ERRATUM NOTICE

General Certificate of Education
Advanced Subsidiary Examination
January 2011

Environmental Studies ENVS1

Unit 1 The Living Environment

Wednesday 12 January 2011 1.30 pm to 2.30 pm

Instructions to Invigilators

Before the start of the examination please ask candidates to amend their question papers as follows. (Please read out this message twice to ensure understanding.)

Turn to Page 13, question 6 (a)

In the second line, the eighth word 'maintence' <u>should read</u> 'maintenance'

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Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
TOTAL	

General Certificate of Education
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Environmental Studies ENVS1

Unit 1 The Living Environment

Wednesday 12 January 2011 1.30 pm to 2.30 pm

You will need no other materials.
You may use a calculator.

Time allowed
- 1 hour

Instructions
- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
  Two of these marks are for the Quality of Written Communication.
- You will be marked on your ability to:
  – use good English
  – organise information clearly
  – use specialist vocabulary where appropriate.
- Question 4(b) should be answered in continuous prose.
  Quality of Written Communication will be assessed in this answer.

Do not write outside the box

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

Do not write outside the box

Answer **all** questions in the spaces provided.

1 The table gives some ecological definitions.

Complete the table using the appropriate letter from the list.

A Biome
B Community
C Ecosystem
D Habitat
E Niche
F Population
G Species

Definition	Letter
All the members of the same species that live in a defined area	
The role of an organism in its environment	
All the organisms that live in a defined area and their interrelationships and interactions with their environment	
A large climatic region that has characteristic vegetation and soil	
All the organisms that live in a defined area	

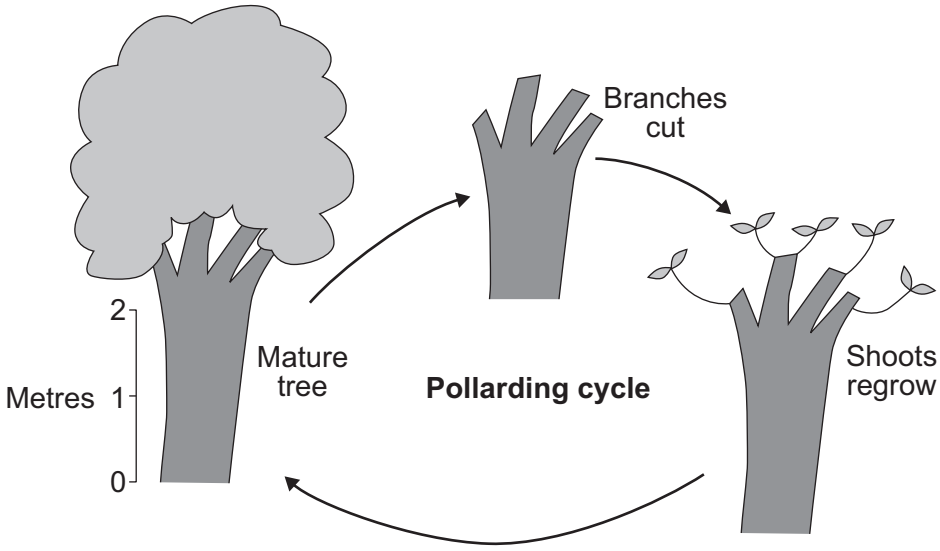
(5 marks)

5

Turn over for the next question

Do not write outside the box

2 The diagram shows the technique of pollarding.



2 (a) Pollarding is a traditional technique used to manage trees.

2 (a) (i) Other than to increase the diversity of wildlife, suggest **two** reasons why pollarding is used today.

1 .....

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2 .....

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(2 marks)

2 (a) (ii) Suggest why pollarded woodland may support a wide diversity of fungi and invertebrates.

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(2 marks)

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2 (a) (iii) Suggest how a wide diversity of fungi is beneficial to other species of wildlife.

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(2 marks)

2 (b) Explain how the abiotic environment changes during the stages of the pollarding cycle.

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(3 marks)

2 (c) State a designation that a Local Authority may use to protect an area of pollarded trees.

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(1 mark)

10

Turn over for the next question

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3 The photograph shows the New Zealand flatworm, *Arthurdendyus triangulatus*.

Photograph reproduced under the terms of the Click-Use Licence.

3 (a) New Zealand flatworms were introduced accidentally into the UK and have become predators of native species of earthworms.

3 (a) (i) Other than by predation, describe how introduced species can threaten native wildlife.

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(3 marks)

3 (a) (ii) Earthworms are important detritivores in the UK.
Explain why earthworm population decline is of serious concern.

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(2 marks)

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3 (b) Describe **one** method that may be used to monitor earthworm populations as New Zealand flatworms colonise an area.

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(5 marks)

10

Turn over for the next question

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4 (a) The photograph shows a domestic waste incinerator.

Explain why the disposal of domestic waste by incineration may create land use conflicts.

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(4 marks)

Do not write outside the box

4 (b) Describe how land use conflicts may be resolved.

Quality of Written Communication will be assessed in this answer.

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(6 marks)

10

Turn over for the next question

Do not write outside the box

5 The photograph shows a European beaver, *Castor fiber*, that has been reintroduced to Scotland.

Source of photograph: Getty Images

5 (a) (i) Conservation programmes, such as the reintroduction of a species to the wild, are expensive.

Explain why they are considered to be worthwhile.

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(3 marks)

5 (a) (ii) Describe the problems associated with the release of animals bred in captivity.

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(3 marks)

Do not write outside the box

5 (b) The photograph shows a habitat which has been modified by beavers.

Source of photograph: www.beaversinengland.com
Photographer: Derek Gow

Beavers affect the process of succession in woodland and aquatic communities. Describe how animals, such as beavers, can alter the carrying capacity of an area for other species.

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(4 marks)

10

Turn over for the next question

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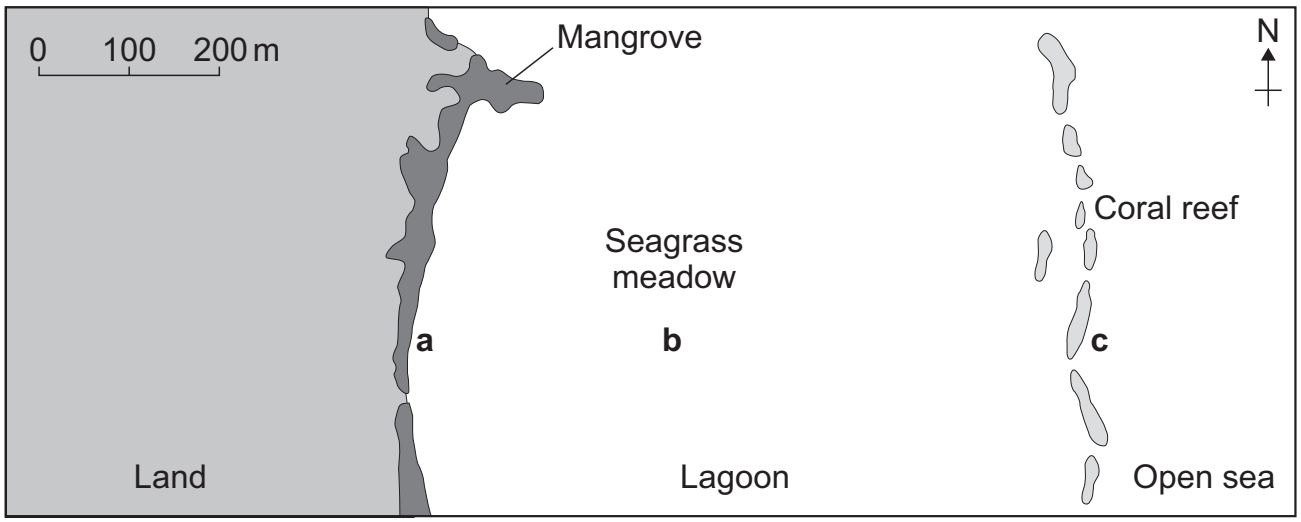
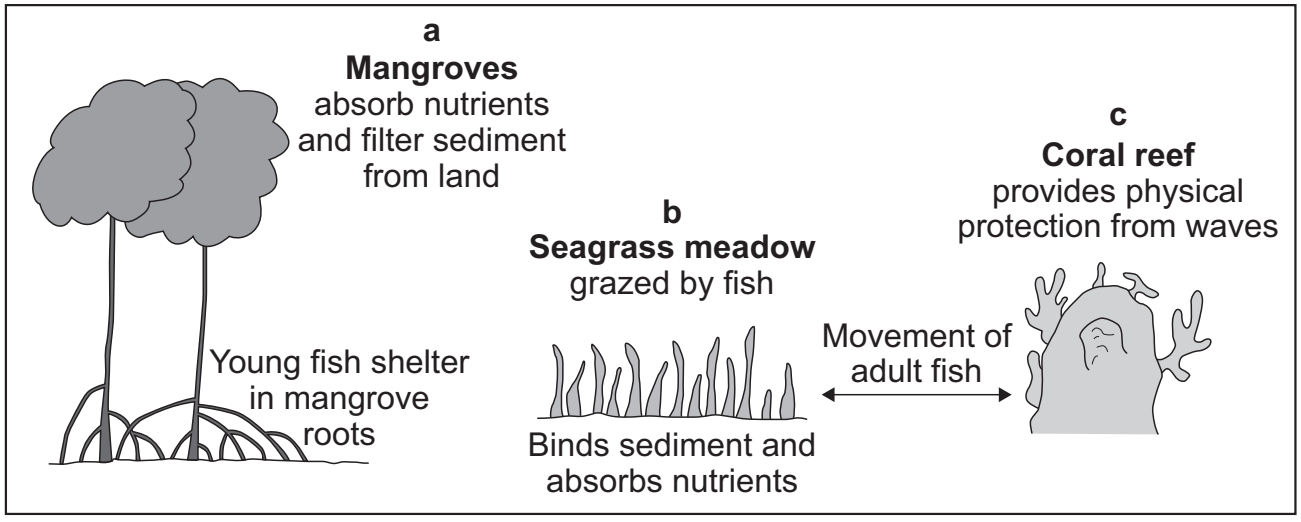
6 The photographs show three coastal tropical ecosystems. The map and diagrams show some of the relationships between these ecosystems.

Mangrove **Seagrass meadow** **Coral reef**

Map showing relative positions of three tropical coastal ecosystems





Do not write outside the box

6 (a) Mangrove ecosystems are important stores of fixed carbon.
State why this is important for the maintence of the atmosphere.

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(1 mark)

6 (b) In many areas, coral reefs are being destroyed.
Suggest **two** possible impacts on seagrass meadows or mangroves if coral reefs are lost.

1 .....

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2 .....

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(2 marks)

6 (c) Each of the three ecosystems shown in the diagram has a high species diversity.

6 (c) (i) Describe the ecological importance of high species diversity in an ecosystem.

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(2 marks)

6 (c) (ii) Give **one** reason why the species diversity of ecosystems, which are particularly vulnerable to human activity, is monitored.

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(1 mark)

Question 6 continues on the next page

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6 (c) (iii) Describe how kick sampling may be used to investigate the species diversity of invertebrates in a stream flowing into a mangrove ecosystem.

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(5 marks)

Do not write outside the box

6 (d) The photograph shows a dugong, *Dugong dugon*, which is a large herbivorous mammal that feeds on seagrass.

Source of photograph: Getty Images

Dugongs are hunted for their meat.

Suggest what information may be required in order to calculate a Maximum Sustainable Yield for dugong populations.

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(4 marks)

15

END OF QUESTIONS

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