

Friday 16 June 2017 – Morning

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B681/01 Management of the Natural Environment (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

- Pencil
- Ruler (cm/mm)
- Calculator

Duration: 1 hour



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. 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. If additional space is required, you should use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the barcodes.

INFORMATION FOR CANDIDATES

- The 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 Wasps are common insects across the UK.
They have adapted to take advantage of a range of habitats.



Which characteristic will enable wasps to survive in a range of habitats?

The wasp

- A has long wings
- B does not contain blood
- C eats a wide range of food
- D has good hearing

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

[Total: 1]

3

2 Scientists monitor the size of mammal populations.
They notice that numbers are affected by the average (mean) winter temperature.

Give **three** reasons why a cold winter might reduce the numbers of a mammal.

1

.....

2

.....

3

.....

[3]

[Total: 3]

3 (a) A commercial orchard is an example of an **artificial** ecosystem.

Why might the biodiversity of an artificial ecosystem be lower than in a natural ecosystem?

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

(b) A commercial orchard is a form of intensive production.

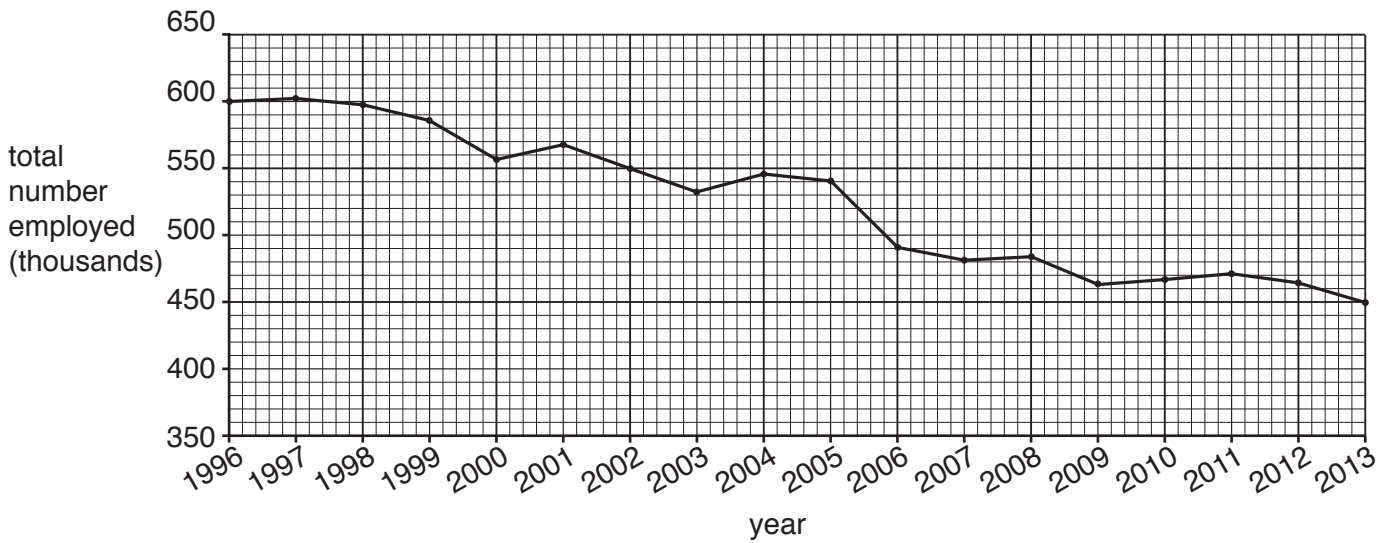
Give **three** environmental disadvantages of this intensive production.

1
.....
2
.....
3
..... [3]

[Total: 4]

- 4 The graph shows the total number of people employed on farms in the UK between 1996 and 2013.

Total farm employment 1996–2013



- (a) Describe the trend in employment on farms in the UK between 1996 and 2013.

.....
 [1]

- (b) Calculate the percentage change in the number of people employed in farming between 1996 and 2013.

Show your working.

percentage change = % [2]

- (c) Official data shows that between 1996 and 2013 there was a slight increase in the amount of production (yield) on UK farms.

Explain how changes on farms might have made this possible.



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

..... [6]

[Total: 9]

5 The table shows an estimate of water use by industry in England and Wales over a year.

Industry	Mains water supply (million m ³)	Natural water sources (million m ³)	Total water used (million m ³)
Agriculture, fishing and farming	149	1351	1500
Energy	28	3672	
Education and health	176	24	200
Food, drink and tobacco	122	98	220
Hotels and restaurants	137	3	140
Commercial and public services	311	49	360
Other	352	1028	1380
Total	1275	6225	7500

(a) Complete the missing total for total water used for 'energy' in the table above. [1]

(b) The agriculture, fishing and farming industries are large users of water.

What proportion of the total do they use?

Circle the correct answer below.

5% 15% 20% 1500% [1]

(c) Suggest **two** different ways that large amounts of water are used on a dairy farm.

1

2

[2]

(d) Greenhouse crops such as tomatoes need large amounts of water.

Water can be obtained from a variety of sources.

Describe the ways a grower could obtain water of a suitable quality for their crops.



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

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

[6]

[Total: 10]

6 Working in agriculture can be dangerous.

It is important to identify hazards and minimise the risks.

List **four** things that should be considered when planning to move sheep safely into a new field.

1

2

3

4

[4]

[Total: 4]

- 7 The government is investing in alternative ways of generating electricity.

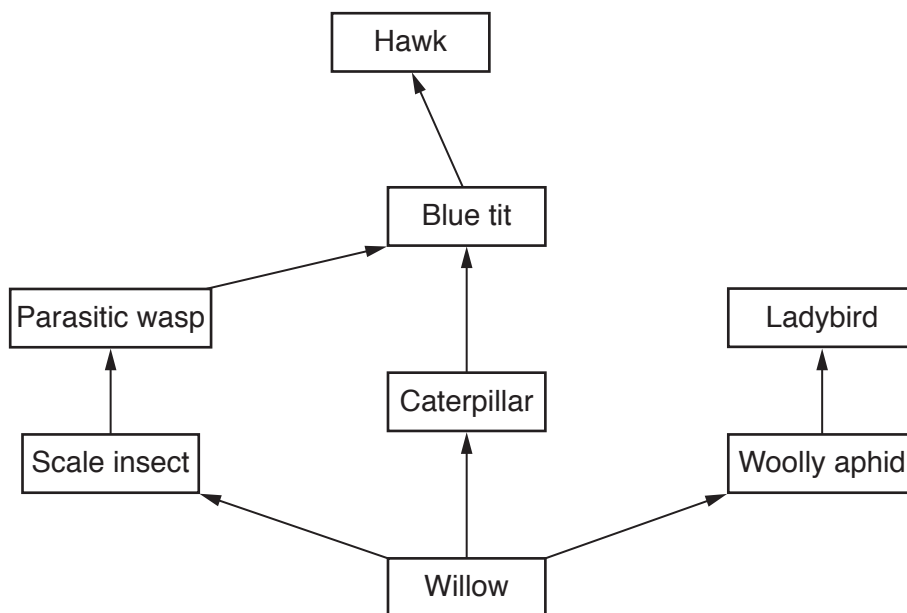
For each of the following energy sources, name **one** method that could be used to generate electrical energy.

Energy source	Method
Wind	
Water	
Sun	
Crops	

[4]

[Total: 4]

8 (a) The diagram shows part of a food web.



The population of each part of the food web would be affected if there was a large reduction in the numbers of blue tits.

Describe how each part of the food web would be affected and explain why.



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

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

(b) Experts are concerned about the decrease in numbers of birds such as blue tits.

Which **one** of the following conservation bodies is most likely to keep a record of bird numbers?

- A National Trust
- B Natural England
- C RBST
- D RSPB

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

[Total: 7]

9 Some students investigate the properties of soil in a field.

They test the soil pH.

The results are shown below:

Student	A	B	C	D	E	F	G	H
Soil pH	6.4	6.3	6.4	7.2	5.9	6.0	6.4	6.6

(a) What is the range of pH?

..... [1]

(b) Calculate the mean of these results.

..... [1]

(c) The students suspect one of these results is anomalous (inaccurate) and decide to leave it out of their calculations.

(i) Which result should they leave out?

..... [1]

(ii) Calculate the **new** mean pH.

..... [1]

(d) The students read that the crops they plan to grow need a neutral soil.

What would be the most effective way of making the pH of this soil neutral?

..... [1]

[Total: 5]

10 Here are some of the common terms for different cultivation methods.

Inorganic cultivation
Mixed cultivation
Monoculture
Organic production
Genetically Modified production

Choose the term which best fits each of these descriptions:

The same crop type is grown each year

The crops are only given farm yard manure (FYM)

The varieties used have been artificially created in a laboratory

[3]

[Total: 3]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

A large area of lined paper for writing. It features a vertical solid line on the left side, creating a margin. The rest of the page is filled with horizontal dotted lines, providing space for writing answers.

A large rectangular area with a solid vertical line on the left side and horizontal dotted lines extending across the page, providing a space for writing answers.



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.