

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Education
Advanced Subsidiary Examination
January 2010

Environmental Studies

ENVS1

Unit 1 The Living Environment

Wednesday 13 January 2010 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. Answers written in margins or on blank pages will not be marked.
- 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 5 (b) should be answered in continuous prose.
Quality of Written Communication will be assessed in this answer.

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

ENVS1



J A N 1 0 E N V S 1 0 1

SA0541/Jan10/ENVS1

ENVS1

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



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

1 The table describes some terms associated with land use.

Complete the table using the appropriate letter from the list.

- A** Time zoning
- B** Space zoning
- C** Green belt
- D** Environmental Stewardship Scheme
- E** Public Inquiry
- F** Leopold matrix
- G** National Trust
- H** DEFRA

Description	Letter
Method of preventing urban sprawl	
Non-Governmental Organisation involved with conservation and landscape management	
Allocation of separate areas of a lake for activities that would otherwise conflict	
System of grants to encourage sensitive farmland management	
Method of quantifying environmental impacts	

(5 marks)

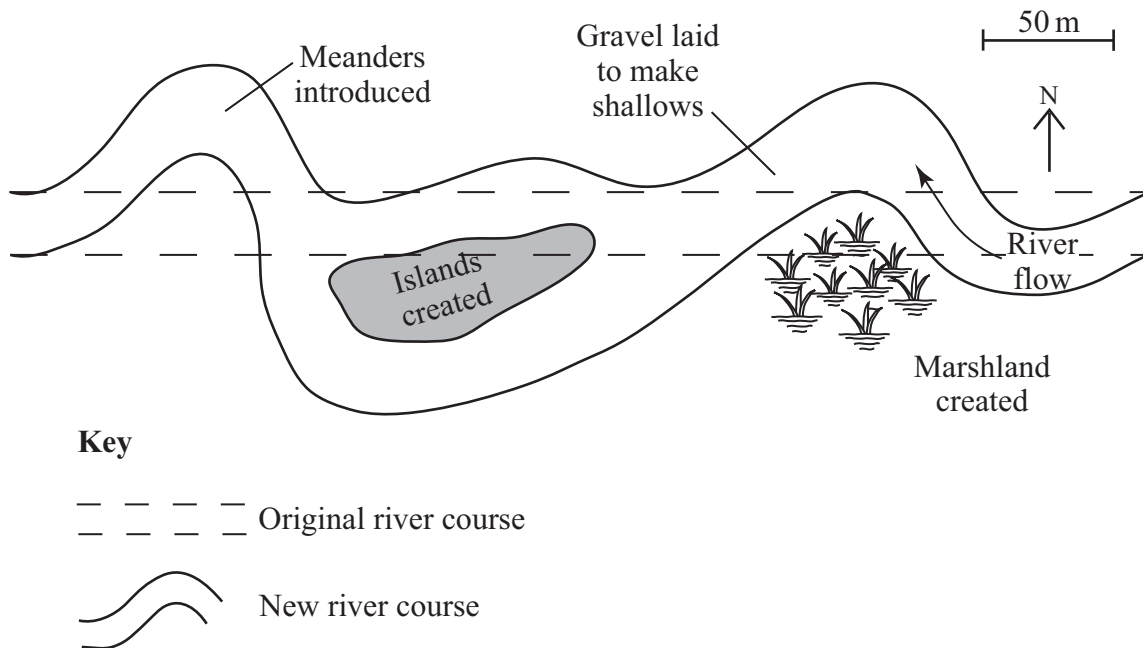
5

Turn over for the next question

Turn over ►



- 2 The diagram shows a river development project by a Local Authority to enhance the landscape.



- 2 (a) (i) Name a Governmental Organisation that may be consulted by the Local Authority for advice on the project.

.....
(1 mark)

- 2 (a) (ii) State a designation that the Local Authority may use to protect the area and to provide access for the public.

.....
(1 mark)



- 2 (b) (i) Describe how a cost benefit analysis may be used in the planning of this project.

.....

.....

.....

.....

(2 marks)

- 2 (b) (ii) Explain how an Environmental Impact Assessment may be used in a development project.

.....

.....

.....

.....

(2 marks)

- 2 (c) Suggest how landscape protection and enhancement may also result in wildlife conservation.

.....

.....

.....

.....

.....

.....

.....

.....

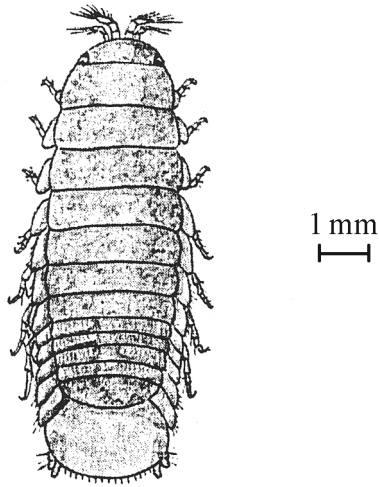
(4 marks)

10

Turn over ►



- 3 The picture shows a gribble which is a crustacean in the family Limnoriidae. Gribbles bore into dead wood immersed in seawater.



- 3 (a) (i) Suggest why the presence of gribbles may be important to other species.

.....

.....

.....

.....

.....

(2 marks)



- 3 (a) (ii) Several species of gribble cause significant economic and structural damage to wooden ships and wooden structures in seawater.

The table shows some features of a harbour.

Feature	1970	2005
Oxygen saturation of water / %	11	47
Suspended solids in water / mg l^{-1}	932	168
Organic pollutants in water	very high	medium
Inorganic pollutants in water	high	medium
Volume of shipping / 10^3t / yr^{-1}	5500	84 200
Extent of damage due to gribbles	very little	nearly all submerged timbers affected

Use the information in the table to suggest why gribble damage has increased from 1970 to 2005.

.....

.....

.....

.....

(2 marks)

- 3 (a) (iii) Describe how the gribble population size in the harbour may be estimated.

.....

.....

.....

.....

.....

.....

.....

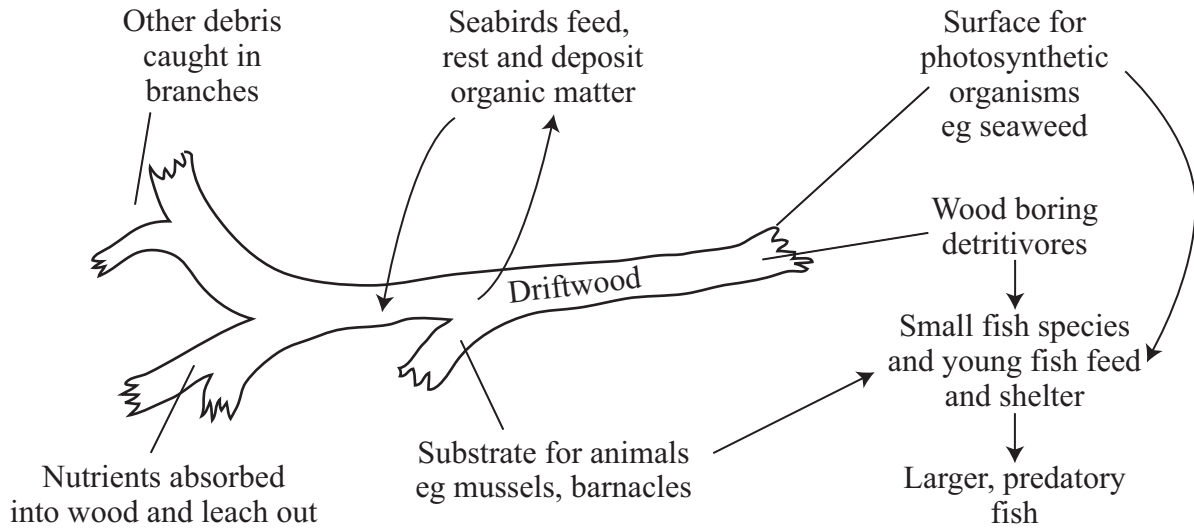
.....

(4 marks)

Turn over ►



- 3 (b) Driftwood floating in the sea has an important ecological role. The diagram shows some of the ecological relationships associated with driftwood.



Human activities have resulted in a significant reduction in driftwood.

Suggest why this may affect fish populations.

.....

.....

.....

.....

(2 marks)



Turn over for the next question

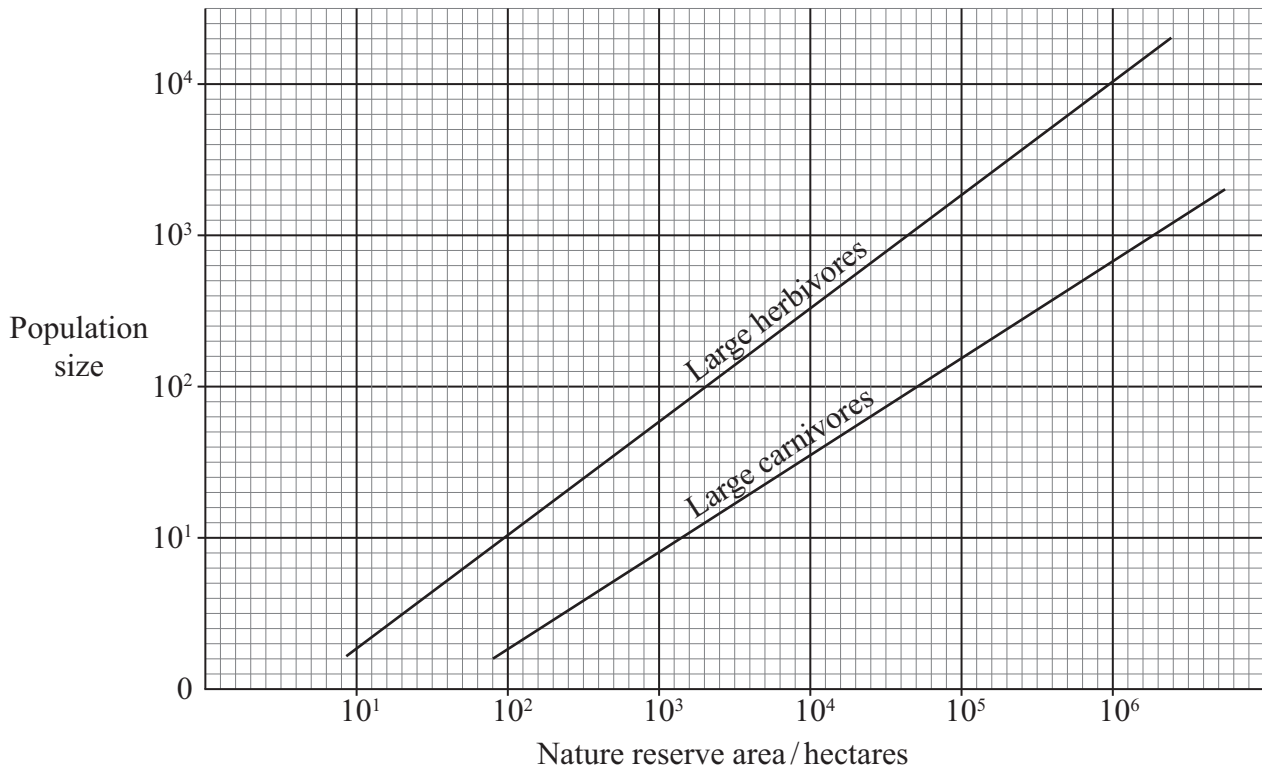
**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Turn over ►



4 Managers of wildlife conservation areas monitor the populations of important species, including large herbivores and carnivores.

4 (a) The graph shows the typical population size of animals in different sized nature reserves.



4 (a) (i) Explain why the population density of large carnivores is lower than that of large herbivores.

.....

.....

.....

.....

(2 marks)



- 4 (a) (ii) Suggest how habitat management can increase the carrying capacity of a nature reserve.

.....

.....

.....

.....

.....

.....

.....

(4 marks)

- 4 (b) (i) Explain why having a small captive population may be a problem for breeding.

.....

.....

.....

.....

(2 marks)

- 4 (b) (ii) Outline why animals bred in captivity may be less likely to survive in the wild.

.....

.....

.....

.....

(2 marks)

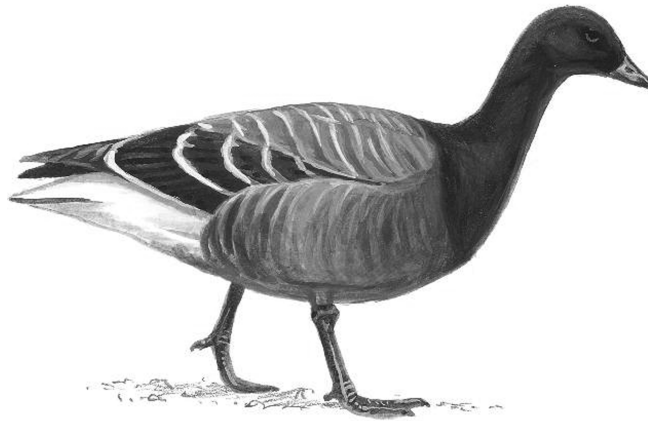
10

Turn over ►



- 5 Migrating birds may travel long distances from the areas in which they spend the winter to the areas where they breed.

The picture shows a Brent Goose, *Branta bernicla*. They are birds that mainly feed on eelgrass, *Zostera* spp, in estuaries.



Source of image: Mike Langman (rspb-images.com)

- 5 (a) (i) The eelgrass on which Brent geese feed is found only in certain estuaries because it has a narrow range of tolerance.

Explain what is meant by the *range of tolerance* of a species.

.....

.....

.....

.....

(2 marks)



- Explain why this makes them particularly vulnerable to population decline.

.....

.....

.....

.....

Quality of Written Communication will be assessed in this answer.

[illegible]

10

- 6 (a)** Suggest **three** environmental conditions which control the growth of photosynthetic organisms in Antarctic waters.

1

.....

2

.....

3

.....

(3 marks)

- 6 (b)** Explain why, in an investigation into the growth of aquatic photosynthetic organisms, scientists:

- 6 (b) (i)** chose sampling points at random

.....

.....

(1 mark)

- 6 (b) (ii)** took ten samples at each sampling point.

.....

.....

(1 mark)

- 6 (c)** The overall species diversity of Antarctica is low.

Describe how the species diversity of an area may be assessed.

.....

.....

.....

.....

.....

.....

(3 marks)



- 6 (d) There is concern over the introduction of alien species into fragile ecosystems such as Antarctica.

Explain how introduced species can threaten native wildlife.

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

- 6 (e) Outline how Antarctica is protected from damaging human activities.

.....

.....

.....

.....

.....

.....

(3 marks)

END OF QUESTIONS



There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

ACKNOWLEDGEMENT OF COPYRIGHT-HOLDERS AND PUBLISHERS

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements in future papers if notified.

Copyright © 2010 AQA and its licensors. All rights reserved.

