

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

CANDIDATE NAME		
CENTRE NUMBER	CANDIDATE NUMBER	
		2221/22

### **ENVIRONMENTAL MANAGEMENT**

8291/02

Paper 2 Hydrosphere and Biosphere

October/November 2011

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.



# **Section A**

For Examiner's Use

Answer all questions in this section.

Write your answers in the spaces provided.

<b>1 (a)</b> Wh	y is a coral reef an example of an ecosystem?		
			[2]
<b>(b)</b> Fig.	. 1.1 and Fig. 1.2 contain information about the risk of	of damage to cora	reefs.
percentage of reefs at risk/%	40 30 20	location	percentage of coral reefs at risk/%
at 113K/ /0	10	Middle East	61
		Caribbean	60
	coastal marine over- land-based	Indian Ocean	54
	development pollution exploitation pollution	Southeast Asia	82
	threat factors	Pacific	41
	high risk		
	medium risk		
	Fig. 1.1	Fig. 1	1.2
(i)	Describe the pattern of risk for coral reefs from diffig. 1.1.	ferent threat factor	rs as shown in
			••••••

(ii)	Describe the pattern of risk for coral reefs according to the different locations as shown in Fig. 1.2. State <b>one</b> reason for this pattern.	For Examiner's Use
	[3]	
(iii)	Outline <b>one</b> factor that puts coral reefs at risk, other than the factors involved in (i) and (ii).	
	[2]	

**(c)** The Australian Great Barrier Reef is a World Heritage site and like other important environments is threatened directly and indirectly by human activity. Fig. 1.3 contains information on the strategies for reef conservation for one section of the Great Barrier Reef.

For Examiner's Use

# Keppel Islands zones and habitat sites

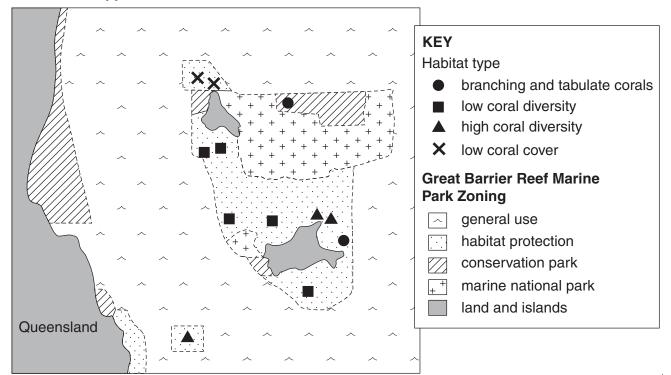


Fig. 1.3

With reference to Fig. 1.3, describe <b>two</b> different ways in which the coral reefs are being conserved.
[41]
[4]

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(i)

(ii)	Describe how the reef conservation strategies also cater for the needs of tourists.	For Examiner's Use
	[3]	
(iii)	To what extent might these strategies offer a sustainable future for the Great Barrier Reef?	
	[3]	
	[Total: 20]	

2 (a) Fig. 2.1 shows part of a water cycle in which human activity is taking place.



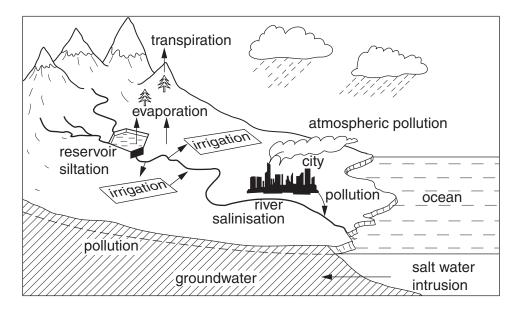


Fig. 2.1

(1)	surface runoff and transpiration.
	runoff
	transpiration
	[2]
(ii)	Describe <b>one</b> way in which people could benefit from changes to river discharge downstream from the dam.
	[2]

(iii)	Outline <b>three</b> adverse effects of human activity upon the water cycle shown in Fig. 2.1.	For Examiner's Use
	គេរ	

(b) Study Fig. 2.2 which is a model illustrating how the use of water by an increasing global For population has linkages with various environmental outcomes, human outcomes and Examiner's Use population dynamics. **Population Dynamics** Growth – Migration – Density Distribution - Urbanization -Morbidity - Mortality **Human Outcomes Water Use** Agriculture - Industry -Food shortage - Water-related illness -Household use - Sanitation & waste Social & political instability – Conflicts over water - Slowed economic growth disposal - Hydroelectricity -Population displacement Fish farming **Environmental Outcomes** Depletion of surface & groundwater -Water pollution - Land degradation -Ecosystem degradation - Declining fisheries -Disruptions to the hydrological cycle Fig. 2.2 Why does the model shown in Fig. 2.2 take the form of a cycle?

(ii)

Describe how the demand for water might influence or be influenced by:	For Examiner's
population dynamics	Use
human outcomes	
[6]	
[Total: 20]	

# **Section B**

Answer one question from this section.

3 (a) Use Fig. 3.1 to explain how deforestation might result in a degraded vegetation cover. [10]

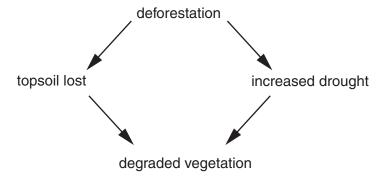


Fig. 3.1

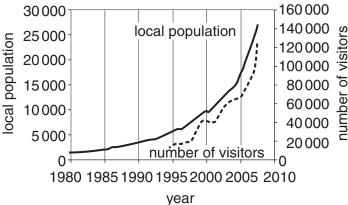
(b) With reference to either a MEDC or a LEDC you have studied, describe the pressures that have been placed on its reserves of forest. Discuss the difficulties it might face in achieving a sustainable utilisation of its forest resources. [30]

[Total: 40]

(a) Using the information in Fig. 4.1 give **three** different reasons why the Galapagos Islands are a designated conservation site. [10]

# Population and Tourist Growth In Galapagos 30 000 160 00





Abundant wildlife above and below the waves draws ecotourists to Ecuador's Galapagos. Get up close on a stroll or in a boat. Snorkel and dive with denizens of the deep, from sea lions to sea turtles at Santiago's Cousin's Rock.

(extract from a tourist brochure)

Fig. 4.1

(b) With reference to a named area of ecological importance that is under threat from human activity, assess the measures that are being used to enable its conservation. [30]

[Total: 40]

**5 (a)** Fig. 5.1 shows natural processes which influence the height of the water table. This could also be affected by human activity.

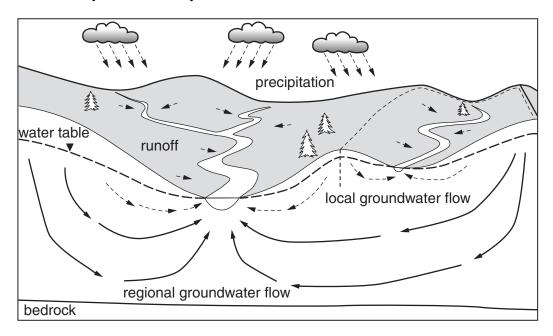


Fig. 5.1

Briefly describe the conditions that would cause changes to the height of the water table. [10]

(b) With reference to examples you have studied, describe **three** common causes and characteristics of groundwater pollution. Assess the extent to which it is possible to manage groundwater pollution in order to supply clean water suitable for human consumption. [30]

[Total: 40]

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# Copyright Acknowledgements:

Question 2b Figure 2.2 © info.u4health.org/pr/M14/M14figs.shtml; 1996.

Question 4a Figure 4.1 © Isthmus of Bartolome and Pinnacle Rock; Nancy Nehring; iStock Photo 1351643. Photo; iStock photo.

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