

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Education
Advanced Subsidiary Examination
January 2013

Environmental Studies

ENVS1

Unit 1 The Living Environment

Friday 11 January 2013 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 6(c) 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	



J A N 1 3 E N V S 1 0 1

M/Jan13/ENVS1

ENVS1

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

1 The table gives details of some conservation designations.

Complete the table.

Conservation designation	Description of conservation designation
Special Area of Conservation (SAC)	
	Area of wetland that is of international importance and protected for conservation and sustainable use
Green Belt	
	Large, relatively wild area designated for informal public recreation, wildlife conservation and maintenance of the rural economy
Special Protection Area (SPA)	

(5 marks)

5

Turn over for the next question

Turn over ►



- 2** The picture shows an open-cast coal mine.



Source: Getty Images

- 2 (a)** Describe how an Environmental Impact Assessment (EIA) may be used for a proposal to develop an open-cast coal mine.

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(4 marks)



- 2 (b)** Suggest why it may be less environmentally damaging to have one large open-cast coal mine rather than many smaller ones with a similar total output.

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(3 marks)

- 2 (c)** Coal mining and the use of coal add carbon dioxide to the atmosphere.

Give **two** natural processes by which organisms affect the concentration of carbon dioxide in the atmosphere.

1

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2

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(2 marks)

- 2 (d)** Since the development of life on Earth, atmospheric concentrations of carbon dioxide have declined.

Name **one** gas for which the atmospheric concentration has increased as life has developed.

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(1 mark)

10

Turn over for the next question

Turn over ►



- 3** The photograph shows a Common Fragrant Orchid, *Gymnadenia conopsea*, which is a grassland species indigenous to Britain.



Source: Getty Images

- 3 (a)** Aesthetically appealing plants, such as Fragrant Orchids, and animals, such as elephants and tigers, are often known as flagship species.

Suggest why flagship species may be particularly beneficial for wildlife conservation.

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(2 marks)



3 (b) Surveys of grasslands often use quadrats that are placed randomly to avoid bias.

3 (b) (i) Why is it important to avoid bias when placing quadrats?

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(1 mark)

3 (b) (ii) Describe how the locations for the random placing of quadrats should be selected.

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(2 marks)

3 (b) (iii) Explain how the results from 20 randomly placed quadrats may be used to produce an estimate of the population of orchids in a 600 m² area of grassland.

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(2 marks)

3 (c) Orchids are vulnerable to trampling.

Outline methods to reduce trampling damage in areas visited by people.

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(3 marks)

10

Turn over ►



- 4 The photograph shows a bumblebee, *Bombus* sp., which is a pollinating insect.



Source: Getty Images

- 4 (a) (i) Give **one** reason why the wide range of different pollen producing plants found in urban parks and gardens is important for the conservation of pollinating insects.

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(1 mark)

- 4 (a) (ii) Suggest **two** reasons why, other than providing pollen, urban parks and gardens may help to increase the abundance and diversity of pollinating insects.

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2.....
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(2 marks)



4 (b) Suggest why populations of many pollinating insects are declining in the UK.

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(5 marks)

4 (c) Give **two** ways, other than by pollination, in which insects are beneficial to humans.

1

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2

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(2 marks)

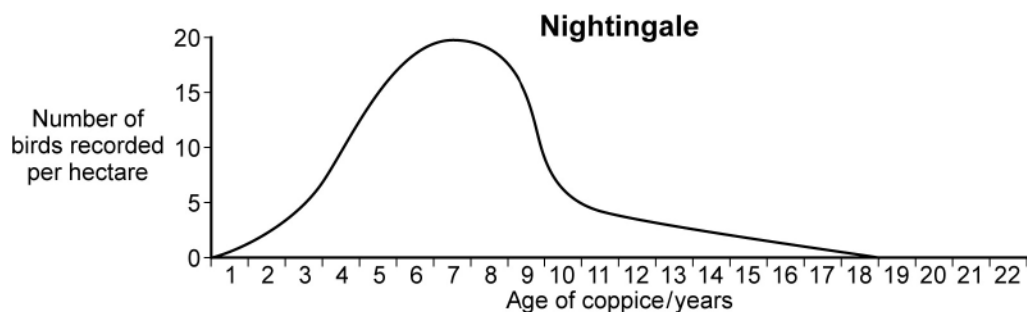
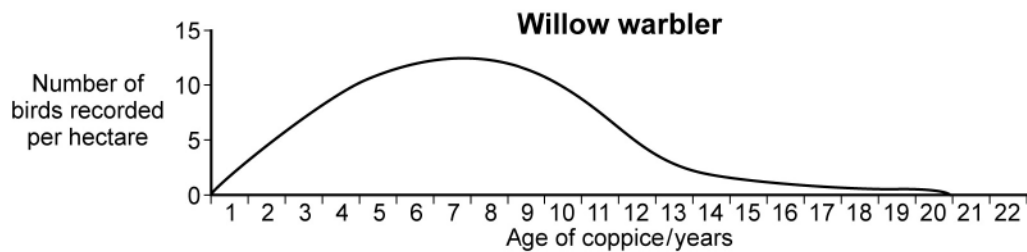
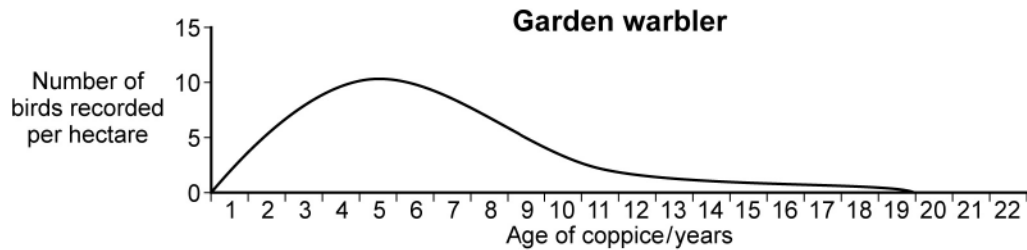
Turn over for the next question

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- 5 The graphs show the changes in the number of birds recorded per hectare in woodland that has been coppiced at different times.



- 5 (a) (i) Coppicing is a traditional technique for managing woodland. It involves creating a plagioclimax.

Describe what is meant by a 'plagioclimax.'

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(2 marks)



- 5 (a) (ii)** Describe the biotic changes that may be expected if the management of a plagioclimax ends.

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(2 marks)

- 5 (b) (i)** Explain why the different bird species show peaks in their populations at different times.

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(3 marks)

- 5 (b) (ii)** Explain why the populations of all these species decline with the age of coppice.

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(3 marks)

Turn over for the next question

10

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- 6** The photograph shows a female Hainan Crested Gibbon, *Nomascus hainanus*, believed to be the world's most Critically Endangered ape.

Photograph not reproduced here due to third party copyright restraints.

Source: Thomas Geissman

- 6 (a)** The table shows the estimates of the total population of Hainan Crested Gibbons after a series of surveys of their known habitat. There are no captive individuals.

Year of estimate	Estimates of total population
1959	> 2000
1993	< 20
2003	13
2008	20
2011	22

- 6 (a) (i)** Suggest why the sizes of populations are often estimated rather than fully counted.

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(2 marks)



- 6 (a) (ii)** Explain the significance of such a small population for the survival of the Hainan Crested Gibbon.

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(3 marks)

- 6 (b)** Hainan Crested Gibbons are never likely to be valued as food resources or for medical reasons.

Explain how they may still have economic value.

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(2 marks)

Question 6 continues on the next page

Turn over ►



*You should answer this question in continuous prose.
Quality of Written Communication will be assessed in this answer.*

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15



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