

**Wednesday 21 June 2017 – Morning**

**GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE**

**B683/02** Commercial Horticulture, Agriculture and Livestock Husbandry  
(Higher Tier)

Candidates answer on the Question Paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Pencil
- Ruler (cm/mm)
- Calculator

**Duration:** 1 hour



|                       |  |  |  |  |  |                      |  |  |  |  |  |
|-----------------------|--|--|--|--|--|----------------------|--|--|--|--|--|
| Candidate<br>forename |  |  |  |  |  | Candidate<br>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.

**BLANK PAGE**

**PLEASE DO NOT WRITE ON THIS PAGE**

3

Answer **all** the questions.

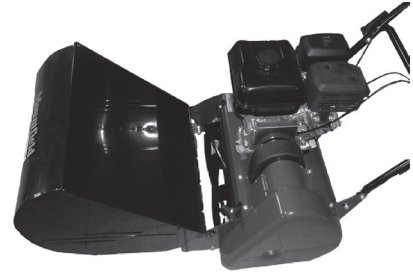
- 1 The photographs show three types of lawnmower.



A



B



C

- (a) (i) Which of the mowers is most suitable for cutting fine grass such as a bowling green?

.....

[1]

- (ii) Suggest **two** reasons why this mower is most suitable for a bowling green.

1 .....

.....

2 .....

.....

[2]

- (b) Suggest **one** advantage and **one** disadvantage of a petrol lawnmower over an electric lawnmower.

Advantage

.....

.....

Disadvantage

.....

.....

[2]

4

(c) Match the lawn types below to the grass mixture in the table.

**bowling green/fine lawn**

**family Lawn**

**football pitch**

Write your answers in the table.

| Grass mixture                                               | Lawn type |
|-------------------------------------------------------------|-----------|
| 45% - Dwarf Rye Grass<br>45% - Creeping Fescue<br>5% - Bent |           |
| 90% - Dwarf Fescue<br>10% - Bent                            |           |
| 70% - Perennial Rye Grass<br>30% - Creeping Fescue          |           |

[2]

(d) To grow a fine lawn from seed grass, seed is applied at a rate of 70g per m<sup>2</sup>.

Grass seed is sold by the kg and costs £8.90 per kg.

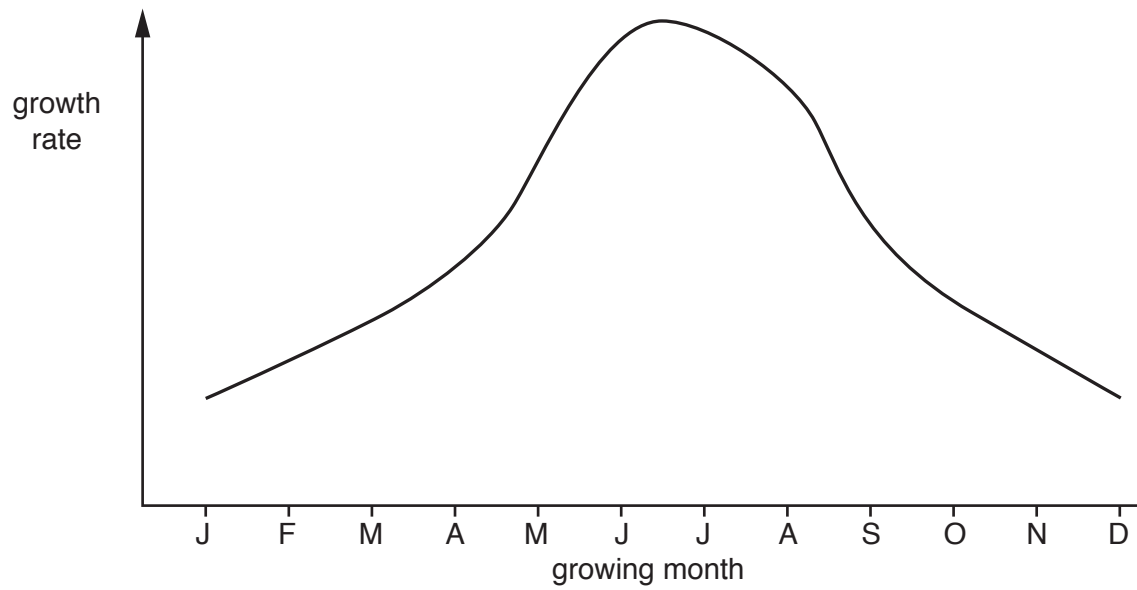
Calculate the cost of sowing a lawn that is 16m × 14m.

Show your working.

cost of lawn = £ ..... [2]

5

(e) The graph shows the growth rate of grass over a typical year.



Suggest reasons for the pattern of growth rate as shown.

.....

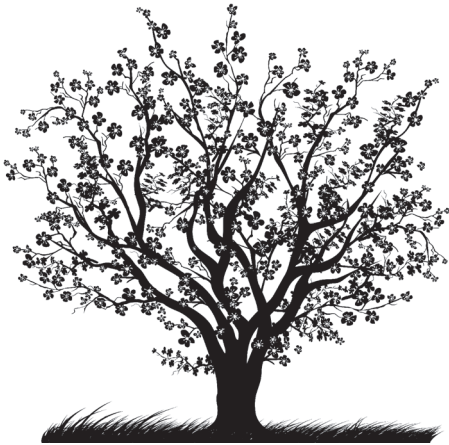
.....

.....

..... [2]

[Total: 11]

2 The diagrams show trees used in parks, gardens and street planting.



(a) State **two** tasks that might be needed to keep these trees healthy for many years.

1 .....

2 .....

[2]

7

- (b) Describe how these and other trees you have studied can be used to provide interest at different times of the year.



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

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

[Total: 8]

- 3 Most tomatoes grown in the UK are produced in glasshouses.



Growing tomatoes in glasshouses is more expensive than growing outside.

- (a) Explain why growers use a glasshouse although it is more expensive than growing outside.

.....

.....

.....

..... [2]

- (b) Suggest how automation in the greenhouse can be used to reduce labour costs.

.....

.....

.....

..... [2]

[Total: 4]

- 
- RBST**  
Rare Breeds Survival Trust

- 

[6]

- ..... [2]

**Turn over**

- 5 The photograph shows a vet examining a pregnant cow.



- (a) Explain why the diet of a pregnant animal is different from that of a non-pregnant animal of the same age.

.....

.....

.....

.....

.....

.....

..... [3]

11

- (b) Suggest why many farmers use artificial insemination (AI) rather than keeping a male animal for breeding.

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

- (c) (i) What is meant by the term cloning?

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

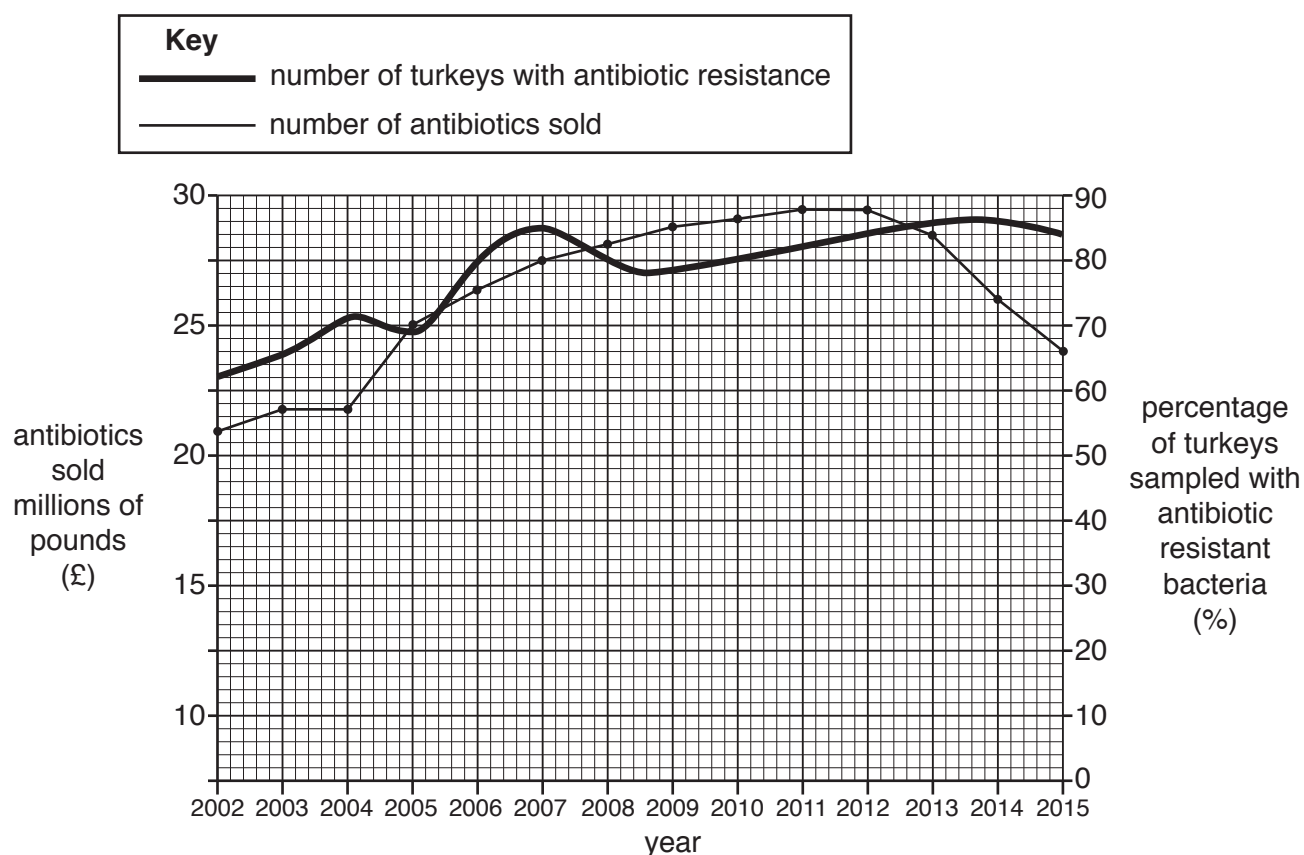
- (ii) Why are some people concerned about the use of cloning in animal breeding?

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

[Total: 6]

- 6 The graph shows the sale of antibiotics for use on turkeys between 2002 and 2015.

The graph also shows the percentage of turkeys sampled which were found to have antibiotic resistant bacteria between 2002 and 2015.



- (a) What does the graph suggest about the relationship between antibiotic use and the occurrence of antibiotic resistant bacteria in turkeys?

.....

.....

.....

..... [2]

13

- (b) Explain how the over use of antibiotics can influence antibiotic resistance.

.....

.....

.....

..... [2]

- (c) By what percentage does the number of turkeys with antibiotic resistant bacteria increase between 2002 and 2015?

..... % [1]

- (d) Suggest how the evidence in the graph might influence the use of antibiotics on turkeys in the future.

.....

.....

.....

..... [2]

[Total: 7]

Using examples from livestock you have studied, explain the different roles hormones play in the stages of reproduction from oestrus (coming into heat) to lactation (producing milk for the baby).



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

..... [6

**END OF QUESTION PAPER**



This image shows a blank sheet of white paper designed for writing. It features a series of evenly spaced horizontal blue lines across its entire width. A single vertical blue line runs down the left side, creating a narrow margin. The paper is otherwise completely empty, with no text or markings.

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