

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE**

B682/01

**ENVIRONMENTAL AND
LAND-BASED SCIENCE**

Plant Cultivation and Small Animal Care

(Foundation Tier)

MONDAY 20 JUNE 2016: Morning

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

MODIFIED ENLARGED

Candidate forename						Candidate surname				
Centre number						Candidate number				

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Pencil

Ruler (cm/mm)

Calculator

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. 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.

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.

BLANK PAGE

Answer ALL the questions.

- 1 (a) Plants can be 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 5–10 cm 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]

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2 Students are preparing plots for planting potatoes.

They add 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]

- 3 The health of any plant can affect its yield, appearance and quality.**

Describe the signs that you would see in an UNHEALTHY plant AND explain their causes.



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

[6]

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 A leaf of a tomato plant is 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]

BLANK PAGE

- 6 All modern chickens are originally descended from red jungle fowl.**

The photograph below shows two breeds of chicken.

The chicken on the left has been bred for meat production (broiler).

The chicken on the right has been bred for egg production (layer).



Sarah investigates the growth rate of these two breeds of chicken.

She weighs one layer chicken and one broiler chicken on six occasions in the 30 days after hatching.

(a) Describe how you would weigh a chicken or small mammal that you have studied.



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

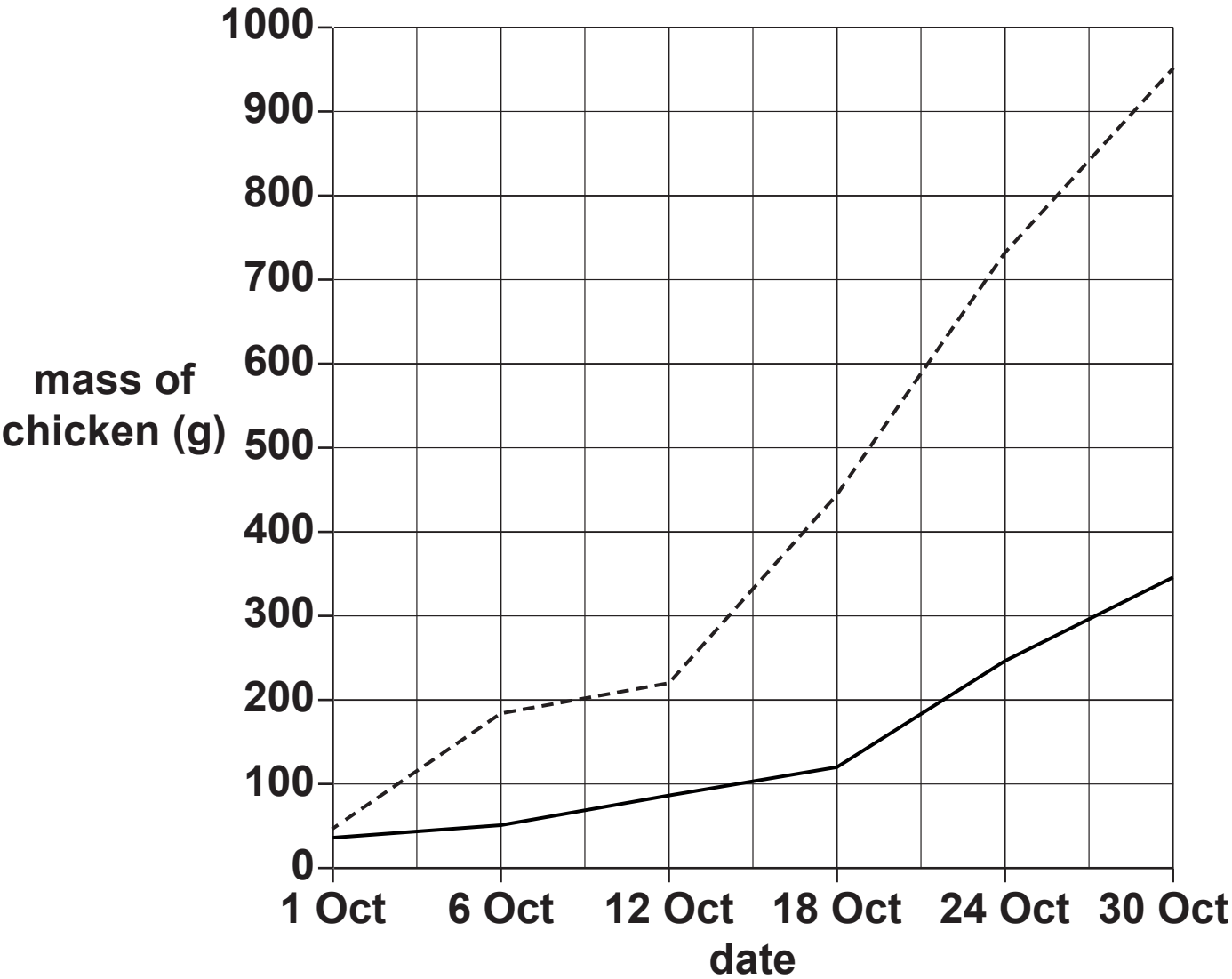
Name of animal _____

[6]

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

KEY:
----- broiler ——— layer



(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.

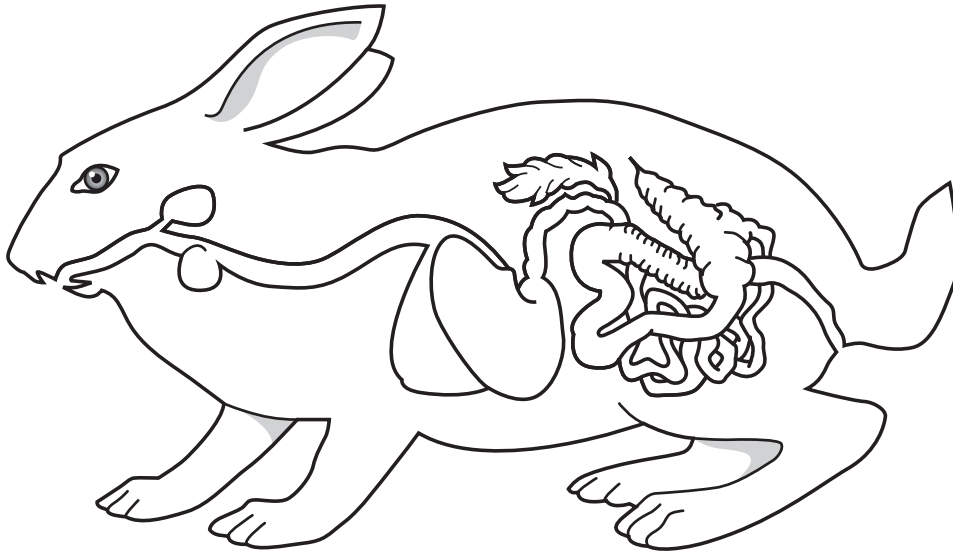
Modern varieties of laying chickens can lay over 300 eggs a year.

Describe how breeding has helped to achieve this.

[3]

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7 Animals need to digest their food to get nutrients.



Describe how a rabbit digests grass and absorbs the products. Include the functions of the organs of the digestive system in your answer.



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

[6]

8 Selma has a pet rabbit.

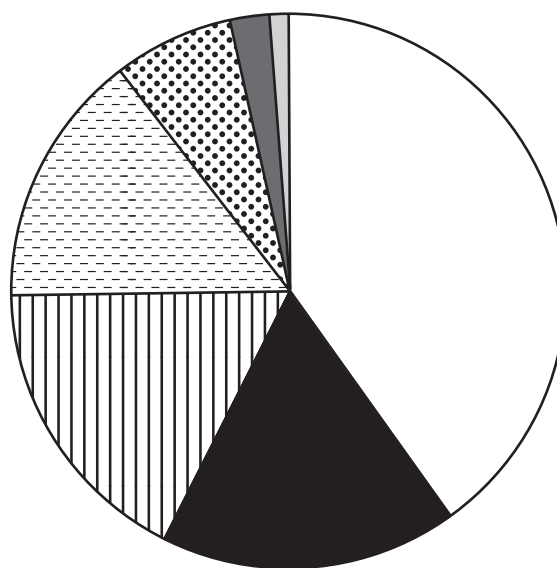
She decides to monitor its activity.

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

key:

- ☐ hopping around
- ☒ lying down
- ☐ feeding on grass
- ☐ sleeping
- ☐ feeding on solid food
- ☐ drinking
- ☐ scratching

Time spent on activity






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

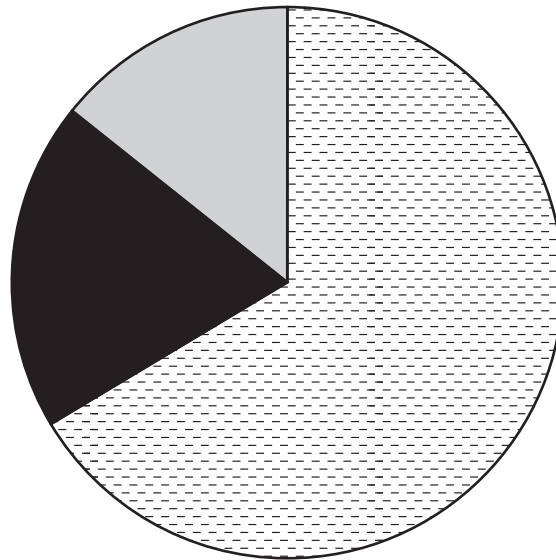
_____ [1]

- (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.

key:

-  sleeping
-  lying down
-  scratching

Time spent on activity



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).



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