

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GCSE**

**B683/01**

**ENVIRONMENTAL AND  
LAND-BASED SCIENCE**

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

**THURSDAY 19 JUNE 2014: Afternoon**

**DURATION: 1 hour  
plus your additional time allowance**

**MODIFIED ENLARGED**

<b>Candidate forename</b>		<b>Candidate surname</b>	
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<b>Centre number</b>						<b>Candidate number</b>				
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**Candidates answer on the Question Paper.  
A calculator may be used for this paper.**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Pencil**

**Ruler (cm/mm)**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

**Write your name, centre number and candidate number in the boxes on the first page. 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. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

## **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.**

**Any blank pages are indicated.**

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**Answer ALL the questions.**

**1 The photographs show four trees used in parks and gardens.**

**A**



**B**



**C**



**D**



**Draw a straight line from the NAME of each tree to the letter representing its PHOTOGRAPH.**

<b>NAME</b>	<b>PHOTOGRAPH</b>
<b>Acer</b>	<b>A</b>
<b>Beech</b>	<b>B</b>
<b>Birch</b>	<b>C</b>
<b>Cherry</b>	<b>D</b>

**[3]**

**[TOTAL: 3]**

**2 Tomato plants can be grown in a glasshouse.**

**(a) Healthy plants need light.**

**Why do plants need light?**

\_\_\_\_\_ [1]

**(b) Name TWO other things plants need for healthy growth.**

\_\_\_\_\_  
\_\_\_\_\_ [2]

**(c) Give ONE way the grower could:**

**increase the amount of light the tomato plants receive in the glasshouse**

**reduce light levels if it is too bright.**

**Increase light levels \_\_\_\_\_**

**Reduce light levels \_\_\_\_\_**  
[2]

**[TOTAL: 5]**

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**TURN OVER FOR QUESTION 3**

**3 The photographs show four different types of mower.**



**A**



**B**



**C**



**D**

**Mowers can be described in many different ways.**

**Use TWO labels from the list below to describe each type of mower.**

**Each label can be used more than once.**

**SIDE-WHEEL**

**HOVER**

**CYLINDER**

**ROTARY**

**PETROL**

**ELECTRIC**

**Mower A** \_\_\_\_\_ **and** \_\_\_\_\_ .

**Mower B** \_\_\_\_\_ **and** \_\_\_\_\_ .

**Mower C** \_\_\_\_\_ **and** \_\_\_\_\_ .

**Mower D** \_\_\_\_\_ **and** \_\_\_\_\_ .

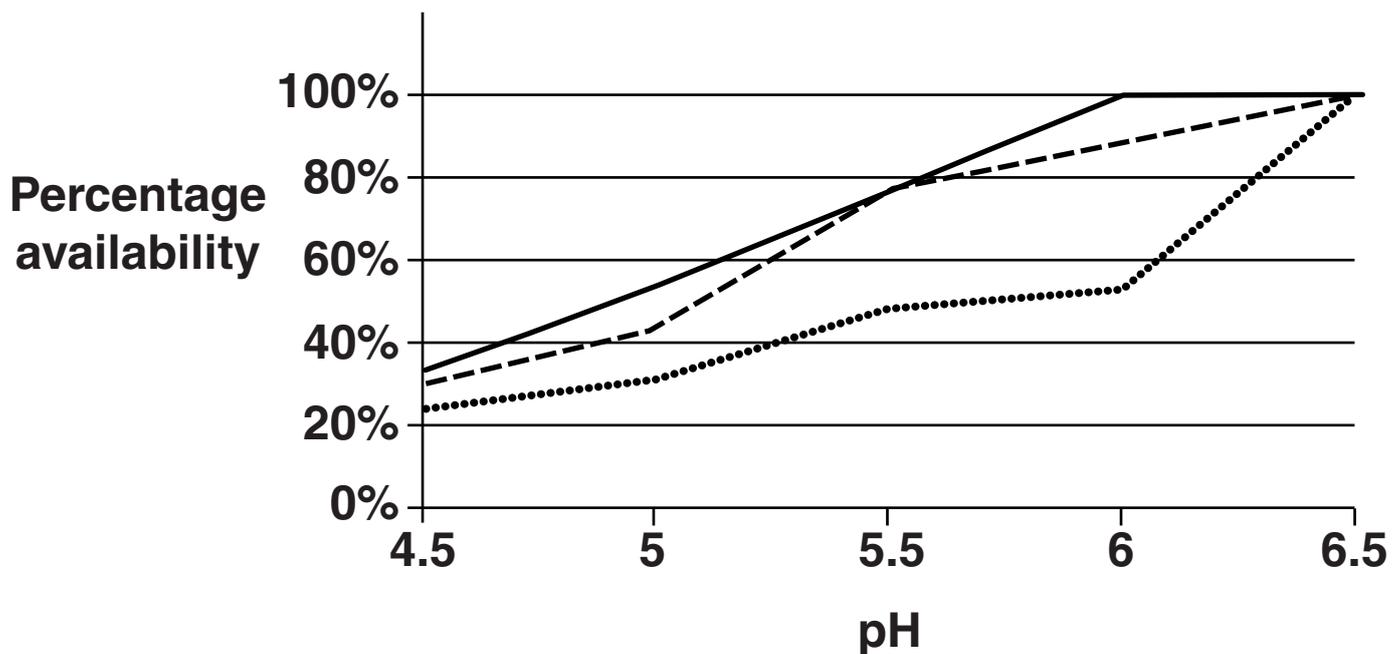
**[4]**

**[TOTAL: 4]**

4 The graph shows the percentage of different nutrients that are available to plants at different pH values.

----- N  
..... P  
———— K

**NUTRIENT AVAILABILITY AT DIFFERENT PH**



**Which nutrient is least available at low pH values?**

**Answer \_\_\_\_\_ [1]**

**[TOTAL: 1]**

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**TURN OVER FOR QUESTION 5**

**5 A market gardener wants to grow some cabbages in a field.**

**The soil has a low pH.**

**At low pH, cabbages cannot take in enough nitrates from the soil to grow properly.**

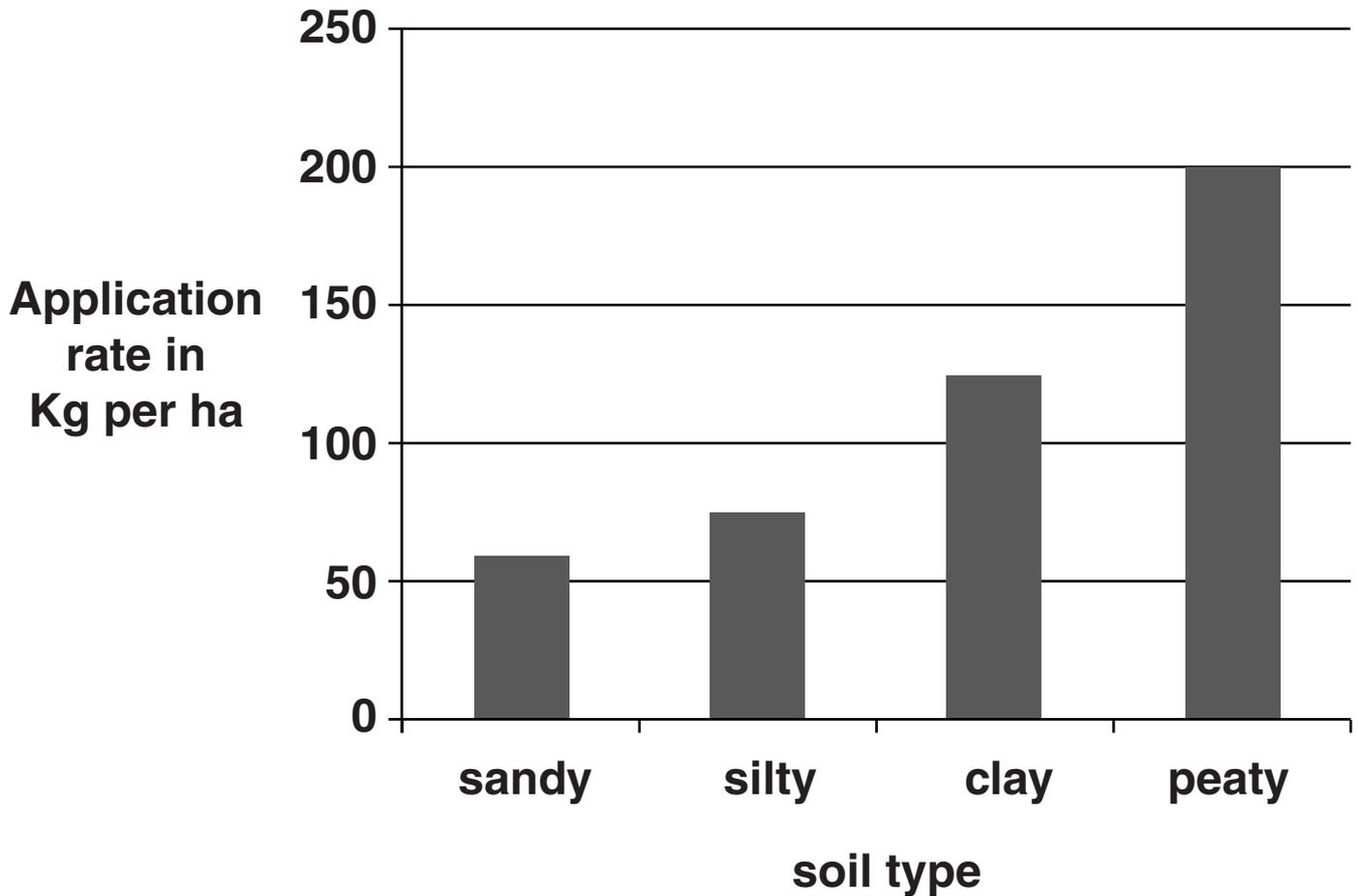
**She decides to add lime to correct the soil pH.**

**The table shows how much lime is needed to correct the pH of her soil by 0.1.**

<b>Soil type</b>	<b>Application rate in Kg per ha</b>
<b>Sandy</b>	<b>60</b>
<b>Silty</b>	<b>100</b>
<b>Clay</b>	<b>125</b>
<b>Peaty</b>	<b>200</b>

(a) The graph shows the same information but with ONE error.

Correct the graph by extending the incorrect bar to its correct height. [1]



(b) The cabbage field is 120 m by 80 m.

The gardener needs to raise the pH of her clay soil from pH 7.9 to pH 8.0.

How much lime does she need?

Answer \_\_\_\_\_ Kg [2]

**6 Ornamental onions (Alliums) can be grown in a pot.**

**(a) Describe the ADVANTAGES and DISADVANTAGES of growing plants in a pot rather than in open soil.**

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**[4]**

**(b) What type of compost would you recommend for this pot?**

**Give a reason for your answer.**

**Compost** \_\_\_\_\_

**Reason** \_\_\_\_\_

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**[1]**

**[TOTAL: 5]**



**8 Aphids are pests of many plants.**

- (a) A female aphid produces 160 offspring in a two-week period and then dies.**

**If all these offspring reproduce at the same rate and no aphids die, how many would there be after a further two weeks?**

**Answer \_\_\_\_\_ [1]**

- (b) When considering pest control methods, the figure in your answer to part (a) could be used to argue for either biological or chemical pest control.**

**Give ONE reason for choosing each type of pest control.**

**I would choose biological pest control because**

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**I would choose chemical pest control because**

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**[2]**



**10 This question is about feed supplements.**

**Feed supplements are used to ensure an animal has a balanced diet.**

**(a) A high energy feed supplement has the following label on showing the feeding rate.**

**FEEDING GUIDELINES:**

**1 Tub will last  
50 ewes approx 4  
weeks.**

**The tubs cost £18 each.**

**What will it cost a farmer to feed a flock of 250 ewes for 12 weeks?**

**Answer £ \_\_\_\_\_ [2]**

**(b) The table shows a range of different mineral supplements given to ewes.**

<b>Typical Analysis</b>			
	<b>Extra high energy</b>	<b>Standard</b>	<b>Super Sup</b>
<b>Energy in megajoules per kg</b>	<b>16</b>	<b>11</b>	<b>12</b>
<b>Sugar</b>	<b>30%</b>	<b>27%</b>	<b>33%</b>
<b>Protein</b>	<b>12%</b>	<b>3%</b>	<b>12%</b>
<b>Oil</b>	<b>14%</b>	<b>6%</b>	<b>6%</b>
<b>Calcium</b>	<b>2%</b>	<b>3%</b>	<b>4%</b>
<b>Magnesium</b>	<b>0.25%</b>	<b>0.3%</b>	<b>5%</b>
<b>Vitamin A</b>	<b>22.5 mg/kg</b>	<b>18.0 mg/kg</b>	<b>30.0 mg/kg</b>
<b>Vitamin D</b>	<b>0.375 mg/kg</b>	<b>0.3 mg/kg</b>	<b>0.5 mg/kg</b>
<b>Vitamin E</b>	<b>150 mg/kg</b>	<b>150 mg/kg</b>	<b>350 mg/kg</b>

**Which of these supplements would you give to ewes in late pregnancy and lactation?**

**Explain why this feed supplement is most suitable to help the ewe and her developing lamb.**

**Feed supplement** \_\_\_\_\_

**Explanation** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ [3]

**11 A farmer sees that one of the cows is:**

**restless**

**mooing a lot**

**mounted by another cow.**

**Explain what these signs show.**

**Why is it important for the farmer to make a note of the date this happens?**

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**[3]**

**[TOTAL: 3]**



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