a Figure 1.1 © <http://www.environment.nsw.gov.au/salinity/basics/water.htm>.  
 Question 2a Figure 2.1 © <http://students.ed.uiuc.edu/jtulley/Biomes.html>.  
 Question 2b Figure 2.3 © U.S. Geological Survey; [http://gallery.usgs.gov/photos/k5Rj77ihc\\_4](http://gallery.usgs.gov/photos/k5Rj77ihc_4).  
 Question 2b Figure 2.4 © <http://www.dcbiodata.net/explorer/info/habitats>.  
 Question 3a Figure 3.1 © Food and Agriculture Organisation; <http://www.fao.org>.  
 Question 4a Figure 4.1 © [http://www.mckinsey.com/Client\\_Service/Sustainability/Latest\\_thinking/Charting\\_our\\_water\\_future](http://www.mckinsey.com/Client_Service/Sustainability/Latest_thinking/Charting_our_water_future).  
 Question 5a Figure 5.1 © ToniFlap; *Trash thrown on the bank of a river*; <http://www.istockphoto.com/stock-photo-12929125-garbage-dumped.php?st=45b49a4>.  
 carterdayne; *Riverbed at low tide with sewage drain pipe showing how waste is dumped or piped into the river*;  
<http://www.istockphoto.com/stock-photo-7331647-river-at-low-tide-and-drain.php?st=bae448d>.

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