

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

B493/01

Management of the Natural Environment
(Foundation Tier)

**Wednesday 21 January 2009
Afternoon**

Duration: 45 minutes

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

OCR Supplied Materials:
None

Other Materials Required:

- Electronic calculator
- 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

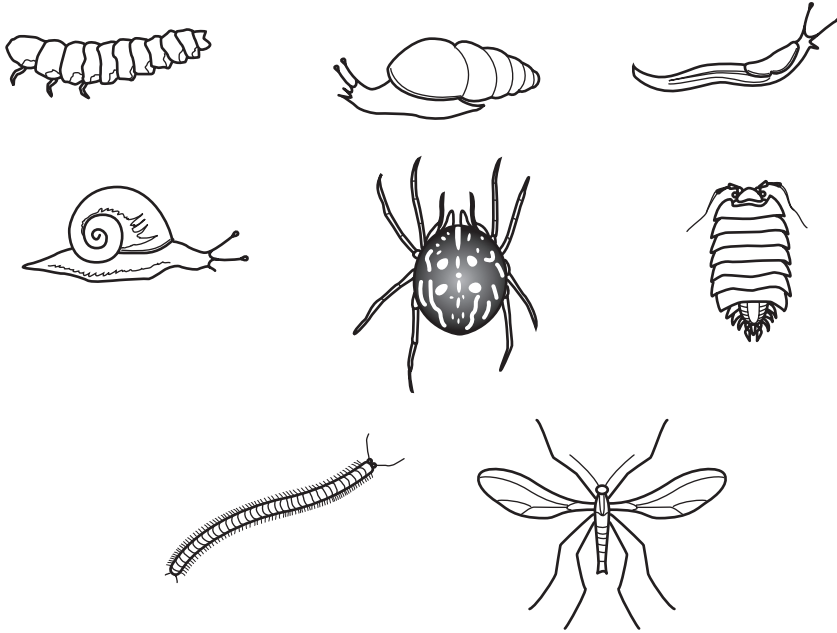
- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **36**.
- This document consists of **20** pages. Any blank pages are indicated.

FOR EXAMINER'S USE		
		Mark
TOTAL	36	

Answer **all** the questions.

1 Some animals such as the slug and woodlouse live in the soil.

Put **rings** around the **slug** and the **woodlouse**.



(animals not drawn to scale)

[1]

2 Rocks are weathered by biological, chemical and physical agents.



Put an **X** on the diagram above to show where **physical** weathering is taking place.

Make sure the **X** can be clearly seen.

[1]

3 Which of the following are nitrogen fixing plants used in crop rotation?

- A legumes
- B organic
- C producers
- D vegetables

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

4 Food chains show how plants and animals can be linked.

Which is the **producer** in the chain below?

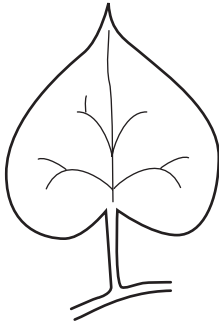
- A sunlight giving energy for a plant
↓
- B grass giving food for a cow
↓
- C a cow giving milk for a farmer
↓
- D a dairy making yoghurt for a supermarket

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

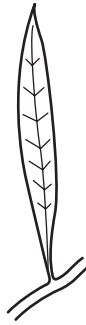
5 Plants are adapted to the place where they live.

Put a **ring** around a suitable leaf, **A**, **B**, or **C**, and the most suitable root system **X**, **Y**, or **Z**, a plant might have to allow it to grow in a **hot, dry** climate.

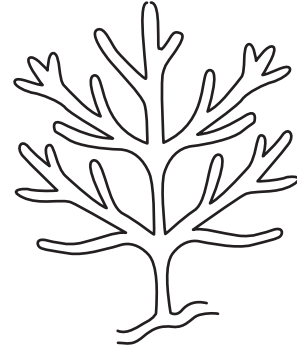
leaves



A

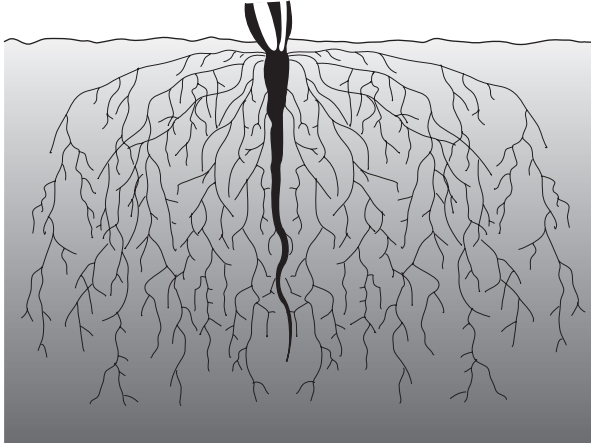


B

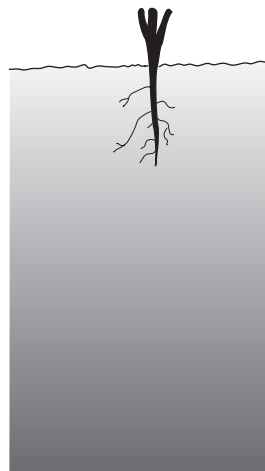


C

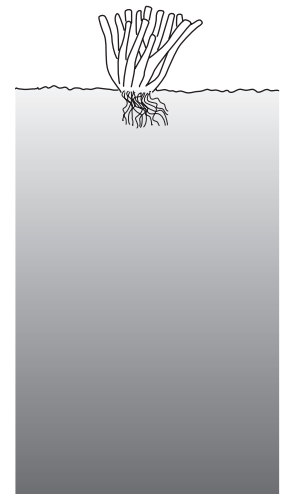
roots



X



Y



Z

[2]

6

6 Soil indicator is used when carrying out a pH test. It changes colour at different pH values.

What colour would you expect to see at the following pH values?

Choose from the list below. Write the colour in the box next to the correct pH value. Use each colour only once.

red

brown

green

orange

blue

purple

pH 3

pH 5

pH 7

pH 10

[2]

7 Students are going to carry out an investigation into weed killers.

They use the school playing field.



© iStockphoto.com / Stephen Bonk

The students need to work safely.

Which **two** of the following instructions should be given to them?

Put ticks (✓) in the boxes next to the correct answers.

- Do not eat when working.
- Do not talk when working.
- Take a pencil to record results.
- Take a watch to tell the time.
- Wash hands before starting work.
- Wash hands after completing work.
- Wear woollen gloves.
- Work in pairs.

[2]

8 The photograph shows 'mixed cultivation'.



© OCR

What is meant by 'mixed cultivation'?

.....

.....

.....

..... [2]

9 The picture shows a wind farm.



© iStockphoto.com / Terrance Emerson

State **one** environmental reason why people object to wind farms.

..... [1]

10 Read the following newspaper headline.

**WIND FARMS ARE NOT THE SOLUTION
TO OUR ENERGY NEEDS**

Some scientists object to using wind turbines for electricity production.

Suggest a scientific reason why wind farms may **not** be able to meet our future energy needs.

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

11 The photograph shows two tools used for controlling weeds in a vegetable garden.



© iStockphoto.com / Samuel Micut

Give **two** reasons why weeds have to be controlled in a garden.

1

.....

2

..... [2]

12 The use of mulch, hoes and black polythene sheeting are all 'cultural' methods of weed control.

The photograph shows clear polythene sheeting being used on a field in early spring.



© OCR

Give **one** reason why this clear polythene would **not** be useful in controlling weeds.

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

13 The photographs show two farming landscapes.



© iStockphoto.com / fotoVoyager



© iStockphoto.com / Matthew Dixon

The removal of the **hedgerows** helps the farmer to make more money from monoculture.

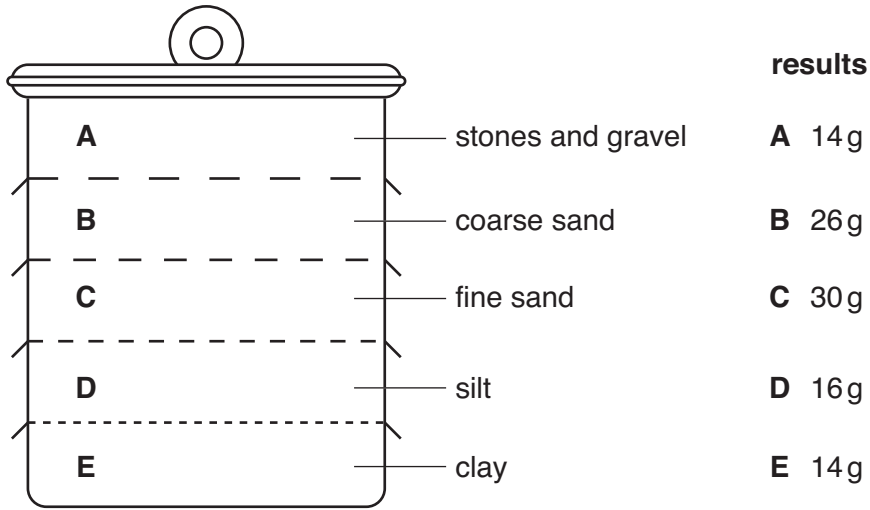
Describe one other **advantage** to the farmer of removing hedgerows.

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

14 Soil sieves are used to separate the parts of a soil sample.

The drawing shows a section through a set of soil sieves.

The results of sieving 100 g of soil are given.



(a) Describe the type of soil indicated by this analysis.

..... [1]

(b) State **two** properties of a clay soil.

1

.....

2

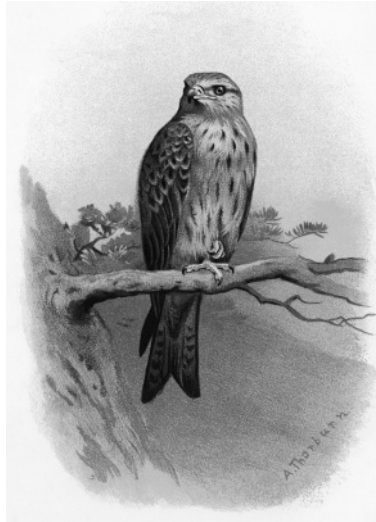
..... [2]

15 Raptors are birds of prey.

Their numbers have increased by over 40% in the last ten years.

This is because

- new laws protect raptors and the environment
- birds like the red kite are being reintroduced.



© Sheila Terry / Science Photo Library

red kite

State how the increase in raptors might affect the pyramid of numbers in the environment.

.....

..... [1]

16 The table compares details of four organisations that are concerned with conservation.

organisation	logo initial	year started	charity	activities		area of activity	main finance
				conserve wild life	run nature reserves	key: U= UK W= world	key: S = member subscriptions D = business donations G = government
English Nature	EN	1990	no	yes	yes	U	G
Rare Breeds Survival Trust	RBST	1973	yes	no	no	U	S
Royal Society for the Protection of Birds	RSPB	1897	yes	yes	yes	U	S
World Wildlife Fund	WWF	1961	yes	yes	yes	W	D

(a) Which is the oldest conservation organisation?

..... [1]



(b) Which organisation is a UK-based charity that relies on membership subscriptions to run nature reserves?

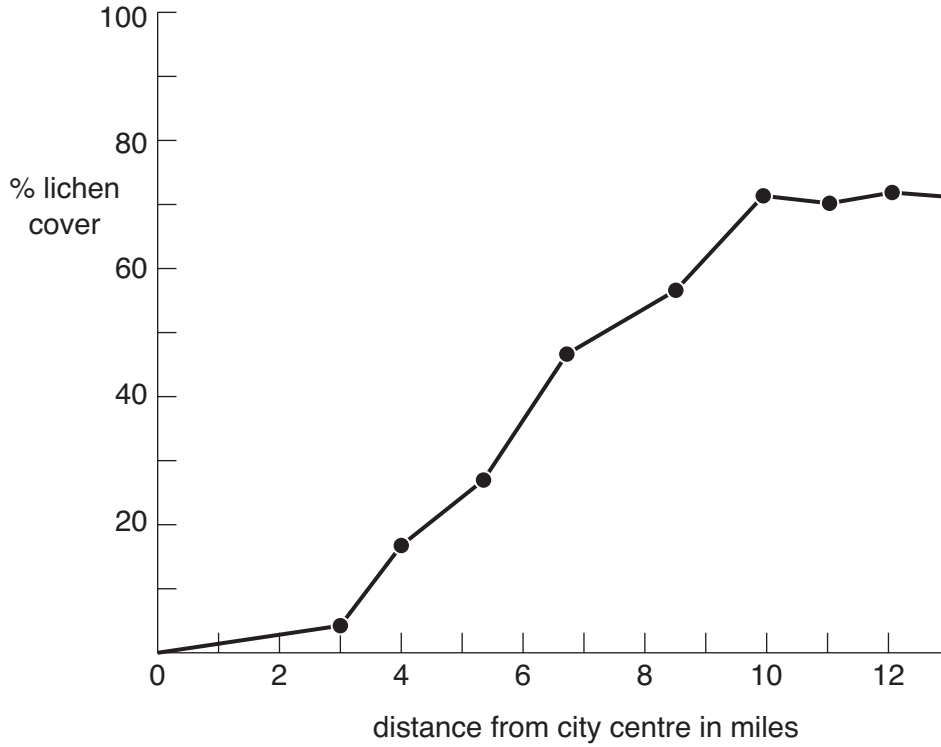
..... [1]

17 Lichens are simple plant-like organisms.

Some grow on walls and roofs.

Most lichens only grow well in clean air.

The graph shows the amount of lichen cover in and around a city.



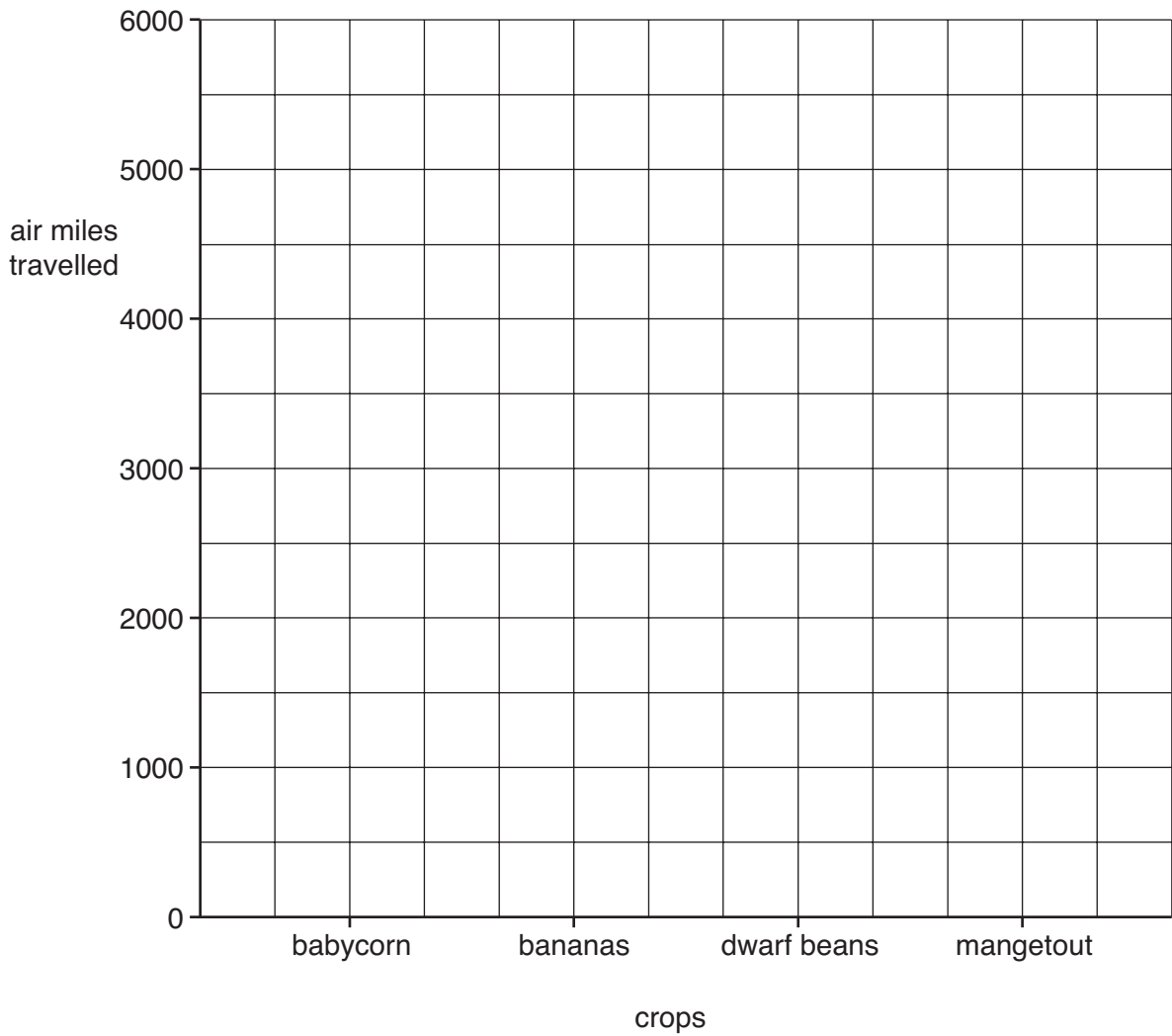
State two conclusions about **air pollution** in this city that can be made from this graph.

- 1
 - 2
- [2]

18 The table shows some information about imported organic foods.

organic food	country of origin	air miles
mangetout	Zambia	4 900
green beans	Egypt	2 200
babycorn	Thailand	5 900
dwarf beans	Kenya	4 000
tomatoes	Spain	1 000
bananas	Jamaica	4 500

Use the information in the table to complete the bar chart.



[2]

19 Describe what is meant by the term **organic food**.

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

20 85% of Britain's organic produce is licensed by the Soil Association.



Should organically grown produce that is flown long distances be licensed by the Soil Association?

Give reasons **for** and **against**.

for

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

against

.....
.....
..... [3]

21 The photograph shows some old farm buildings in a national park.



© iStockphoto.com / Frank Daugherty

Why preserve old farm buildings?

.....

.....

.....

.....

.....

.....

..... [3]

END OF QUESTION PAPER

19
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PLEASE DO NOT WRITE ON THIS PAGE



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Q13 Image 2	© iStockphoto.com / Matthew Dixon
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Q20	Soil Association, www.soilassociation.org
Q21	© iStockphoto.com / Frank Daugherty

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