

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
ENVIRONMENTAL AND LAND-BASED
SCIENCE**

B493/01

Management of the Natural Environment (Foundation Tier)

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

**Monday 25 January 2010
Afternoon**

OCR Supplied Materials:
None

Duration: 45 minutes

Other Materials Required:

- Pencil
- Ruler (cm/mm)



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- 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 **36**.
- This document consists of **24** pages. Any blank pages are indicated.

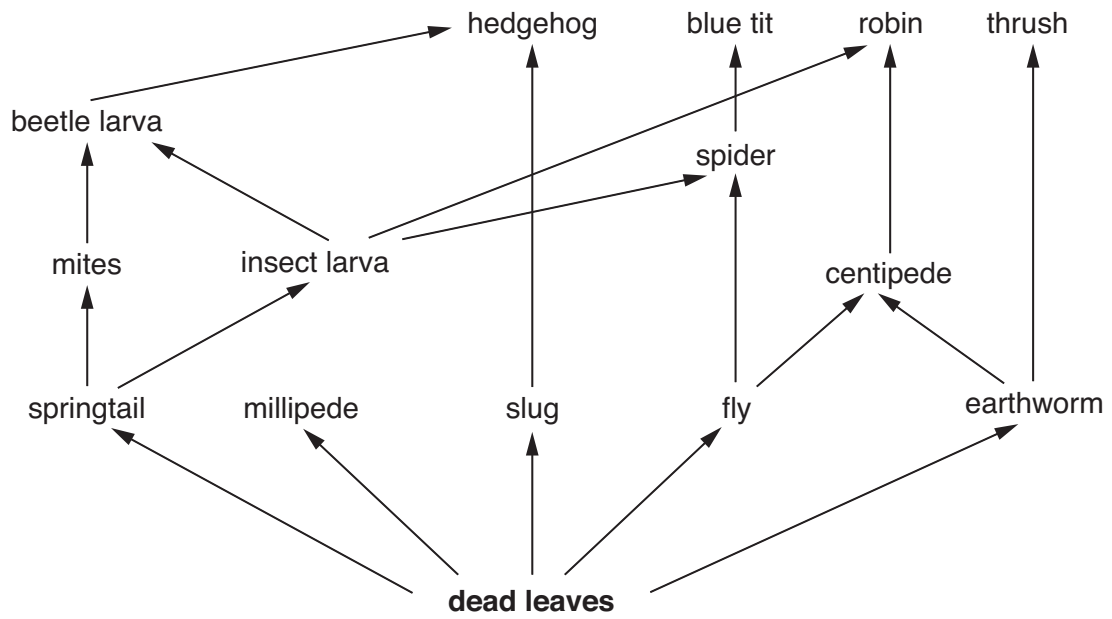
Answer **all** the questions.

1 What is the name for a place where organisms live?

- A house
- B habitat
- C hole
- D home

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

2 The feeding relationships of organisms in a garden are shown below.



What name is given to this type of diagram?

- A food chain
- B food cycle
- C food diagram
- D food web

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

3 Choose the correct word(s) from the list below to complete the following sentence.

Growing the same crop year after year in the same field is called

- A horticulture
- B mixed culture
- C monoculture
- D perma culture

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

4 Choose the correct pair of letters from the list below to complete the following sentence.

Soil acidity and alkalinity are measured on the scale.

A PH

B Ph

C pH

D ph

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

5 Choose the best words from the list below to complete the following sentence.

GM food is made from crops produced by using

- A genetic machines
- B genetic modification
- C green machines
- D green methods

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

6 The table shows a crop rotation.

The missing crop is nitrogen fixing.

	year 1	year 2
field A	legume crop	cereal crop
field B	cereal crop	root crop
field C	root crop	

Complete the table by inserting the correct nitrogen fixing crop into the empty box.

inter crop

legume crop

organic crop

perennial crop

[1]

7 The photograph shows the spreading of slurry (animal dung).



(a) EU legislation prevents the spreading of farm slurry (animal dung) on to land during autumn and winter.

This is to prevent pollution.

- A noise
- B smell
- C water
- D visual

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

(b) In 2008, many farmers over Europe spread their slurry on the same day.

This was the first permitted date in the spring.

The immediate result was massive pollution.

- A noise
- B smell
- C visual
- D water

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

- 8 The table compares a clay soil with a sandy soil.

	clay soil	sandy soil
cultivation	difficult	easy
drainage		
temperature	warms and cools slowly	warms and cools quickly
water holding		

Complete the table by writing in the terms **good** or **poor** in the correct boxes.

[2]

9 The photograph shows field work being carried out in a plantation.



The teacher considers the hazards in doing this field work.

State **two** instructions you would expect to be given by your teacher before starting the field work.

Explain why these instructions were given.

instruction 1

instruction 2

explanation

..... [3]

10 Here are some newspaper headlines.

**Non-renewable sources of energy
are running low.**

**The government is to encourage everyone to
change their life style.**

**This will help reduce energy that is produced from
non-renewable sources**
– lower your
‘carbon footprint’

List **three** ways that you have used UK energy supplies since getting up this morning and answering this exam.

- 1
- 2
- 3 [3]

11 The photograph shows a new hedge planting.

Hedge plants 1 to 6 are planted beside the road.

These have not grown well.

Hedge plants 7 to 9 are planted beside a fence in the field.

These have grown well.



Suggest **two** reasons for the difference in growth between the groups of hedge plants.

1

.....

2

..... [2]

12 The picture shows a garden slug.



Explain **one** way the slug is adapted to living and feeding on the soil surface.

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

13 The picture shows a ghost slug.

This is a new species to this country.

It lives in the soil.



The ghost slug is carnivorous and feeds mainly on earthworms.

Suggest two effects on **soil structure** that would result if the ghost slug becomes widespread.

- 1
-
- 2
- [2]

14 The photograph shows a flame weed killer.

This is a method of organic weed control.

The hot flame passing over the weeds damages the leaves.

This causes the weeds to dehydrate and die.



Suggest **one** way this method of weed control might harm the ecosystem.

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



Each year the RSPB has a 'Big Birdwatch' weekend.

People count the birds they see in their garden.

The RSPB record the numbers seen in order – the most seen bird at the top, the least seen bird at the bottom.

The results for Cambridgeshire and Oxfordshire are shown in the table.

Cambridgeshire		Oxfordshire	
position	top ten bird species	position	top ten bird species
1	starling	1	house sparrow
2	house sparrow	2	starling
3	blackbird	3	blackbird
4	collared dove	4	blue tit
5	chaffinch	5	chaffinch
6	blue tit	6	woodpigeon
7	woodpigeon	7	goldfinch
8	robin	8	great tit
9	great tit	9	robin
10	greenfinch	10	collared dove

- (a) (i) Which **two** bird species have the same position in Oxfordshire and Cambridgeshire?
 and [1]
- (ii) Which bird was seen in Cambridgeshire but **not** in Oxfordshire?
 [1]
- (iii) Which bird was seen in Oxfordshire and but **not** in Cambridgeshire?
 [1]

(b) Each year the RSPB has a ‘big bird watch’ weekend.

The RSPB average the numbers of birds seen in each garden.

The table shows the results for the urban areas, Greater London and the West Midlands.

The birds are put in order – the most seen at the top.

Greater London		West Midlands	
five common bird species	average number seen per garden	five common bird species	average number seen per garden
starling	3.14	house sparrow	3.62
house sparrow	2.63	starling	2.86
woodpigeon	2.38	blackbird	2.51
blue tit	2.09	woodpigeon	2.34
blackbird	1.72	blue tit	2.31

A similar number of gardens are involved from each of the urban areas.

Which bird species is seen most often in the gardens of these two areas combined?

..... [1]

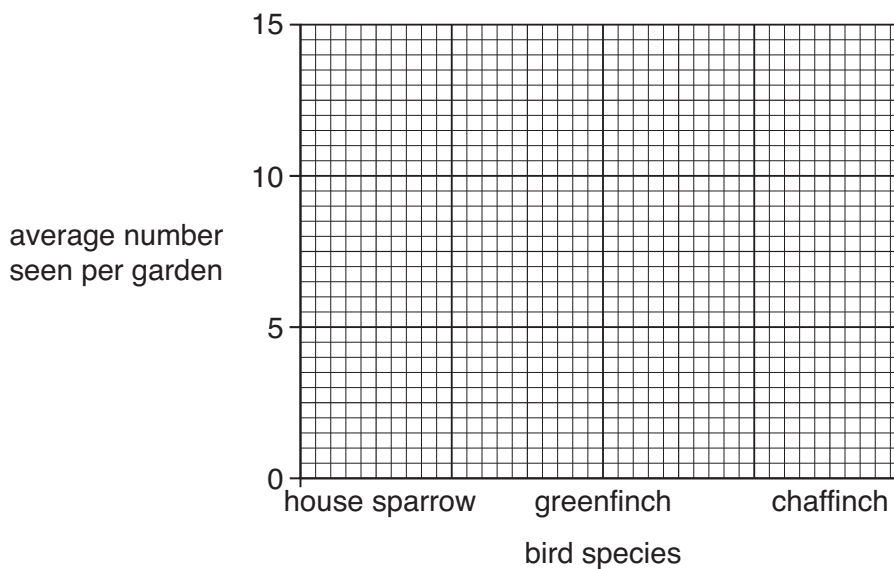
(c) This table shows the results for the Western Isles.

The birds are put in order – the most seen at the top.

Western Isles	
top ten bird species	average number seen per garden
starling	21.00
house sparrow	10.50
blackbird	3.34
greenfinch	3.00
collared dove	2.79
chaffinch	2.32
feral pigeon	1.09
robin	0.89
hooded crow	0.89
great tit	0.66

The bar chart is for three of the birds in the table.

Complete the bar chart for the three birds.



[2]

16 The arrow in photograph **A** points to a giant figure on a grass hillside.

It was made by removing grass which exposed the white chalk below.

The site was not managed between 2007 and 2008.

Photograph **B** shows that the outline of the giant figure has now disappeared.

Photograph **A** shows
the outline in 2007



A

Photograph **B** shows
the site in 2008



B

The site is now managed by the National Trust.

Suggest how the National Trust could manage the site in order to keep the outline of the giant and not damage the chalk figure.

Bear in mind:

- the hillside is very steep
- chalk is a soft rock.

.....

.....

.....

..... [2]

17 Describe an **intensive** animal production system.

.....

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.....

.....

.....

.....

..... [3]

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