



Oxford Cambridge and RSA

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**Friday 15 June 2018 – 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

**Duration:** 1 hour

**Other materials required:**

- Pencil
- Ruler (cm/mm)
- Calculator



Candidate forename						Candidate surname					
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Centre number						Candidate number					
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**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**

- Your 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 The photograph shows horticultural fleece.



Horticultural fleece is often used to cover growing crops.

Which one of the following is a reason to use horticultural fleece?

Put a tick (✓) in the box next to the correct answer.

To absorb more light

To extend the growing season

To protect crops from soil pests

To reduce weed growth

[1]

**[Total: 1]**

2 Tomato plants can be grown in soil or hydroponics.

(a) Give **two** reasons why it is a bad idea to grow tomato plants in the same soil for many years.

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

[2]

(b) Suggest ways growers might overcome the problem of growing plants in the same soil.

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

[2]

- (c) Hydroponics is increasingly used in commercial horticulture.



One advantage of hydroponics is that the growing medium can be controlled by ICT.

Describe ways in which ICT can be used to control hydroponic systems.

.....

.....

.....

.....

.....

.....

[3]

[Total: 7]

- 3 Hanging baskets are a particularly harsh environment for plants to grow well.



Explain how the compost might be improved to help the plants cope with this harsh environment.

---

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[2]

**[Total: 2]**

- 4 Animal breeds have been improved over many years by selective breeding.

Explain why selective breeding can cause health problems in animals.

.....

.....

.....

[2]

[Total: 2]

- 5 (a) A disease that can be caught by humans from animals is called a zoonosis.

Name **two** diseases that can be caught by the farmer from handling farm animals.

1. ....

2. ....

[2]

- (b) Good animal husbandry involves reducing the chances of catching disease from farm animals.

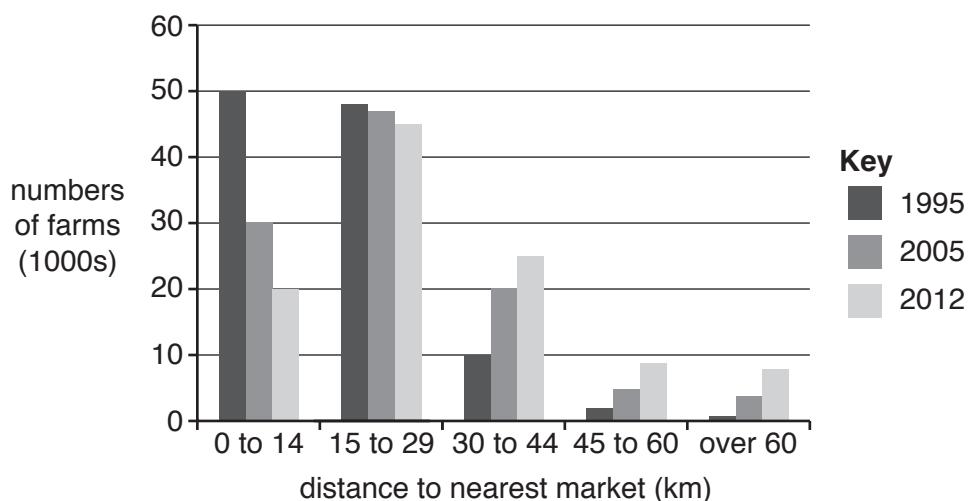
Describe ways a farmer can reduce the chances of catching disease from farm animals.

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

.....

[Total: 4]

- 6 Farmers may need to take their livestock to market.



Markets can be close to the farm or miles away.

The chart shows the distance from the farm to the nearest market in different years.

- (a) Describe and explain the trends shown in the chart.

.....

.....

.....

.....

.....

.....

[3]

- (b) How may the change in distance to the nearest market impact on animal welfare and their legal transport?

.....

.....

.....

.....

[2]

**[Total: 5]**

- 7 Mowers come in a range of sizes, power sources and cutting methods.

These mowers are used on different types of lawn including family lawns, bowling greens, sports fields and rough grass.



Explain how you would decide which type of mower was appropriate for a particular type of lawn.



*The quality of written communication will be assessed in your answer.*

[6]

[Total: 6]  
Turn over

10

- 8 One way to produce a new lawn is to use turf.

# Greengrass Turf Supplies

High quality turf for an instant lawn.  
£3.99 for 1 m<sup>2</sup>

- (a) What would it cost to buy enough turf for a lawn 6.1 m × 6.5 m?

Show your working.

£ ..... [2]

- (b) The supplier has a bargain offer of 20 m<sup>2</sup> for £70.

Is the bargain offer a good deal? Explain your answer.

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

- (c) An alternative method to using turf is to grow the lawn from seed.



This grass seed is sold only in a box of 500 g.

A 500 g box of grass seed costs £4.48

The seed is applied at a rate of 35 g/m<sup>2</sup>.

How much would it cost to produce a 6.1 m × 6.5 m lawn from these boxes of seed?

Show your working.

[2]

- (d) Use your answers to compare the relative costs of producing a lawn from seed and turf.

.....

.....

.....

.....

[2]

[Total: 7]

## 12

- 9 The table shows how the numbers of different livestock in the UK have changed between 1999 and 2011.

Animal	Numbers of livestock in thousands					% change 1999–2011
	1999	2002	2005	2008	2011	
Cattle	11423	10345	10770	10107	9933	-13%
Sheep	44656	35834	35416	33131	31634	
Pigs	7284	5588	4862	4713	4441	-39%

- (a) Calculate the missing percentage change from the table.  
Write your answer in the table.

[1]

- (b) Explain which piece of data appears to be anomalous in the table.

.....  
.....

[1]

- (c) Suggest reasons why the numbers of pigs has gone down by 39%.

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

[2]

[Total: 4]

- ## 10 Animals have similar nutritional needs.

Cattle are ruminants.

Although the digestive systems of pigs and cattle are different, they both need to obtain protein from their diet.



Explain why pigs require more protein in their diet than cattle.

In your answer refer to the differences in their digestive systems.



*The quality of written communication will be assessed in your answer.*

. [6]

[Total: 6]

- 11 Artificial insemination and embryo transplanting are used increasingly in livestock husbandry.

More people are concerned about embryo transplants than artificial insemination.

Describe these **two** methods of livestock husbandry and suggest why there are more ethical concerns about using embryo transplants.



*The quality of written communication will be assessed in your answer.*

16

. [6]

[Total: 6]

**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).





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