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
Advanced Subsidiary Examination
June 2012

Environmental Studies ENVS1

Unit 1 The Living Environment

Tuesday 15 May 2012 9.00 am to 10.00 am

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 5(b) should be answered in continuous prose.
  Quality of Written Communication will be assessed in this answer.

There are no questions printed on this page

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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 Anthropogenic
B Niche
C Edaphic
D Range of tolerance
E Abiotic
F Biotic
G Plagioclimax
H Lithosere
I Hydrosere

Definition	Letter
Factor related to soil that affects living organisms	
Factor related to human activity	
Process of succession on bare rock	
The specific conditions within which a species can survive	
The role an organism plays in its environment and how it makes use of its resources and responds to other species	

(5 marks)

5

Turn over for the next question

2 In recent years, there has been an increase in offshore developments, such as wind farms.

2 (a) Suggest **two** reasons why many people are in favour of offshore developments.

1 .....

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2 .....

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(2 marks)

2 (b) Describe how a cost benefit analysis may be used in the planning of an offshore development.

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(2 marks)

2 (c) Explain how a Leopold Matrix may be used to assess the impact of a proposed development.

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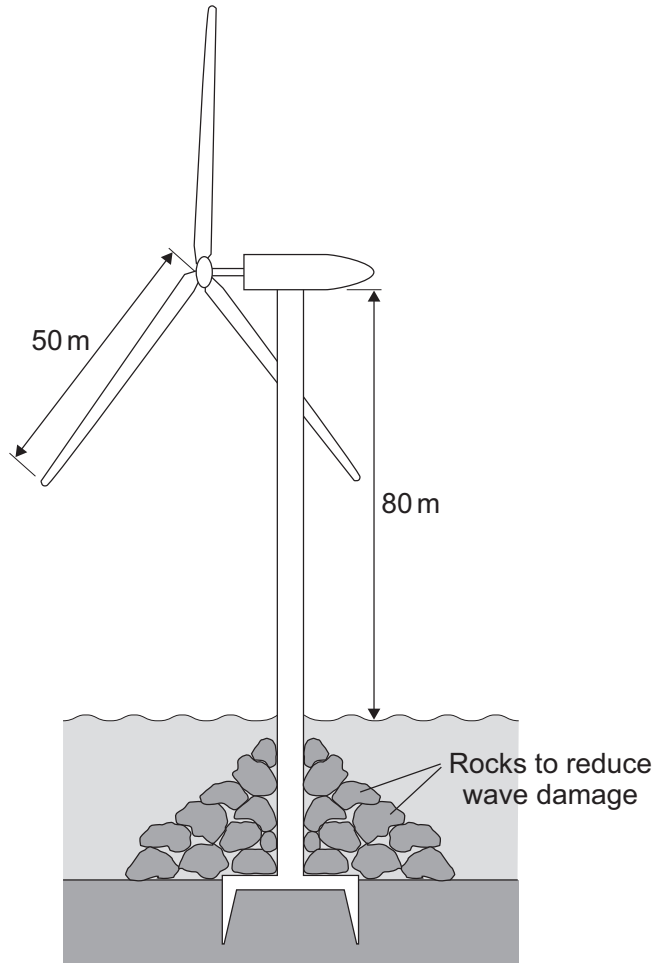
(3 marks)

2 (d) The diagram shows an offshore wind turbine.



2 (d) (i) Suggest how a construction such as this may benefit marine wildlife.

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(2 marks)

2 (d) (ii) Give a designation that may be used to protect a marine habitat.

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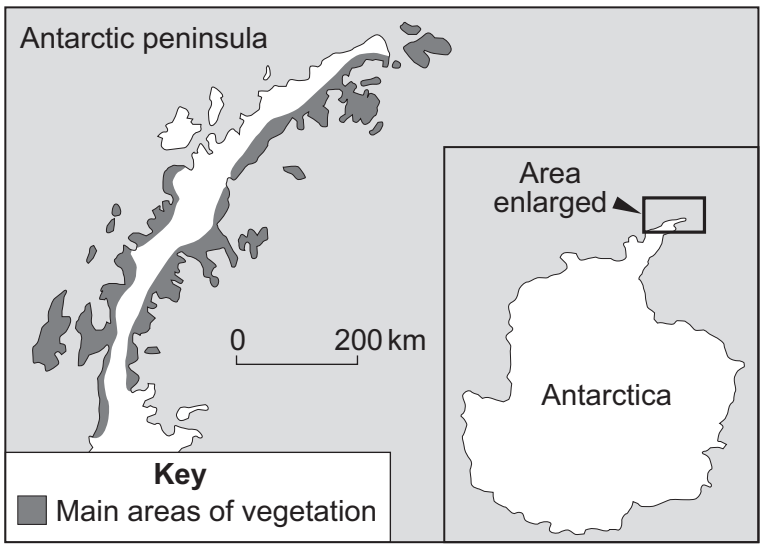
(1 mark)

10

Turn over ▶

3 The maps show the distribution of the only two species of flowering plant on the continent of Antarctica.



3 (a) (i) Suggest **two** reasons why the plant diversity of Antarctica is so low.

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2 .....

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(2 marks)

3 (a) (ii) Explain the consequences of low plant diversity for other organisms in Antarctica.

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(2 marks)

3 (b) Describe how human activities threaten Antarctic wildlife.

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(3 marks)

3 (c) Explain how Antarctic wildlife is protected.

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(3 marks)

10

Turn over for the next question

4 (a) Explain how Natural England **or** the Countryside Council for Wales **or** an equivalent Governmental Organisation helps to conserve wildlife.

Organisation .....

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(2 marks)

4 (b) Describe how the Environmental Stewardship Scheme conserves wildlife.

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(4 marks)

4 (c) (i) Describe the role of the World Wide Fund for Nature (WWF).

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(2 marks)

4 (c) (ii) Explain how the role of the Royal Society for the Protection of Birds (RSPB) is different from that of the WWF.

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(2 marks)

10

Turn over for the next question

5 (a) State **one** role of living organisms other than humans in:

5 (a) (i) soil formation

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(1 mark)

5 (a) (ii) soil conservation.

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(1 mark)

5 (b) Describe the main conditions that allow life to survive on Earth.

Quality of Written Communication will be assessed in this answer.

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(8 marks)

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6 The photograph shows rhododendron plants, *Rhododendron ponticum,* in Snowdonia National Park. Rhododendrons are native to Asia. Part of the conservation management of Snowdonia National Park involves the active removal of rhododendrons from areas that they have colonised.

6 (a) Rhododendrons are evergreen and relatively fast growing.

Explain why these characteristics of rhododendrons reduce the growth of native vegetation.

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(2 marks)

6 (b) Rhododendron roots form a mutualistic symbiotic relationship with a species of fungus. The fungi help the plant to absorb nutrients and the plant provides carbohydrates in return. This is known as a mycorrhizal association.

6 (b) (i) Give **another** example of species interdependence involving plants.

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(1 mark)

Turn over ▸

6 (b) (ii) The rhododendron mycorrhizal fungus secretes toxic compounds into the soil. Suggest why this helps to produce an accumulation of rhododendron leaf litter.

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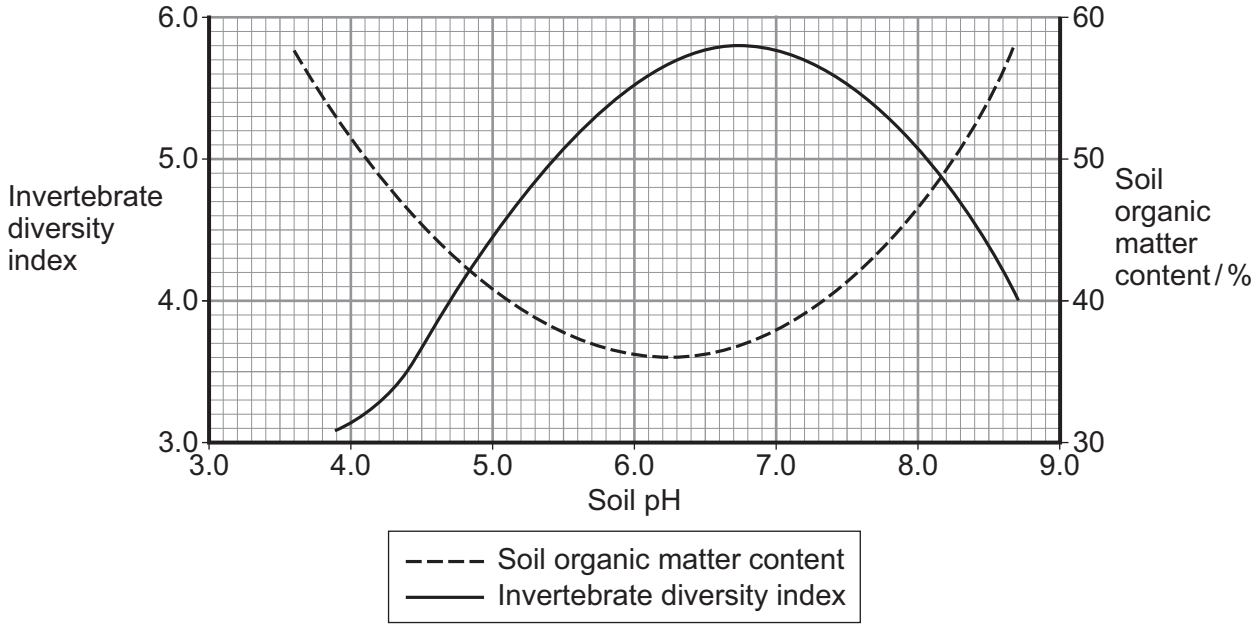
(2 marks)

6 (c) (i) The graph shows how organic matter content and invertebrate diversity vary with soil pH.



Describe the trends shown by the graph.

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(4 marks)

6 (c) (ii) Describe how Tüllgren funnels may be used to investigate the invertebrate diversity under rhododendrons.

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(4 marks)

6 (d) Some areas of Snowdonia National Park are moorland.

Explain how moorlands in the UK are managed in order to maintain the habitat.

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(2 marks)

15

END OF QUESTIONS

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