

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.

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)

Duration: 1 hour



Candidate
forename

Candidate
surname

Centre number

Candidate number

MODIFIED LANGUAGE

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 a tick (✓) in the box 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.

The farmer needs a soil that warms up quickly to produce an early crop.

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.

Hadrian's wall is an important historical feature.



A land owner needs to look after 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 record these dates every year.

Some of these animals are shown in the table.

	dates first seen				
name	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) Give the date when newts were first seen in 2007.

Answer

Give the date when newts were first seen in 2008.

Answer [1]

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

Does the data in the table support this view?

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.

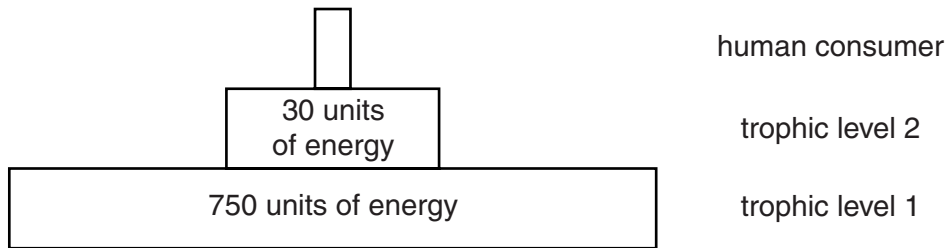
Explain how dark green leaves and 'sucker' roots help ivy to survive in a shady woodland habitat.

.....

.....

..... [2]

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



- (a) **One** of the following crops or products is at **trophic level 2**.

Put a ring around the crop or product.

beef oil seed rape tomatoes wheat

Give a reason for your answer.

.....
 [1]

- (b) Give the percentage of energy in trophic level 1 that 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.

Explain why greater biodiversity might 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 the hedge has increased the biodiversity on the farm.

The farmer does not study the whole hedge to find out if there is an increase in biodiversity. He takes samples instead.

- (a) Why is the farmer taking 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. He repeated the study two years after planting.

Here are the results.

	number of species	
	before planting	after planting
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) Give the name of the type of animal that has seen the largest increase in number of species.

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 farmer 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 to help him.

Put a tick (✓) 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) The farmer wants to know when he should cut the hedge.

Suggest the months when the farmer should cut the hedge. Use the information in the table.

Give reasons for your answer.

.....

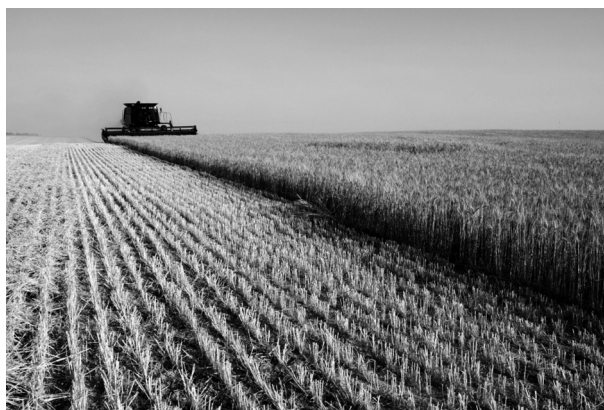
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..... [2]

12 Farmers want to make more profit.

One way of doing this is to use an intensive monoculture system.



Explain how intensive monoculture might affect the natural environment.



The quality of written communication will be assessed in your answer.

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..... [6]

- 13** A gardener needs to control the weeds growing in a crop of onions.

- (a)** Explain why it is important to control the weeds growing in a crop.



The quality of written communication will be assessed in your answer.

..... [6]

- (b)** State **two** ways in which weeds growing in a crop can be controlled.

..... [2]

A black and white photograph of a worker in a white protective suit and helmet with a face shield, using a handheld device on a rough, textured surface.



The quality of written communication will be assessed in your answer.

[6]

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