

Wednesday 17 June 2015 – Morning

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

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

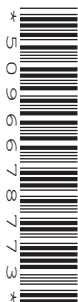
Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)
- Calculator

Duration: 1 hour



Candidate 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 **20** pages. Any blank pages are indicated.

Answer **all** the questions.

1 The photograph shows a parasitic wasp.

This wasp is used in biological pest control in glasshouses.



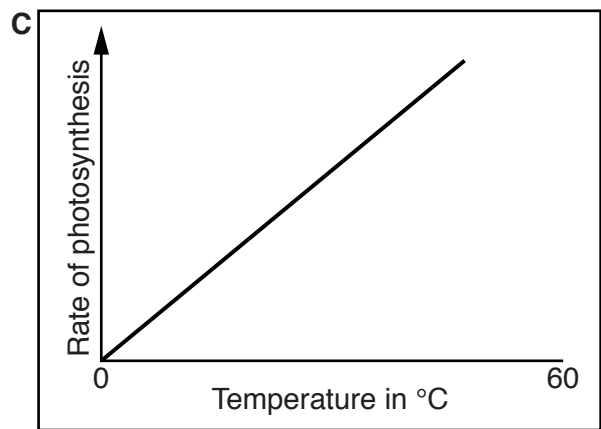
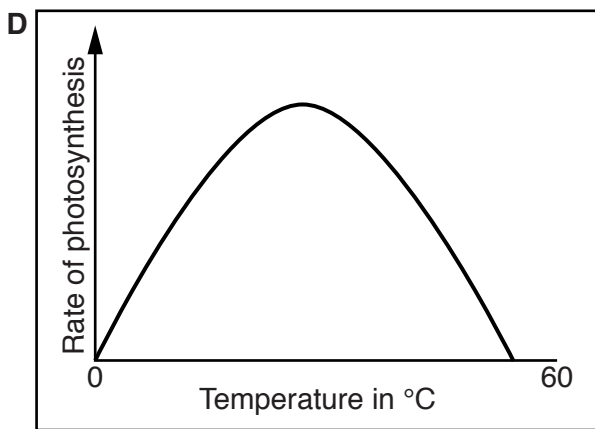
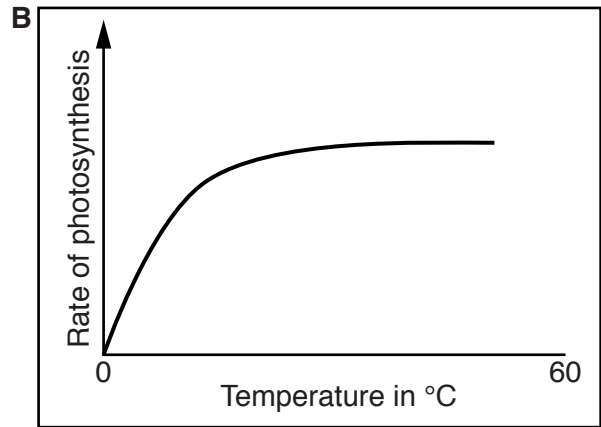
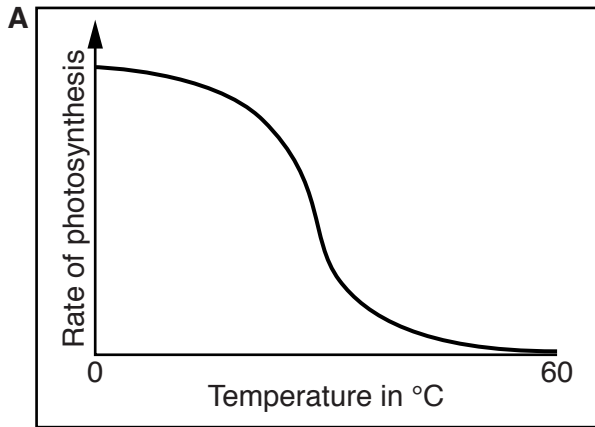
Which of the following is a reason for using biological pest control rather than chemical pest control in the glasshouse?

- A All species of pests are removed.
- B All the pests in the glasshouse are killed instantly.
- C Using biological pest control in the glasshouse does not cost anything.
- D If the numbers of pests increase, the population of wasps will increase.

Answer **A, B, C or D** [1]

[Total: 1]

2 The graphs show changing rates of photosynthesis.



Which **one** of the graphs shows the way the rate of photosynthesis would change as temperature increases?

Answer **A, B, C** or **D** [1]

[Total: 1]

3 Many people are becoming concerned about the distance their food has travelled (food miles).



Importing crops from warmer countries may be better for the environment than growing the same crops in glasshouses here in the UK.

Suggest **two** reasons why.

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..... [2]

[Total: 2]

4 The photograph shows a row of cold frames.



Cold frames are often used to 'harden off' plants.

Explain what is meant by 'hardening off'.

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..... [1]

[Total: 1]

5 The photograph shows someone sowing seed for a new lawn.



Suggest **two** advantages of producing a lawn from seed rather than from turf.

- 1
-
- 2
-

[2]

[Total: 2]

- 6 Westwood's Lawn Feed is available in three different mixes. NPK values show the percentage of each nutrient in each mix.



- (a) What mass of phosphorus (P) is in 5 kg of Autumn Lawn Feed?

Answer g [2]

- (b) Suggest why there is less nitrogen (N) in the Autumn Lawn Feed than in the Spring Lawn Feed.

.....
 [1]

- (c) Suggest why lawn feeds for clay soil and for sandy soil have different amounts of NPK.

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 [1]

[Total: 4]

7 The photograph shows a candle that growers burn in a greenhouse to kill overwintering pests.



(a) One candle is sufficient to treat a standard 3 m × 2 m glasshouse.

How many candles will it take to treat a glasshouse of 6 m × 4 m?

Show your working.

Answer [2]

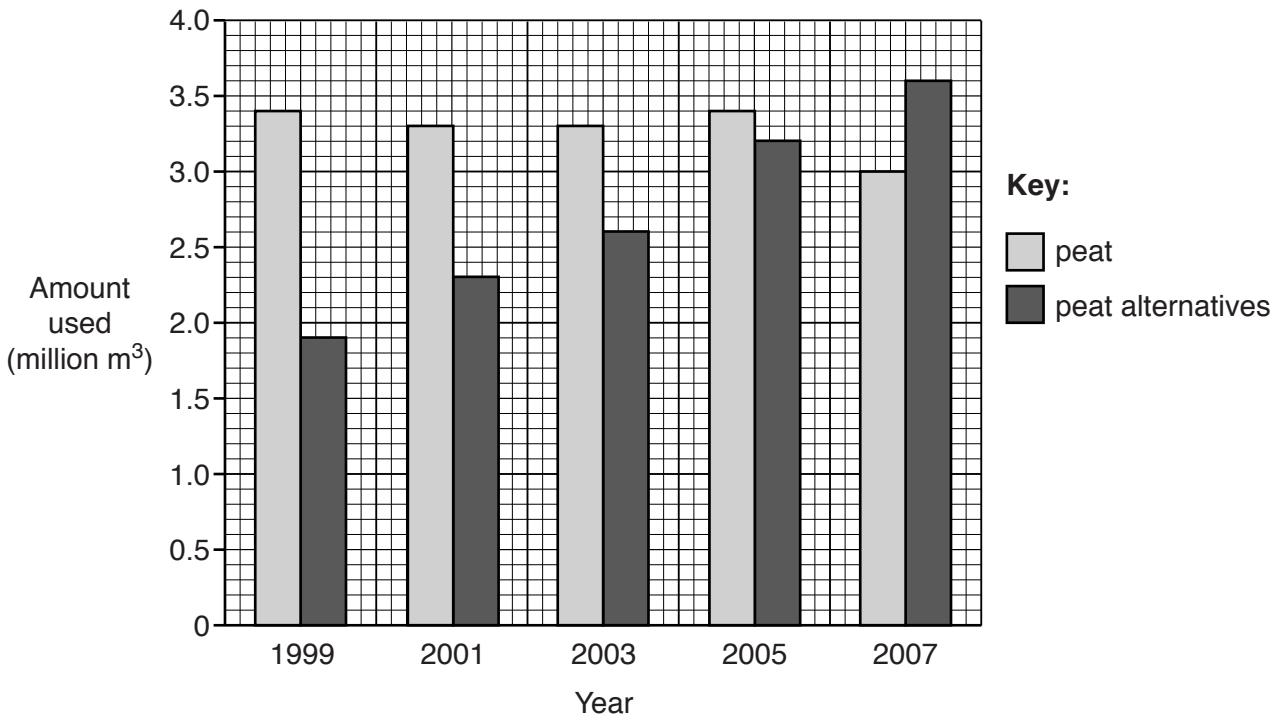
(b) Each candle costs £5.65.

Suggest why it makes economic sense to spend this money.

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

[Total: 3]

8 The chart shows the amounts of peat and peat alternatives used between 1999 and 2007.



Use the chart to answer the following questions.

(a) Compare the amounts of peat and peat alternatives used in **1999** with the amounts used in **2007**.

Your answer should include figures from the graph.

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..... [2]

(b) Suggest how the trend in the use of peat alternatives shown by the chart might help the environment.

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..... [1]

[Total: 3]

9 The photograph shows a strawberry plant being propagated **asexually**.



Describe the various methods used for **asexual** propagation and explain their advantages and disadvantages.



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

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..... [6]

[Total: 6]

10 The photograph shows a shrub being pruned.



Explain how pruning is used by the gardener to control how a plant develops.

Use your understanding of plant hormones to explain the science behind pruning.



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

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[Total: 6]

11 The photograph shows a farmer milking.



The farmer notices that the milk yield of one of the cows has reduced unexpectedly.

He notices clots in the milk when he checks it.

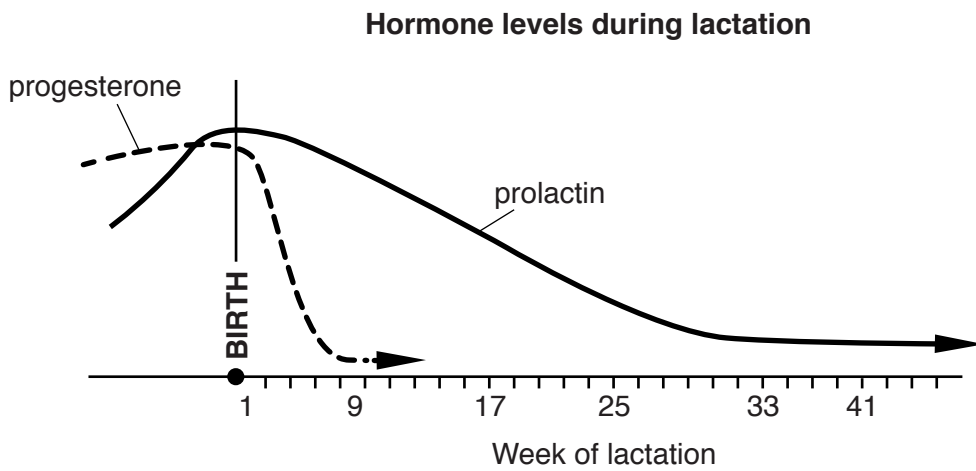
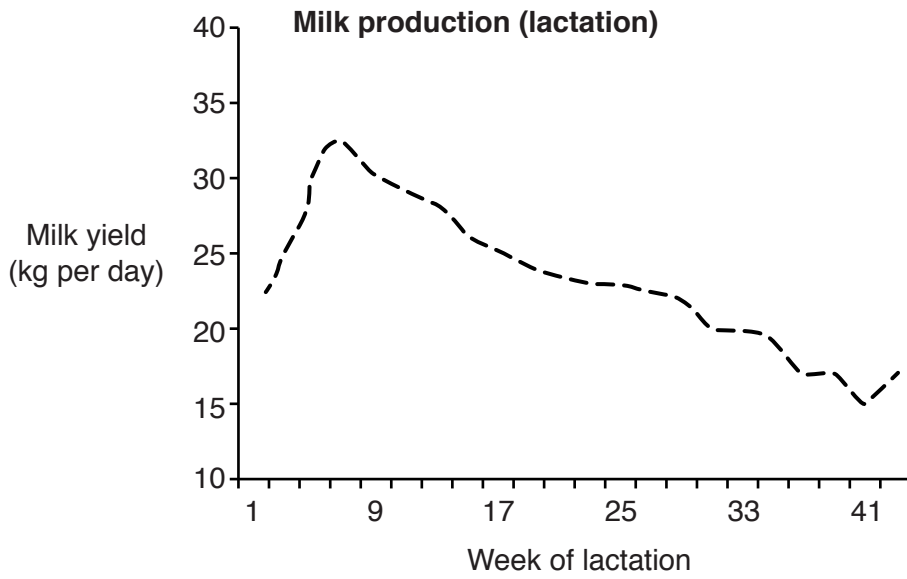
This is likely to be caused by a:

- A bacterium
- B fungus
- C parasite
- D virus

Answer **A, B, C** or **D** [1]

[Total: 1]

12 The graphs show different features of the lactation curve.



What do the graphs suggest about the control of milk production by hormones?

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..... [2]

[Total: 2]

13 A pregnant animal needs special care to help it provide for the growing fetus.



(a) Which nutrient group should be present in high levels in the feed for pregnant animals?

- A carbohydrate
- B fat
- C fibre
- D protein

Answer **A, B, C or D** [1]

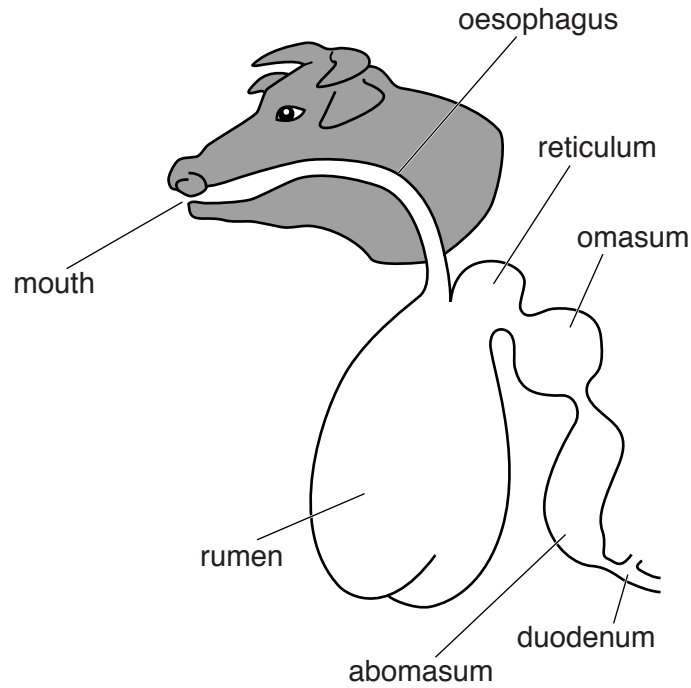
(b) The environment for the pregnant animal should also be:

- A cold
- B draughty
- C quiet
- D hot

Answer **A, B, C or D** [1]

[Total: 2]

14 The diagram shows parts of a ruminant's digestive system.



(a) Complete the first column of the table with the part of the digestive system that fits each description.

One part has been done for you.

Part of the digestive system	Description
	compartment walls help grind up the food
	contains millions of bacteria helping digestion
mouth	saliva added to start digestion
	true stomach producing enzymes
	where the cud is formed

[4]

Part (b) begins on page 16.

(b) Explain why a ruminant's diet means it needs four stomach compartments.

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..... [3]

[Total: 7]

15 A balanced diet is essential to keep this animal healthy.



Choose an animal you have studied.

Explain how the food it is given keeps it in good condition.



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

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[6]

[Total: 6]

16 The photograph shows a rare breed of sheep.



Future legislation may reduce intensive livestock farming.

Suggest why these changes could result in more rare breed animals being kept.

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..... [3]

[Total: 3]

END OF QUESTION PAPER

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