

Environmental systems and societies
Standard level
Paper 2

Friday 22 May 2015 (morning)

Candidate session number

2 hours

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Instructions to candidates

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Section A: answer all questions. Refer to the resource booklet which accompanies this question paper.
- Section B: answer two questions.
- Write your answers in the boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[65 marks]**.



Section A

Answer **all** questions. Write your answers in the boxes provided.

The resource booklet provides information on Inle Lake. Use the resource booklet and your own studies to answer the following.

1. (a) (i) Fish are an important food source for the people of Inle Lake. With reference to **Figure 4(b)**, identify **two** other local sources of food. [1]

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- (ii) Using evidence from **Figures 4(a)** and **4(b)**, explain why the people of Inle Lake have lived sustainably until recently. [2]

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- (iii) With reference to **Figures 4** and **5**, identify **three** environmental impacts that may occur as a consequence of human activities on and around Inle Lake. [3]

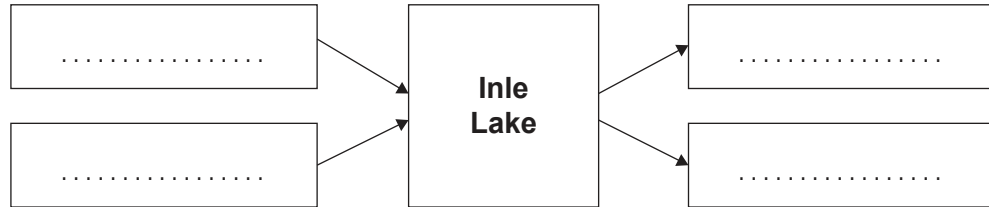
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(Question 1 continued)

- (b) (i) From the information in the resource booklet and your own studies, identify **two** inputs and **two** outputs of water associated with Inle Lake by labelling the boxes in the diagram below. [2]



- (ii) With reference to **(b)(i)**, state what will be the natural income of this water resource available for domestic supply. [1]

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- (c) (i) With reference to **Figures 4 and 5**, complete the following table. [2]

Types of pollution	Example from Inle Lake
Point Source
Non-point Source

- (ii) Identify **one** possible pollution management strategy for Inle Lake in each of the categories in the table below. [2]

Pollution management strategy	Example from Inle Lake
Altering the human activity
Clean-up and restoration

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16EP03

Turn over

(Question 1 continued)

- (iii) Explain how the use of fertilizers in agriculture may lead to hypoxic water in the areas shown in **Figure 7**.

[4]

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- (d) Evaluate the possible use of grass carp in controlling the growth of water hyacinth in Inle Lake.

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16EP04

(Question 1 continued)

- (e) Discuss possible impacts of tourism on the culture and society of the people dependent on Inle Lake.

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Section B

Answer **two** questions. Write your answers in the boxes provided.

Each essay is marked out of **[20]** of which **[2]** are for clarity of expression, structure and development of ideas:

- [0]** Quality of expression, structure and development is poor.
- [1]** Quality of expression, structure and development is limited.
- [2]** Quality of expression is clear, structure is good and ideas are well developed.

2. (a) Outline the similarities **and** differences between predation and competition. [4]
- (b) Explain how predation may lead to:
- (i) stability in a population of the prey species. [3]
 - (ii) long-term population decrease or extinction of the prey species. [3]
- (c) With reference to named countries, discuss the effectiveness **and** impacts of **two** different strategies for stabilizing their human population. [8]
- Expression of ideas [2]

3. (a) Distinguish between the terms renewable and sustainable. [4]
- (b) Construct a labelled flow diagram to show the processes that link soil with the following three storages:
- The atmosphere
 - The lithosphere
 - Living organisms
- Annotate each labelled flow with an example of the matter involved. [6]
- (c) Evaluate ways in which different agricultural techniques may affect the sustainability of soil as a resource. [8]
- Expression of ideas [2]



- 4. (a) Outline the ways in which natural selection has contributed to biodiversity. [4]
- (b) Atmospheric and plate activity have affected the distribution and diversity of systems within the biosphere.
 - (i) Explain the role that the atmosphere has in the distribution of biomes. [3]
 - (ii) Explain the role that plate activity has in the diversity of ecosystems. [3]
- (c) Discuss how global warming may affect the distribution **and** diversity of ecosystems. [8]

Expression of ideas [2]

5. A hydro-electric power plant is planned that will involve the building of a large dam across a river. This will result in the flooding of land upstream and regulation of the river flow downstream. The reservoir created by the dam will provide a water supply for the local community.

- (a) Outline **two** indirect methods that could be used to measure the impact on the river ecosystem of dead organic matter from the flooded vegetation and soils. [4]
- (b) Discuss how effective an environmental impact assessment for this project may be in protecting the local environment. [7]
- (c) Discuss how a Deep Ecologist **and** a Cornucopian may differ in their approach to this project. [7]

Expression of ideas [2]

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16EP09

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16EP10

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16EP11

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