

## Wednesday 21 June 2017 – Morning

### GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

**B683/01** Commercial Horticulture, Agriculture and Livestock Husbandry  
(Foundation Tier)

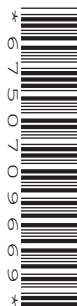
Candidates answer on the Question Paper.

**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 **12** pages. Any blank pages are indicated.

2

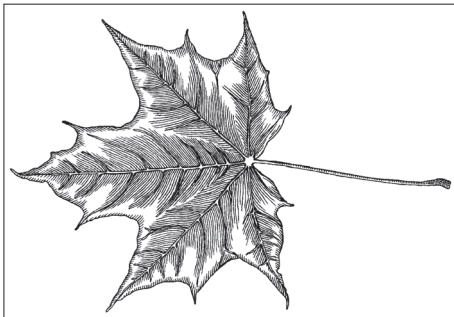
Answer **all** the questions.

- 1 (a) The diagrams show trees used in parks, gardens and street plantings.

Draw a straight line to connect the tree leaf to its correct name.



**Acer**



**Birch**



**Cherry**



**Beech**

[3]

- (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]

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

1 .....

2 ..... [2]

**[Total: 11]**

4

- 2 (a) There are many reasons why a plant may be unhealthy.

Here is a list of some of them:

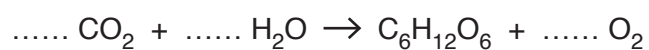
Lack of -                      **light**                      **nutrients**                      **water**

Use the list to match each symptom with its likely cause.

| Symptom                            | Cause |
|------------------------------------|-------|
| Plant is wilting                   |       |
| Plant growth is yellow and stunted |       |
| Plant growth is yellow and long    |       |

[2]

- (b) Balance the following equation for photosynthesis.



[1]

[Total: 3]

5

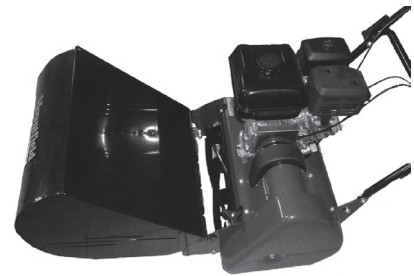
3 The photographs show three types of lawnmower.



A



B



C

(a) Write the correct letter for each mower in the spaces provided.

(i) Which **two** of the mowers are rotary mowers?

..... and .....

[1]

(ii) Which **one** of the mowers is a hover mower?

.....

[1]

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

.....

[1]

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

Advantage

.....  
 .....

Disadvantage

.....  
 .....

[2]

[Total: 5]

6

- 4 (a) Growers use a range of methods of protected cultivation.

These include: glasshouses,  
polytunnels,  
cloches  
fleece.

Explain how **and** why growers use each of these.



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

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

- (b) The table shows the costs of treating whitefly in a glasshouse using biological and non-biological methods.

|                          |                            | Biological methods | Non-biological methods |
|--------------------------|----------------------------|--------------------|------------------------|
| Treatment material costs | Per pot                    | 95p                | 7p                     |
|                          | Per m <sup>2</sup> of pots | £5.70              | 42p                    |
| Labour costs             | Per pot                    | 12p                | 15p                    |
|                          | Per m <sup>2</sup> of pots | 72p                | 90p                    |
| Total costs              | Per pot                    | £1.07              | 22p                    |
|                          | Per m <sup>2</sup> of pots | £6.42              |                        |

- (i) Using the information in the table calculate the total cost of treating a square metre of whitefly using **non-biological methods**.

..... [1]

- (ii) How many pots per m<sup>2</sup> were in the glasshouse?

..... pots [1]

- (iii) Use the information in the table to compare the relative costs of both methods of treating whitefly.

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

- (iv) What other information would you need before deciding which was the best method to control the whitefly?

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

[Total: 12]

- 5 (a) Deficiencies in certain vitamins and minerals in an animal's diet can lead to ill health.

Fill in the gaps in the table to match the vitamin or mineral with the problem caused by its deficiency in the diet.

The first has been done for you.

| Vitamin or Mineral | Deficiency Problem |
|--------------------|--------------------|
| Vitamin A          | Poor eye sight     |
| Vitamin .....      | Scurvy             |
| Vitamin D          | .....              |
| Mineral .....      | Anaemia            |
| Mineral Calcium    | .....              |

[4]

- (b) What is meant by a 'balanced diet'?

.....

.....

.....

..... [2]

[Total: 6]

- 6 Use the correct terms below to fill in the blanks in this description of mating.

**ovary          oviduct          testes          sperm duct          uterus**

Sperm produced in the ..... travels down the ..... and is released inside the female.

In the female, eggs produced in the ..... travel down the ..... towards the ..... where they meet the sperm.

[3]

[Total: 3]

**7 (a)** Many farmers regularly weigh their animals.

For a farm animal you have studied, describe how to safely weigh that animal and explain why it is important to know an animal's weight.

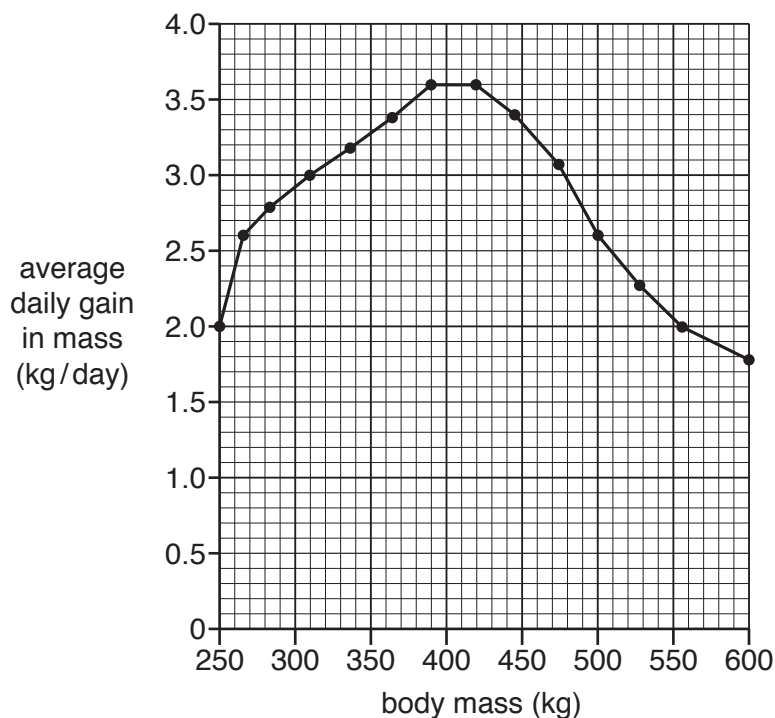


The quality of written communication will be assessed in your answer to the question.

[6]

10

- (b) The graph shows the results of an investigation to find how the daily gain in mass of a beef animal changes as its body mass increases.



- (i) Use the graph to describe how the animal's daily gain in mass changes as its body mass increases.

Use figures from the graph in your explanation.

.....

.....

.....

..... [2]

- (ii) What is the maximum average daily gain in mass?

..... kg/day [1]

- (iii) How much did the animal increase in mass over the time period of the investigation?

..... kg [1]

[Total: 10]

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 red line runs down the left side, creating a narrow margin. The paper is otherwise completely empty, with no text or markings.

### Copyright Information

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.