

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

Management of the Natural Environment (Foundation Tier)

**WEDNESDAY 21 MAY 2008**

Afternoon  
 Time: 45 minutes

Candidates answer on the question paper  
**Additional materials (enclosed):** None

**Additional materials (required):**  
 Electronic Calculator  
 Pencil  
 Ruler (cm/mm)



Candidate Forename

Candidate Surname

Centre Number

Candidate Number

**INSTRUCTIONS TO CANDIDATES**

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.

**INFORMATION FOR CANDIDATES**

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **36**.

FOR EXAMINER'S USE		
		Mark
<b>TOTAL</b>	<b>36</b>	

This document consists of **20** printed pages

Answer **all** the questions.

1 The photograph shows part of a farm.



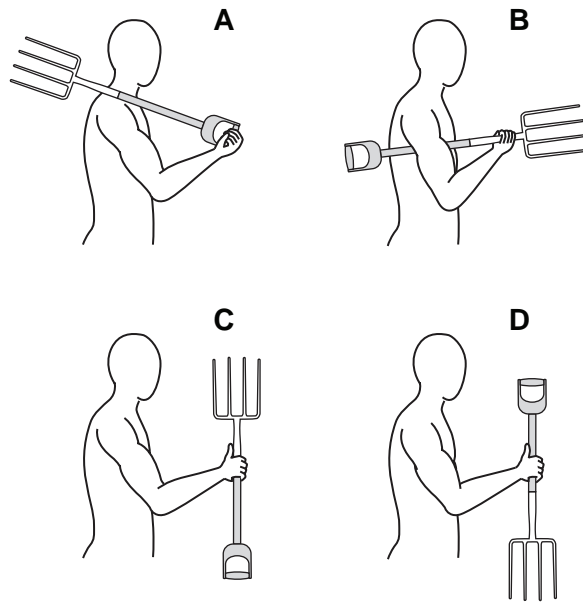
Label on the photograph

**N** where noise pollution could occur

**S** where smell pollution could occur.

[2]

2 The diagrams show ways of carrying a fork.



Which diagram shows the safest way of carrying a fork?

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

- 3 The protection and conservation of the environment in the UK is helped by several conservation bodies.

These organisations are known by their initials.

Select from the following list of initials **one** that represents a conservation body.

EN

NFU

NSPCC

RBST

RSPB

UNICEF

WHO

WWF

Answer ..... [1]

- 4 **A, B, C** and **D** are four food chains.

Which food chain includes a **producer**, a **herbivore** and a **carnivore**?

**A** corn → mouse → owl

**B** grass → worm → sheep

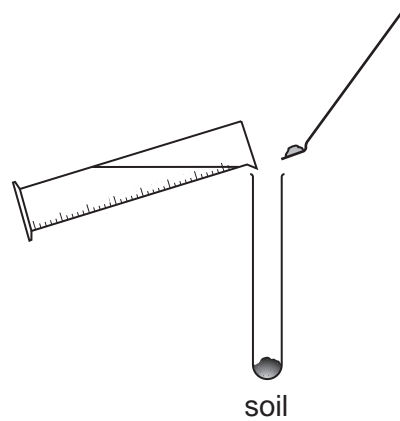
**C** hen → rat → hawk

**D** sun → grass → rabbit

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

5 The pH of soil can be determined by carrying out a simple test.

What must be added to the soil sample in the test tube before adding the indicator?



Choose **one** answer from **list one** and **one** answer from **list two**.

**list one**

- bottled water
- de-ionised (distilled) water
- salt water
- tap water

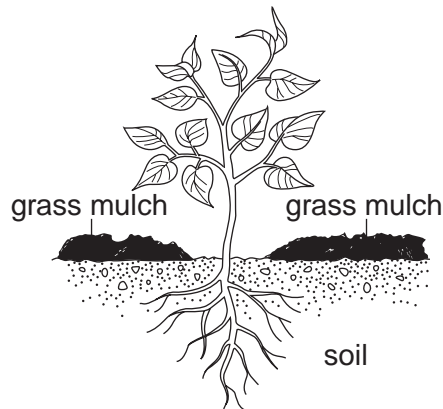
**list two**

- barium chloride
- barium sulfate
- calcium carbonate
- calcium sulfate

.....

..... [2]

6 The diagram shows a growing plant treated with a grass mulch.

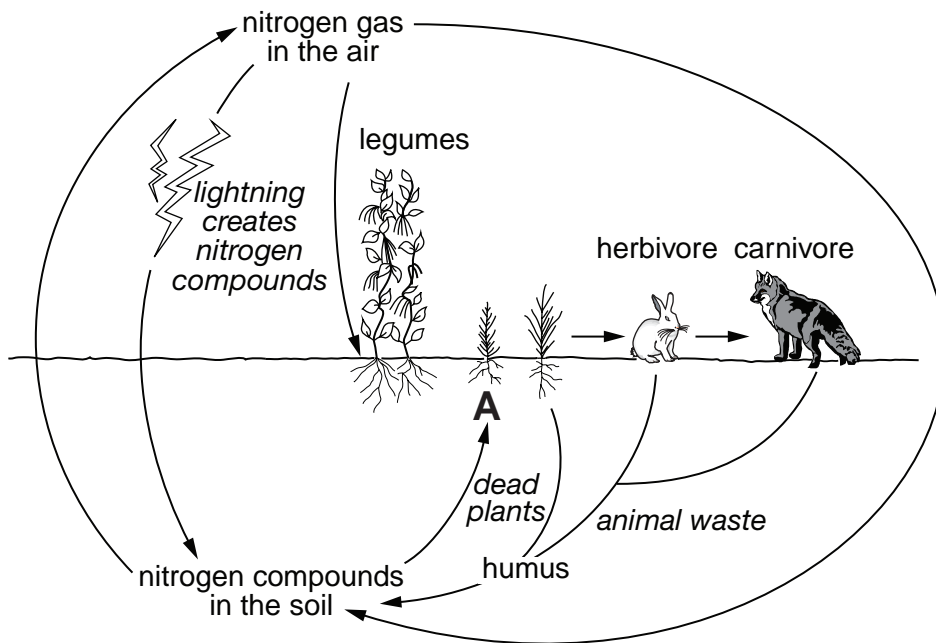


What is the **main** reason for using a mulch around plants?

- A** to increase root growth by heating the soil
- B** to prevent over-watering of the roots
- C** to prevent weeds from growing
- D** to provide nitrites for the plants

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

7 The diagram shows the nitrogen cycle.



Which nitrogen compound does the letter **A** represent?

- A amino acids
- B ammonia gas
- C nitrates
- D proteins

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

8 The table compares the qualities of four samples of soil **A**, **B**, **C** and **D**.

	samples			
qualities	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
water holding	fair	good	very good	poor
pH	7.0	6.5	5.0	7.0
% organic material	4.5	8.0	7.5	2.0
drainage	good	fair	poor	very good
% air	30	25	15	40

Which sample is from a **sandy** soil?

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

9 The photograph shows a large combine harvester.



E Carter & J Stansfield, 1994. Farming Press Ltd

State **one** reason why **large** machines are used.

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



10 The picture shows birds of prey.



© George Rainbird Ltd

State **one** adaptation these birds have for hunting.

.....

..... [1]

11 The picture shows some GM food crops.



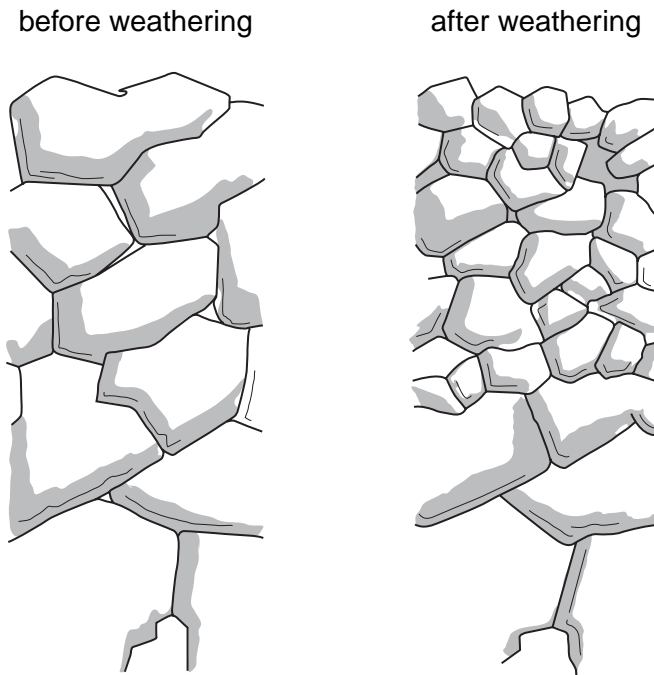
(a) What is meant by a **GM food**?

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

(b) Suggest **one** way the production of these crops might affect the environment.

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

12 The diagrams show the breaking down of rock into smaller pieces.



State **two** ways weathering causes rocks to break down.

- 1 .....
  - 2 .....
- [2]

- 13 The photograph shows part of Hadrian's wall running through a farm in the North of England. This wall was built almost 2000 years ago by the Romans.

The wall runs through a National Park.



© English Heritage

- (a) Suggest **one** thing the farmer could do to help preserve this historic wall.

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

- (b) Suggest **one** action that could be taken by the National Park Authority to help preserve this historic wall.

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

14 Look at these two photographs.



© Countryside Agency

an intensive farm landscape  
in England



© Countryside Agency

an extensive farm  
landscape in Poland

State **two** ways that farming using intensive monoculture can affect the environment.

- 1 .....
- .....
- 2 .....
- ..... [2]

15 The photographs show an area before and after a golf course was developed.



© Institute of Biology

original pasture



© Institute of Biology

golf course

Look at the photographs.

More types of organism are found living on the golf course.

Suggest an explanation for this.

.....

.....

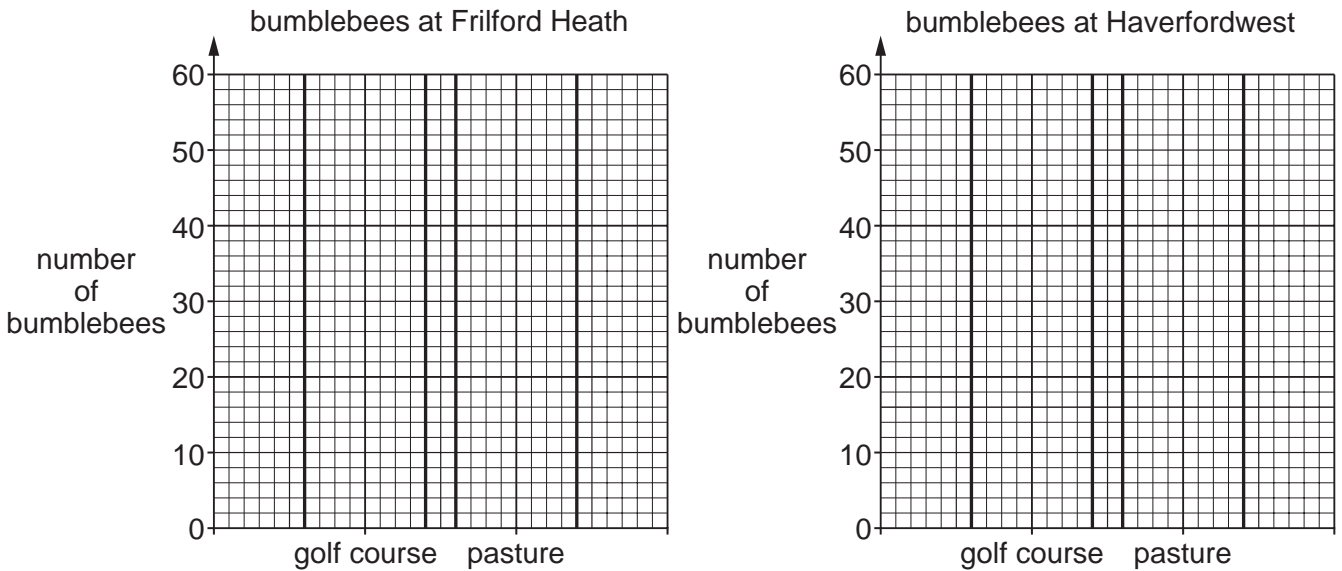
..... [1]

- 16 The table shows the number of bumblebees collected from two golf courses and the pastures from which the courses were constructed.

The area sampled was the same in each case.

golf courses	number of bumblebees	
	on the golf course	on the pasture
Frilford Heath	25	10
Haverfordwest	55	30
totals	.....	.....

- (a) Plot bar charts of these results on the grids below by shading between the bold vertical lines.



[2]

- (b) Look at the numbers in the table.

How does the **total** number of bumblebees found on the two golf courses compare with the **total** number on the pastures?

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

17 The photograph shows a roundabout in the new town of Bracknell.

The local council encourages planting on larger roundabouts, rather than leaving them as mown grass.



© Institute of Biology

(a) Suggest **one** advantage of planting on roundabouts.

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

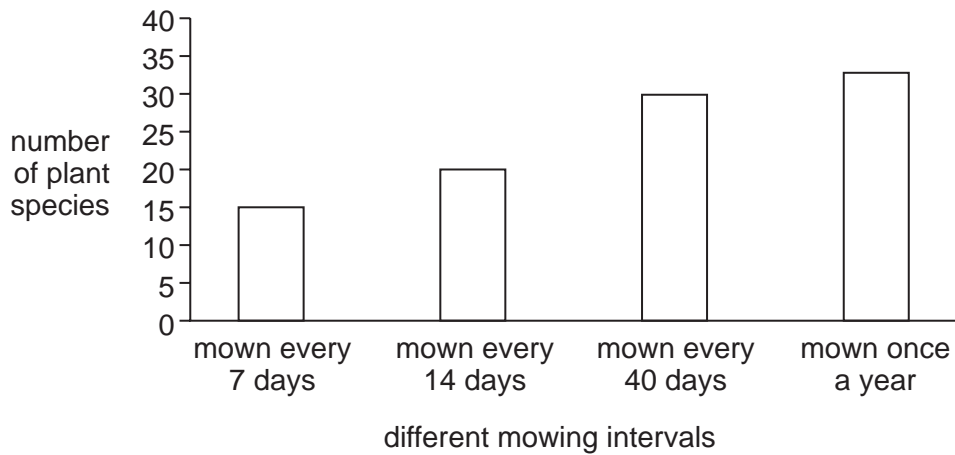
(b) Suggest **one** disadvantage of planting on roundabouts.

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



(c) Roundabouts covered in grass were mown at different intervals of time.

The bar chart compares the numbers of plant species found on roundabouts with different mowing intervals.



Mowing at different intervals has an effect on the number of species.

State **two** general conclusions that can be made from the bar chart.

Use ideas about the relationship between mowing intervals and number of plant species.

- 1 .....
- .....
- 2 .....
- ..... [2]

18 This headline appeared in a newspaper.

Will the lights go out in the UK next winter?

**UK faces energy shortage**

politicians, scientists and environmentalists  
in crisis talks to avert a national disaster

Suggest reasons why there may be an energy shortage in the UK.

.....

.....

.....

..... [2]

19 The photograph shows a commercial glasshouse.

It is used for growing crops all year round. The crops are grown intensively.



© Hobsons Publishing

(a) State **two** ways in which energy is used in this glasshouse.

- 1 .....
- .....
- 2 .....
- ..... [2]

(b) Suggest how the use of ICT might help to save energy in this glasshouse.

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

20 Farmers can now receive additional funding for growing 'energy crops'.

Describe how crops can be used to produce electrical energy.

.....

.....

.....

.....

.....

.....

..... [3]

**END OF QUESTION PAPER**

---

Copyright Acknowledgements:

- Q. 9. E Carter & J Stansfield, 1994. Photograph of *Combine Harvester*. © Farming Press Ltd.
- Q. 10. J Fisher. Photograph of *White Tailed Eagle and Osprey*, Thorburn's Birds, Plate 25. Ebury Press 1967. © George Rainbird Ltd.
- Q. 13. Photograph of Farming *Causing Damage to Hadrians Wall*, from Farming the Historic Landscape P. 16, Photo 33. Jan 2005. English Heritage.
- Q. 14. Photograph of *Intensive Farm Landscape*, from Eat the View, Aug 2002. © Countryside Agency. [www.countryside.gov.uk](http://www.countryside.gov.uk)
- Q. 14. Photograph of *Extensive Farm Landscape* in Poland, from Eat the View, Aug 2002. © Countryside Agency. [www.countryside.gov.uk](http://www.countryside.gov.uk)
- Q. 15. Photograph of *Donkeys in Field*, April 2003. From Biologist, Vol 50, No.2, Page 64. © Institute of Biology.
- Q. 15. Photograph of *Golf Course at Gleneagles* Scotland, April 2003. From Biologist, Vol 50, No.2, Page 64. © Institute of Biology.
- Q. 17. Photograph of *Roundabout in Bracknell, Berks*, May 2005. From Biologist, Vol 52, No.2, Page 102. © Institute of Biology.
- Q. 19. Photograph of *Commercial Greenhouse*, from About Modern Farming Page 21, J Battersby & D Tilly, 1987. © Hobsons Publishing.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

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.