

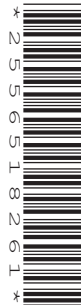
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ENVIRONMENTAL MANAGEMENT

8291/21

Paper 2 Hydrosphere and Biosphere

May/June 2016

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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

Section A

Answer **all** questions in this section.
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.

Write your answers in the spaces provided.

- 1 (a) Fig. 1.1 is a model used to illustrate to students the interdependence of the components of an ecosystem.

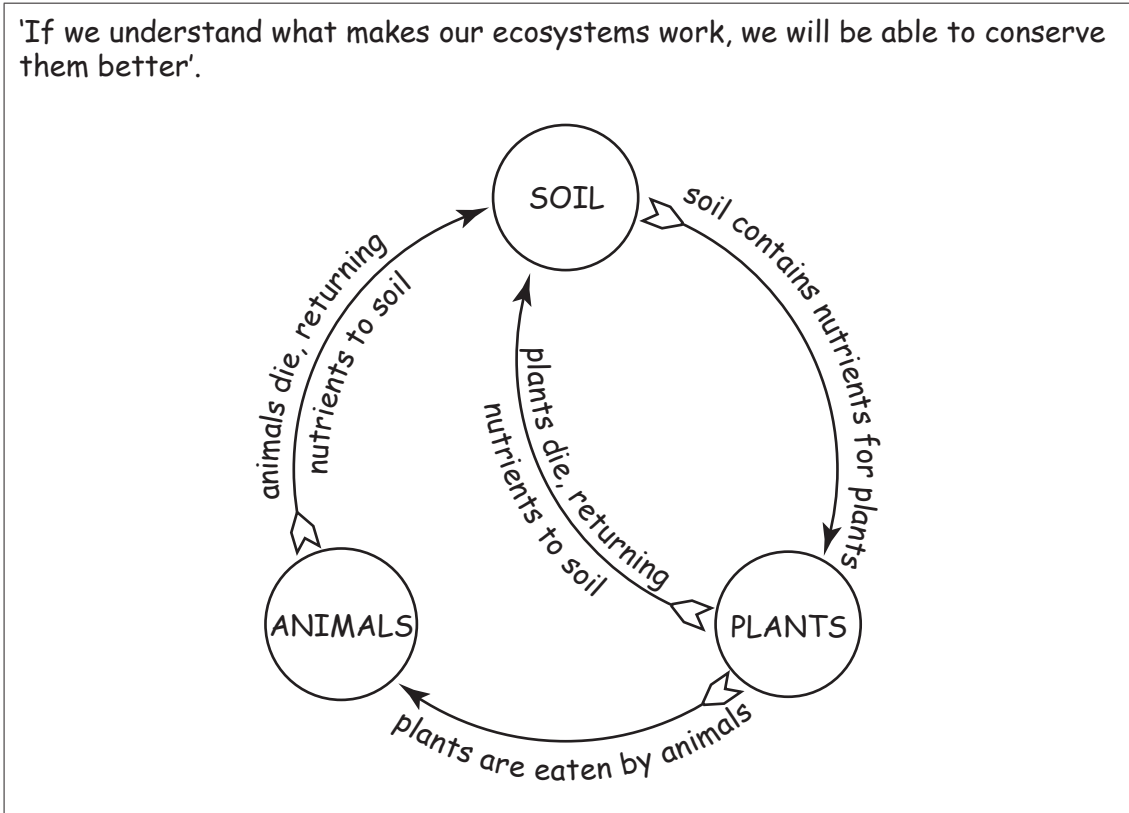


Fig. 1.1

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

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.....[1]

- (ii) Describe **two** ways in which Fig. 1.1 illustrates the interdependence of the components of an ecosystem.

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.....[4]

(iii) How might the model in Fig. 1.1 achieve the objective, 'If we understand what makes our ecosystems work, we will be able to conserve them better.'?

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[5]

(b) Wetlands are water-based ecosystems with a rich diversity of wildlife.

In 1996 the Sri Lankan government produced a plan for the sustainable use of the resources of the Negombo wetlands. Fig. 1.2 shows the pressures on the Negombo wetlands and Fig. 1.3 shows the conservation plan for the wetlands.

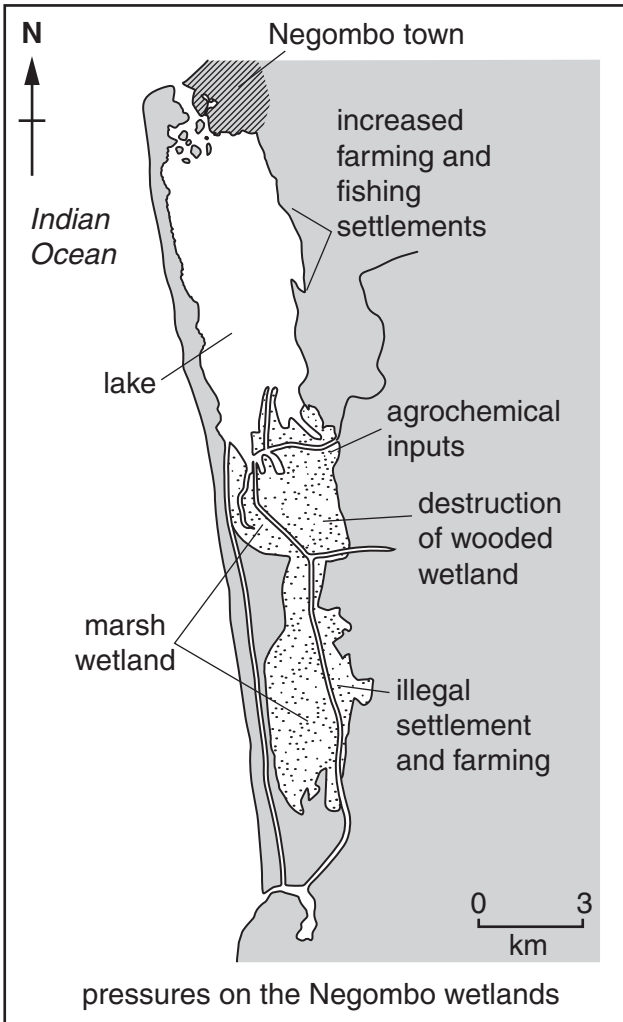


Fig. 1.2

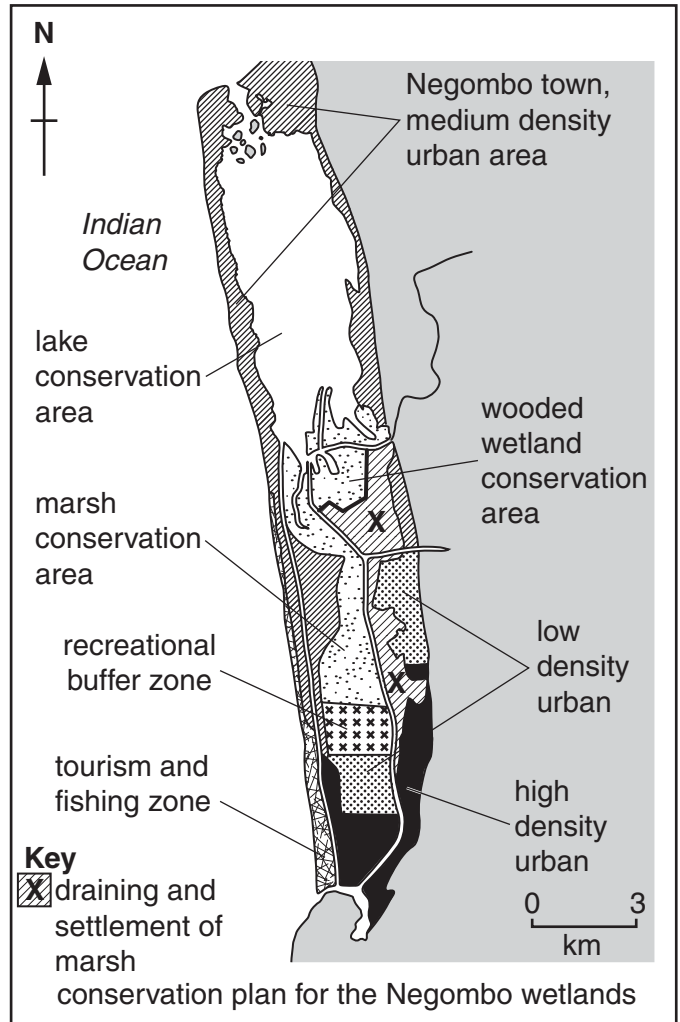


Fig. 1.3

(i) Suggest **two** resources of the Negombo wetlands that are targeted for conservation.

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2[2]

- (ii) With reference to Fig. 1.2 and Fig. 1.3, describe how the conservation plan might achieve a sustainable use of the resources of the Negombo wetlands.

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[Total: 20]

- 2 (a) Fig. 2.1 shows some ways in which river water can be polluted as a result of human activity. The left side of Fig. 2.1 shows the river valley **without** pollution, before development. The right side of Fig. 2.1 shows the river valley **with** pollution, after development.

One consequence of this pollution is eutrophication of the water on the right side of the river.

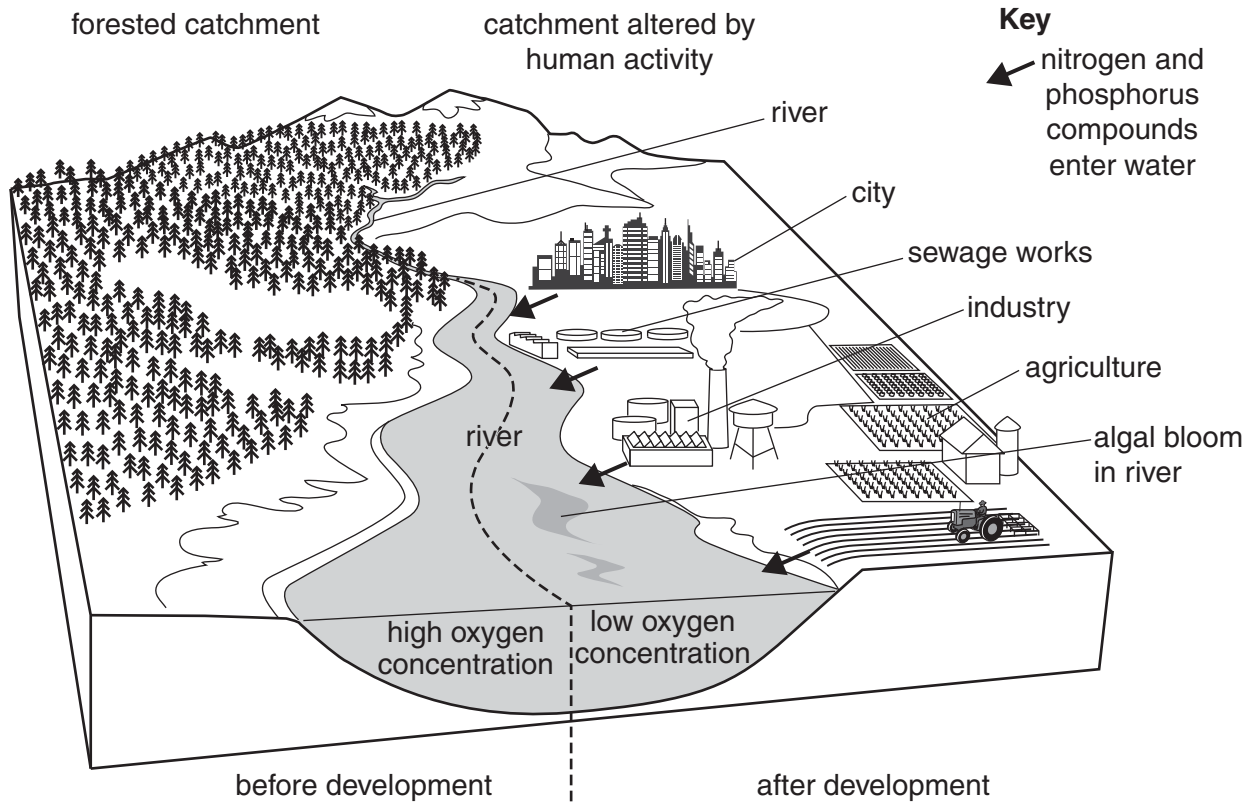


Fig. 2.1

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

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(ii) Explain why the river water shown on Fig. 2.1 before development has a high oxygen concentration, whereas the river water after development has a low oxygen concentration.

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(iii) Describe **two** ways, other than eutrophication, that pollution might affect the river water shown in Fig. 2.1.

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Section B

Answer **one** question from this section.

- 3 Fig. 3.1 shows population pyramids for two countries: **A** and **B**.

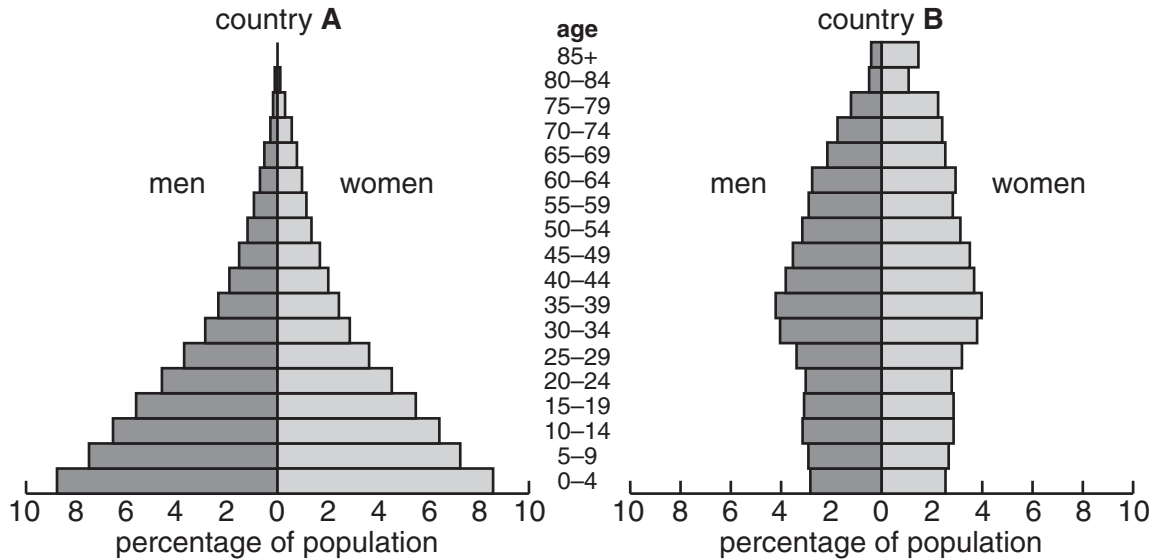


Fig. 3.1

- (a) Which of the population pyramids in Fig. 3.1 represents a LEDC and which represents a MEDC? Briefly explain your answer. [10]
- (b) The United Nations has predicted that global population could rise from the present 7.0 billion people to 9.1 billion people by 2050. Assess the environmental implications of this increase in population. [30]

[Total: 40]

- 4 Fig. 4.1 shows the rate of surface run-off in response to a period of heavy rainfall in an area before urban development and after urban development.

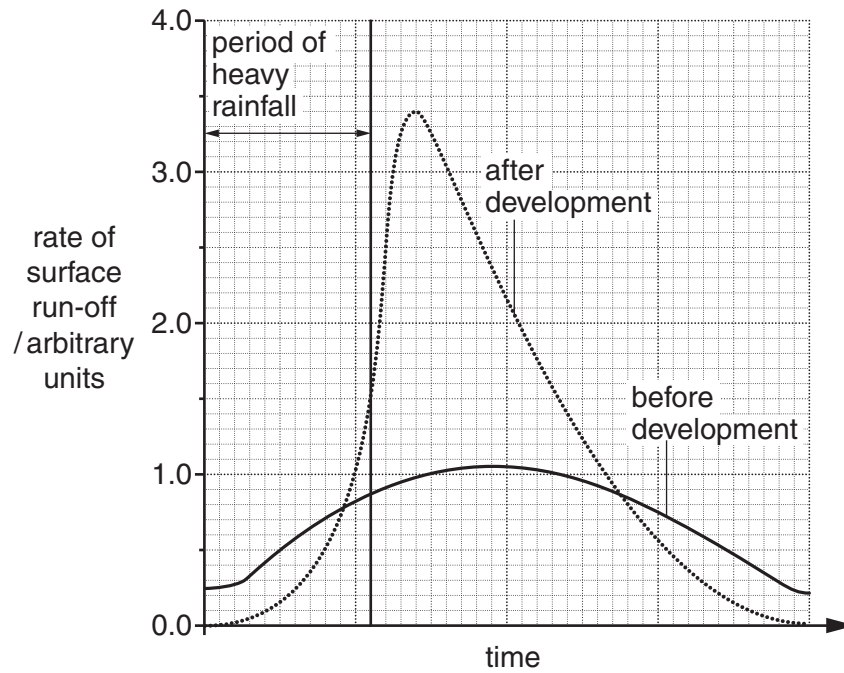


Fig. 4.1

- (a) With reference to Fig. 4.1, explain the difference in the rates of surface run-off. [10]
- (b) With reference to examples, discuss the extent to which river flooding is a product of both natural processes and human activity. Describe **two** measures that can be used to reduce the likelihood of river flooding. [30]

[Total: 40]

5 Fig. 5.1 shows the number of species extinctions between the years 1800 and 2010.

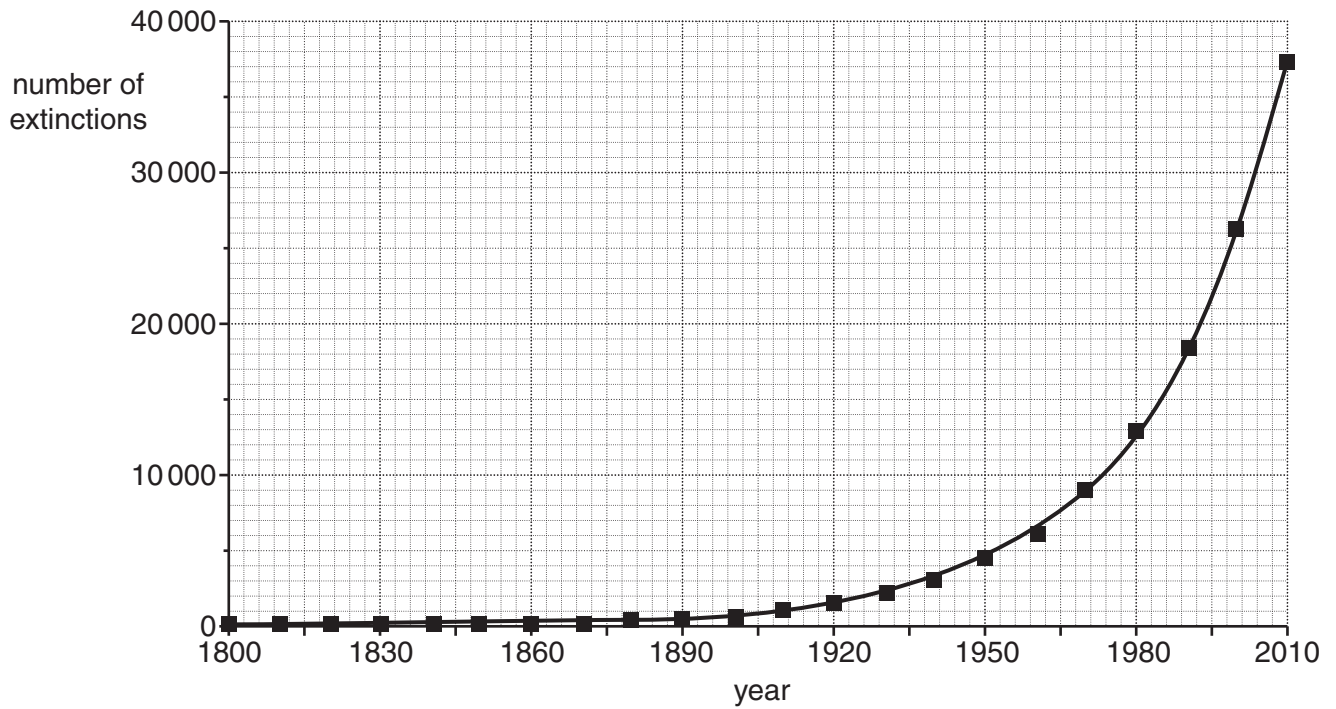


Fig. 5.1

- (a) Briefly describe the trend in the number of species extinctions shown in Fig. 5.1. Outline **three** reasons for this trend. [10]
- (b) With reference to ecosystems with which you are familiar, assess the extent to which research and education are key requirements in effective conservation. [30]

[Total: 40]

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