

Wednesday 30 May 2012 – Afternoon

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B681/01 Management of the Natural Environment (Foundation Tier)

Candidates answer on the Question Paper.
A calculator may be used for this paper.

Duration: 1 hour

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)



Candidate forename		Candidate surname	
-----------------------	--	----------------------	--

Centre number						Candidate number				
---------------	--	--	--	--	--	------------------	--	--	--	--

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- Your quality of written communication is assessed in questions marked with a pencil (✎).
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

Answer **all** the questions.

1 A student is preparing the soil before planting some shrubs.

She decides to test the soil pH before planting.



Why is this test a good idea?

The student will...

- A be able to choose the most suitable shrubs to plant.
- B be able to decide on the amount of shade needed.
- C know how much food is in the soil.
- D know the soil is moist enough.

Answer **A, B, C or D** [1]

2 Farmers often use large machines on their farms.



Put ticks (✓) in the boxes next to the **two** best reasons for using large machines.

- It is easy to see how much work has been done.
- Large machines are cheaper to buy.
- Less labour is needed.
- More hedges need to be planted.
- They get the job done more quickly.

[2]

3 A farmer wants to grow an early crop of new potatoes.

To produce an early crop, the farmer needs a soil that warms up quickly.

Which **one** of the following soils would be most suitable?

- A clay
- B clay loam
- C loam
- D sandy

Answer **A, B, C** or **D** [1]

- 4 A student finds this statement in a text book.

Earthworms are good for the soil.

Which **one** of the following is **not** improved by earthworms?

- A crumb structure
- B drainage
- C fertility
- D sand content

Answer **A, B, C** or **D** [1]

5 Land owners are responsible for the care of their land.

The photograph shows part of Hadrian's wall. This is an important historical feature.



A land owner needs to preserve this historical feature.

The **two** best ways of doing this are and

Choose **A, B, C, D** or **E** from this list.

- A** fencing off the wall
- B** grazing cattle near the wall
- C** keeping machinery away from the wall
- D** planting trees near the wall
- E** ploughing the land near the wall

[2]

6 The Woodland Trust records the dates when animals are first seen in Spring.

They do this every year.

Some of these animals are shown in the table.

name	dates first seen				
	2007	2008	2009	2010	2011
bumblebee (red-tailed)	22 Mar	19 Mar	27 Mar	05 Apr	21 Mar
frog spawn	26 Feb	27 Feb	04 Mar	14 Mar	01 Mar
ladybird (7-spot)	07 Mar	13 Mar	27 Mar	21 Mar	06 Mar
newts	17 Mar	14 Mar	20 Mar	28 Mar	07 Mar
wasp (queen)	30 Mar	27 Mar	07 Apr	06 Apr	24 Mar

(a) When were newts first seen in 2007?

Answer

When were newts first seen in 2008?

Answer [1]

(b) Some newspapers say that Spring is getting earlier and earlier.

Does this data support this conclusion?

Explain your answer.

.....

 [3]

(c) Some gardeners look for the first signs of Spring.

They do this to decide when to do jobs such as sowing seeds.

What advice would you give them about using this data to plan their work for Spring 2013?

.....

 [2]

7 Ivy is a plant adapted to grow in a shady woodland habitat.

The photograph shows ivy growing up a tree.



Ivy has dark green leaves, and 'sucker' roots which help it to climb trees.

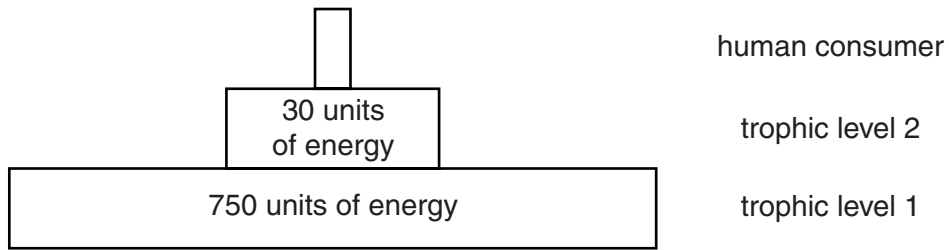
Explain how these adaptations help ivy to survive in a shady woodland habitat.

.....

.....

..... [2]

8 The diagram shows a pyramid of energy for a production system on a farm.



(a) Which **one** of the following crops or products is at **trophic level 2**?

Put a (ring) around your answer.

- beef oil seed rape tomatoes wheat**

Give a reason for your answer.

.....
..... [1]

(b) What percentage of the energy in trophic level 1 is transferred to trophic level 2?

Show your working.

Answer % [2]

(c) Explain why energy is lost as it is transferred from trophic level 1 to trophic level 2.

.....
.....
..... [2]

9 Farmers can receive money for replanting hedges on their farms.

The hedges help to encourage greater biodiversity on the farmland.

Why might greater biodiversity be a **bad idea** for farm production?

.....

.....

..... [2]

10 A farmer has planted a new hedge around the farm.

The farmer wants to know if this has increased the biodiversity on the farm.

To find out, the farmer does not study the whole hedge. He takes samples instead.

(a) Why is the farmer using samples rather than studying the whole hedge?

.....
 [1]

(b) The farmer counted the number of species of plants and animals on the farm before the hedge was planted and again two years after planting.

Here are the results.

	number of species	
	before	after
shrub species	8	12
wild flower species	21	27
insect species	23	40
bird species	14	17
mammal species	10	12
tree species	12	14

Use the information in the table to answer the questions.

(i) Which type of animal has seen the largest increase in species numbers?

Suggest a reason for this increase.

species

reason

..... [2]

(ii) The farmer would like to see more **bird species** on the farm.

Which of these organisations will be able to give the best advice?

- A Natural England
- B RBST
- C RSPB
- D RSPCA

Answer **A, B, C** or **D** [1]

11 A farmer reads a leaflet about looking after a hedge.

The leaflet includes the following information.

- **birds nest:** March to July
- birds and mammals **feed on fruits:** August, for 5 months
- **shrubs produce fruits:** June to October.

(a) The farmer needs to see clearly what is happening in the hedge each month.

Fill out the table below to help him.

Put ticks (✓) in the boxes to show when each activity takes place.

activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
birds nest												
feed on fruits												
shrubs produce fruits												

[2]

(b) Use the information in the table to suggest in which months the farmer should cut the hedge.

Explain why.

.....

.....

.....

..... [2]

PLEASE DO NOT WRITE ON THIS PAGE



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.