

Monday 20 June 2016 – Morning

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B682/01 Plant Cultivation and Small Animal Care (Foundation 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 | |
|--------------------|--|-------------------|--|

| | | | | | | | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|
| 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 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.

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

Answer **all** the questions.

- 1 (a) The photograph below shows a plant being propagated artificially using root cuttings.



The sentences below describe the stages needed to propagate plants from root cuttings.

Put them in the correct order by writing numbers 2 to 5 in the boxes.

The first one has been done for you.

Water and place in a cold frame.

Lift the parent plant and cut off one third of the roots.

Cut the roots into 5–10cm lengths using a sharp knife.

When the first shoots appear, pot them or plant outside.

Place the sections of root in free-draining compost.

[3]

- (b) A gardener wants to take some root cuttings.

At what time of year would you recommend the root cuttings are taken?

Give reasons for your answer.

.....

.....

..... [2]

2 The photograph below shows students preparing plots for planting potatoes.



They added organic fertiliser to five plots and inorganic fertiliser to five plots.

(a) State **two** differences between organic and inorganic fertilisers.

1

.....

2

.....

[2]

(b) Name an organic fertiliser that could be used on the plots.

..... [1]

The students plant four seed potatoes in each plot.

After two months, they harvest the potatoes and weigh them.

The results are shown in the table below.

| Growing system | Potato yield (kg) | | | | | |
|----------------|-------------------|--------|--------|--------|--------|------|
| | Plot 1 | Plot 2 | Plot 3 | Plot 4 | Plot 5 | Mean |
| Organic | 1.43 | 4.06 | 2.98 | 1.46 | 4.58 | |
| Inorganic | 1.46 | 0.14 | 0.00 | 0.44 | 0.60 | 0.53 |

(c) Which organic plot produced the highest yield of potatoes?

..... [1]

(d) Calculate the mean (average) yield of potatoes in the organic plots.

Show your working.

..... kg [2]

(e) The plants on inorganic plot 3 produced no potatoes. Suggest a reason for this.

.....
 [1]

(f) One of the students concluded that:

‘Using organic fertilisers always produces a higher yield of potatoes.’

Do you agree with this conclusion? Explain your answer using data from the table.

.....

 [2]

4 Fruit sold in supermarkets is given a 'sell-by' date.

Describe **two** changes that might happen to the fruit if it is kept beyond its 'sell-by' date.

1

.....

2

.....

[2]

5 The photograph shows the leaf of a tomato plant covered in whitefly.



A gardener recommends using biological methods to control these pests.

What are the differences between biological and non-biological pest control?

.....

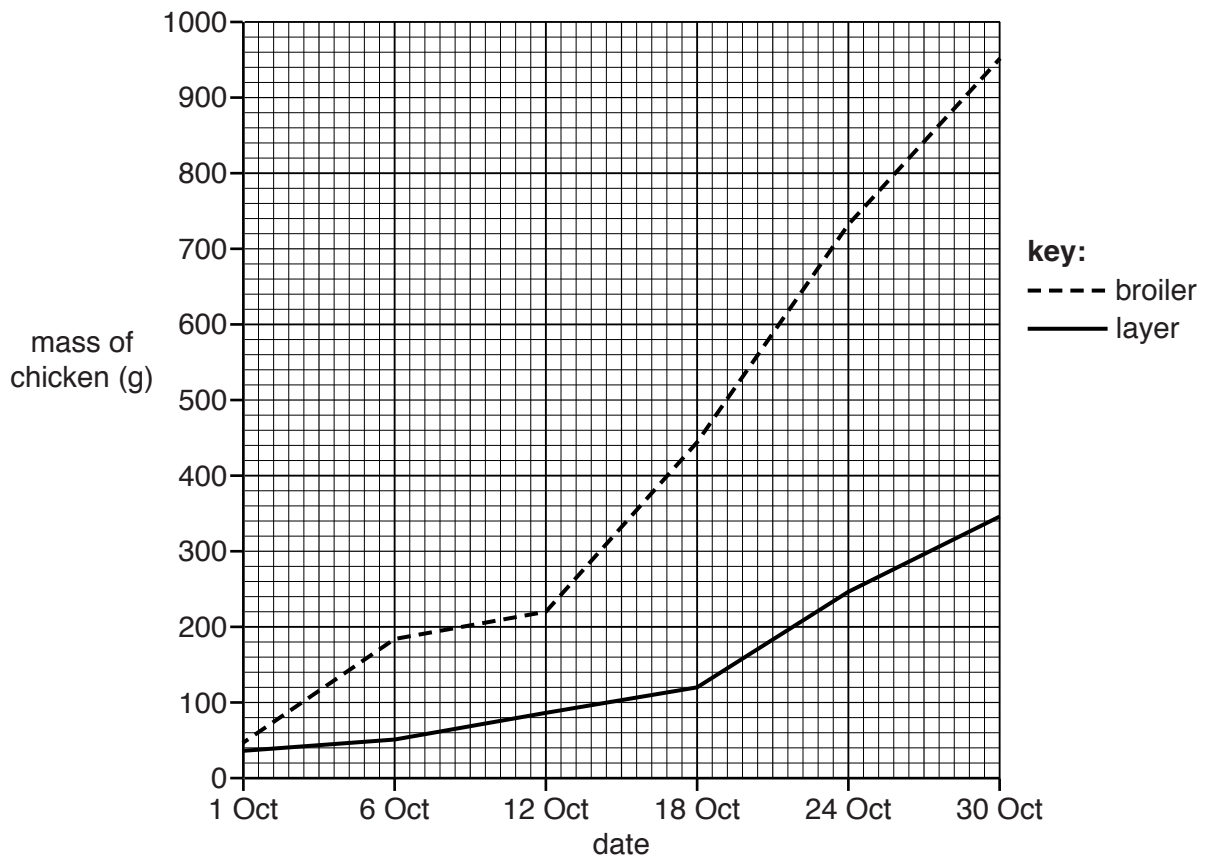
.....

..... [2]

PLEASE DO NOT WRITE ON THIS PAGE

Sarah's results are shown in the table and the graph below.

| Date | Mass of chickens (g) | |
|------------|----------------------|---------|
| | Layer | Broiler |
| 1 October | 39 | 48 |
| 6 October | 51 | 181 |
| 12 October | 82 | 220 |
| 18 October | 120 | 443 |
| 24 October | 244 | 730 |
| 30 October | 342 | 950 |



(b) Compare the growth of the layer chicken and the broiler chicken.

Use information from the graph **and** the table in your answer.

.....

.....

.....

..... [3]

(c) How much heavier is the broiler chicken than the layer chicken at the end of the investigation?

..... g [1]

(d) Suggest **two** ways in which Sarah could improve her investigation.

1

.....

2

.....

[2]

(e) Original red jungle fowl laid between 10 to 15 eggs a year.

Modern varieties of laying chickens can lay over 300 eggs a year.

Describe how breeding has helped to achieve this.

.....

.....

.....

.....

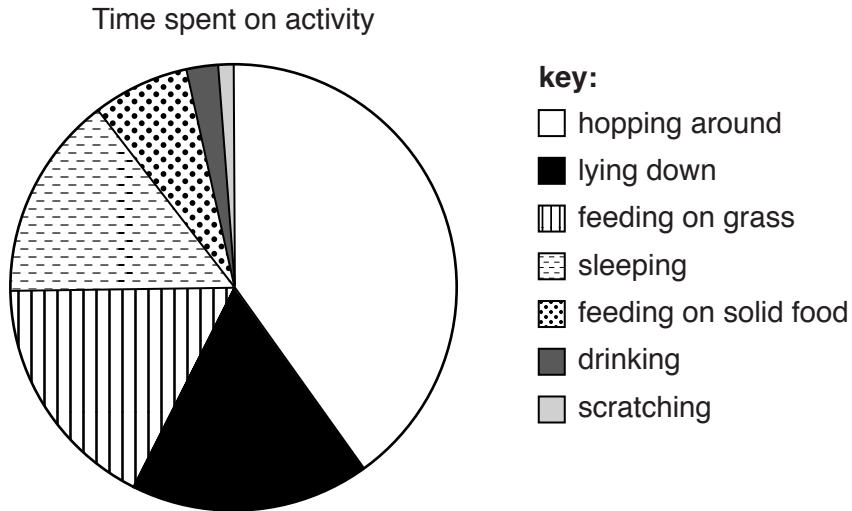
.....

[3]

8 Selma has a pet rabbit.

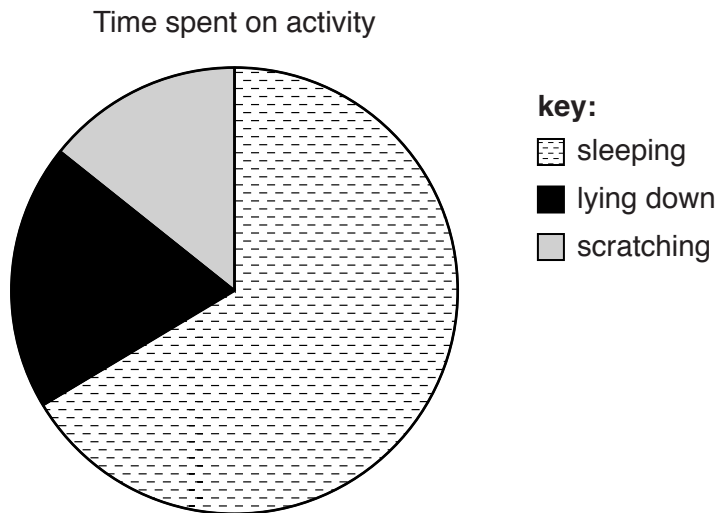
She decides to monitor its activity.

She observes the rabbit for one hour and produces a pie chart to show how long the rabbit spends on different activities.



(a) Which activity does the rabbit do for the longest time?
 [1]

(b) One week later, she observes the rabbit again for one hour at the same time of day. She produces a pie chart to show the results.



Describe how the behaviour of the rabbit changes between the first and second observations.

 [2]

(c) Suggest **two** possible reasons for this change in the rabbit's behaviour.

.....

.....

.....

..... [2]

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).

A large area of lined paper for writing. It features a vertical solid line on the left side, creating a margin. The rest of the page is filled with horizontal dotted lines, providing space for writing answers.

A large rectangular area with a solid vertical line on the left side and horizontal dotted lines extending across the page, providing a grid for writing answers.



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

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.