

**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.

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)

**Monday 24 January 2011
Afternoon**

Duration: 45 minutes



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. Pencil may be used for graphs and diagrams only.
- 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).
- Answer **all** the questions.
- Do **not** write in the bar codes.

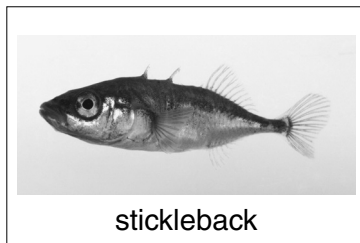
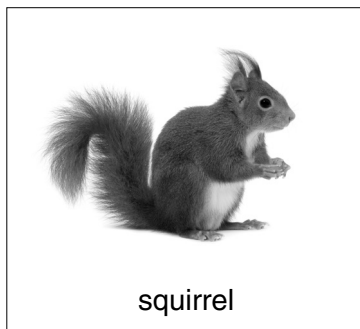
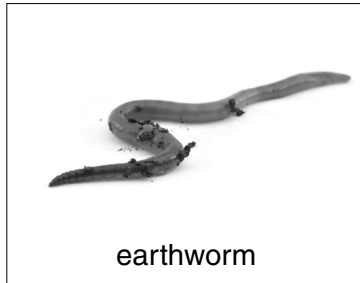
INFORMATION FOR CANDIDATES

- 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 **20** pages. Any blank pages are indicated.

Answer **all** the questions.

1 Draw a straight line to link each **animal** to its correct **habitat**.

animal



habitat

dead leaves

hazel nuts

pond

soil

water weed

woodland

[1]

2 (a) Farmers can control weeds by spraying them with weedkiller.

The chemicals used to kill weeds are called:

- A fungicides
- B herbicides
- C insecticides
- D weedicides

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

(b) We can control weeds by spraying them with weedkiller.

Bottles of weedkiller have this symbol on them.



Suggest **two** precautions you should take when using weedkiller.

1

2 [2]

3 Country parks have many visitors.

Visitors can create problems.

problem	solution
walkers trampling rare marsh plants
motorcycles being ridden along footpaths
dog 'mess'

Against each **problem** in the table, write the correct solution from the list below.

build stiles

lay wooden boarding across wet areas

provide bags and bins

[2]

- 4 The photograph shows a field of clover.



Clover is a **legume**.

Legumes are used in crop rotation.

Which is the **best** reason for using legumes in crop rotation?

- A They decrease the humus content of the soil.
- B They decrease the number of pests in the soil.
- C They increase the nitrogen level of the soil.
- D They kill weeds growing in the soil.

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

5 Some crops are described as GM.

What does G stand for in GM?

- A gamma
- B genetically
- C genuinely
- D green

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

6 The photograph shows a large field with no hedges.



Some farmers have removed hedges to make their fields bigger.

Choose **two** reasons why farmers remove hedges.

- A large fields are more biodiverse
- B hedges look more attractive
- C hedges need maintaining
- D hedges provide a windbreak
- E bigger machinery can be used
- F soil erosion is increased

Answer **A, B, C, D, E** or **F** and[2]

7 Rocks can be weathered in different ways.

What causes **chemical** weathering?

- A freezing and thawing
- B acid rain
- C heat from the Sun
- D wind blown particles

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

8 There are alternative methods of generating electricity.

Each of these methods needs an energy source.

Here is a list of **energy sources**:

air movement

crops

fossil fuels

sunlight

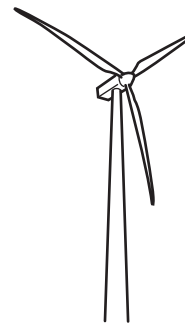
tides

Write the correct **energy source** in the space next to the **method of generating electricity**.

energy source

method of generating electricity

.....



wind turbine

.....



solar cell

[2]

9 The photograph shows planting on the side of a new section of motorway.



(a) Planting improves the appearance of motorways.

Suggest **one** other advantage of planting on the side of a motorway.

..... [1]

(b) Suggest **one** disadvantage of planting on the side of a motorway.

..... [1]

10 The photograph shows a river bank.



(a) A teacher wants her students to do some fieldwork along a river bank.

Give **one** danger to the students of working on a river bank.

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

(b) The teacher tells them to keep away from the edge of the river bank.

Suggest **one** other instruction that the teacher should give to keep the students safe.

..... [1]

11 The photograph shows limpets attached to a rock.

The limpet is an animal that lives on exposed rocky shores.

Waves wash over the rocks.



Look at the information above.

Suggest **one** way that the limpet is adapted for life on the rocky shore.

..... [1]

12 The photograph shows a power station.



Power stations can cause environmental pollution.

Use the photograph to help you explain what is meant by **pollution**.

.....

.....

..... [2]

13 Here are the logos for some conservation bodies.



State the aims of **one** conservation body you have studied.

name of conservation body

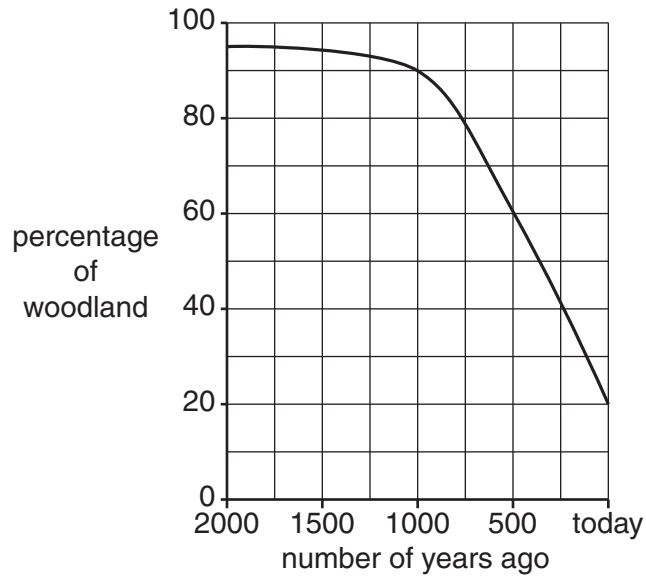
.....

aims

.....
.....
.....
.....

[2]

14 The graph shows how the percentage of woodland in Britain has decreased over the last 2000 years.



(a) What was the percentage of woodland **1000** years ago?

.....[1]

(b) What is the decrease in the percentage of woodland in the last **2000** years?

.....[1]

15 Squirrels feed on nuts and leaves.

The diagram shows the energy flow through a squirrel.



The 150 units of food energy are changed into heat and waste, and used for growth.

(a) How many units of energy are used for growth?

- A** 15
- B** 31
- C** 52
- D** 83

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

(b) What percentage of the food energy is changed into waste?

- A** 15.1%
- B** 25.2%
- C** 55.3%
- D** 75.4%

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

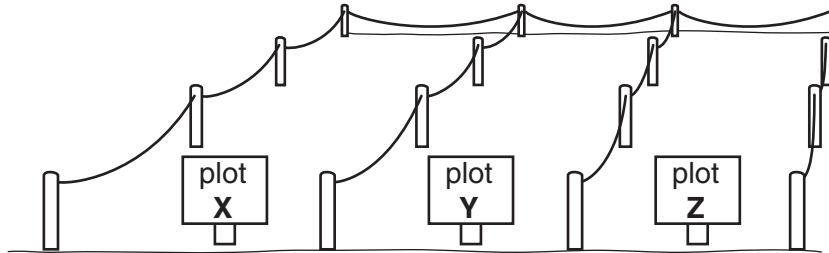
16 A farmer can use fertilisers to make plants grow better.

The farmer divides a field into three plots **X**, **Y** and **Z**.

Plot **X** was given an organic fertiliser.

Plot **Y** was given an inorganic fertiliser.

Plot **Z** was not given any fertiliser.



The crop yield for each plot is shown in the table.

plot	type of fertiliser	yield in tonnes per hectare
X	organic	5.0
Y	inorganic	8.5
Z	no fertiliser	3.0

(a) Which plot gives the greatest yield?

plot [1]

(b) Adding inorganic fertiliser increases the yield by ? tonnes per hectare.

What number from the list below, replaces in ? in the statement above?

- A 3.0
- B 3.5
- C 5.0
- D 5.5
- E 8.0
- F 8.5

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

17 The photograph shows a disused section of a canal.



The local council has to make a decision on what to do with the area.

The suggestions are:

- drain it and make it into a skateboard park
- fill it in and make it into a public garden
- make it into a fishing pond
- put an island in the centre and make it into a boating lake.

Choose **one** of the suggestions.

.....

Describe how your choice affects the **natural** environment.

.....

.....

.....

.....

..... [3]

18 The photograph shows a modern tractor.



Some tractors are bigger and more powerful than they used to be.

Give **two** reasons why farmers use bigger and more powerful tractors.

- 1
-
- 2
- [2]

19 The photograph shows a tractor with double wheels at the rear.



The farmer has fitted double wheels to the tractor to reduce soil compaction.

Why does the farmer need to reduce soil compaction?

.....

.....

.....

..... [3]

END OF QUESTION PAPER

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.