

Thursday 19 June 2014 – Afternoon

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

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

Candidates answer on the Question Paper.
A calculator may be used for this paper.

Duration: 1 hour

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)




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. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

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 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**.

Name	Photograph
Acer	A
Beech	B
Birch	C
Cherry	D

[3]

[Total: 3]

2 The photograph shows tomato plants being 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]

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

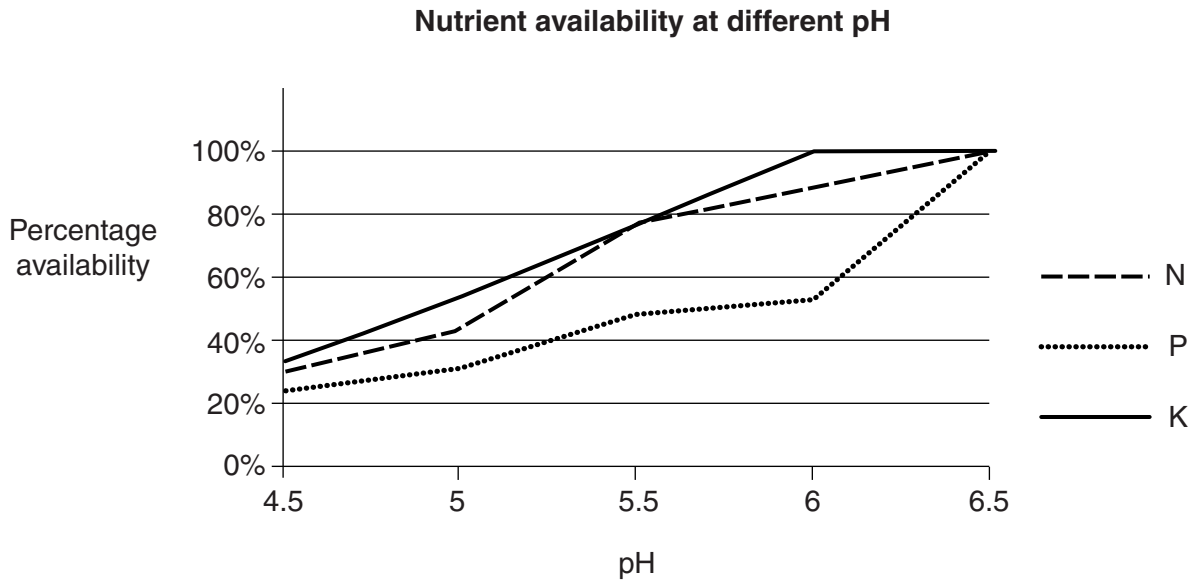
Mower C and

Mower D and

[4]

[Total: 4]

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



Which nutrient is least available at low pH values?

Answer [1]

[Total: 1]

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.

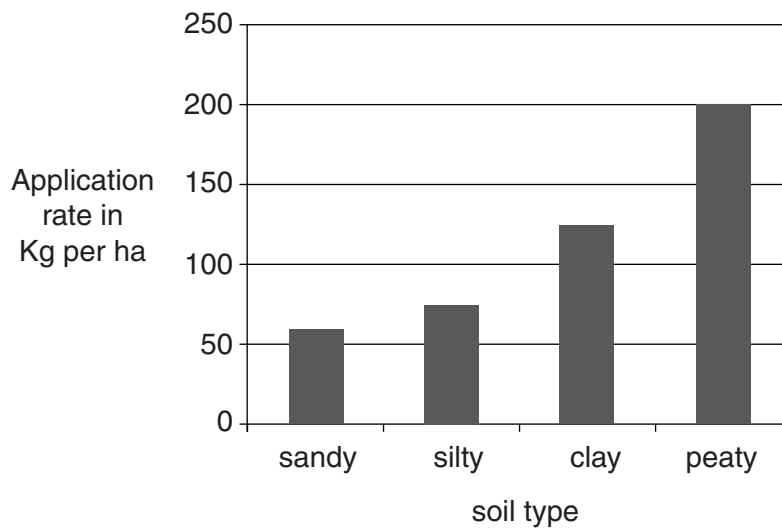
The table shows how much lime is needed to correct the pH of her soil by 0.1.

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

(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?

AnswerKg [2]

[Total: 3]

Question 6 begins on page 8

6 The photograph shows a collection of ornamental onions (Alliums) growing in a pot.



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

.....
.....
.....
.....
.....
..... [4]

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

Give a reason for your answer.

Compost

Reason [1]
.....

[Total: 5]

8 The photograph shows an aphid.

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

.....
.....

I would choose chemical pest control because

.....
.....

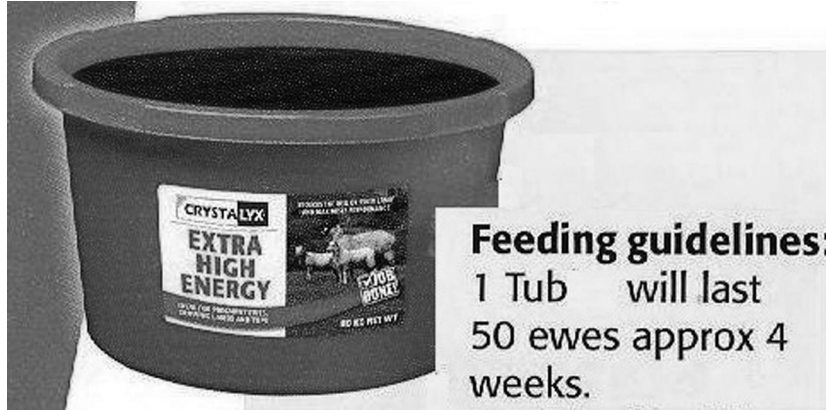
[2]

[Total: 3]

10 This question is about feed supplements.

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

(a) The photograph below shows the feeding rate for a high energy feed supplement.



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.

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

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]

[Total: 5]

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?

.....

.....

.....

..... [3]

[Total: 3]

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