

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GCSE**

**B682/01**

**ENVIRONMENTAL AND LAND-BASED  
SCIENCE**

**Plant Cultivation and Small Animal Care  
(Foundation Tier)**

**MONDAY 19 JUNE 2017: Morning**

**DURATION: 1 hour**

**plus your additional time allowance**

**MODIFIED ENLARGED 24pt**

|                               |  |                              |  |
|-------------------------------|--|------------------------------|--|
| <b>Candidate<br/>forename</b> |  | <b>Candidate<br/>surname</b> |  |
|-------------------------------|--|------------------------------|--|

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|--------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|
| <b>Centre<br/>number</b> |  |  |  |  |  | <b>Candidate<br/>number</b> |  |  |  |  |
|--------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|

**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**

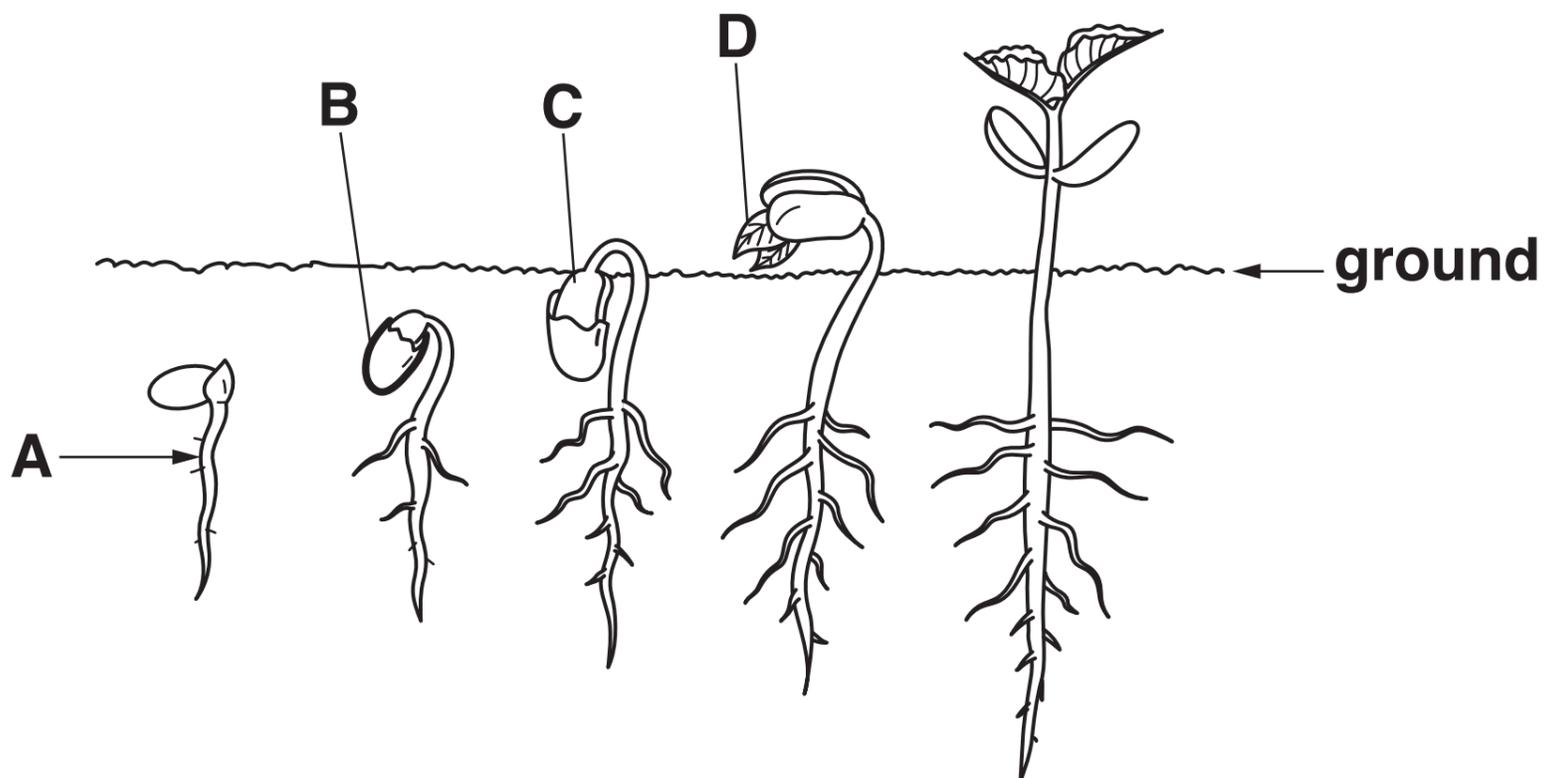
**The quality of written communication is assessed in questions marked with a pencil ().**

**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.**

Answer ALL the questions.

1 (a) The diagram shows a germinating seed.



Draw a straight line to match up each letter on the left with the correct name on the right. [3]

A

Cotyledon

B

Plumule

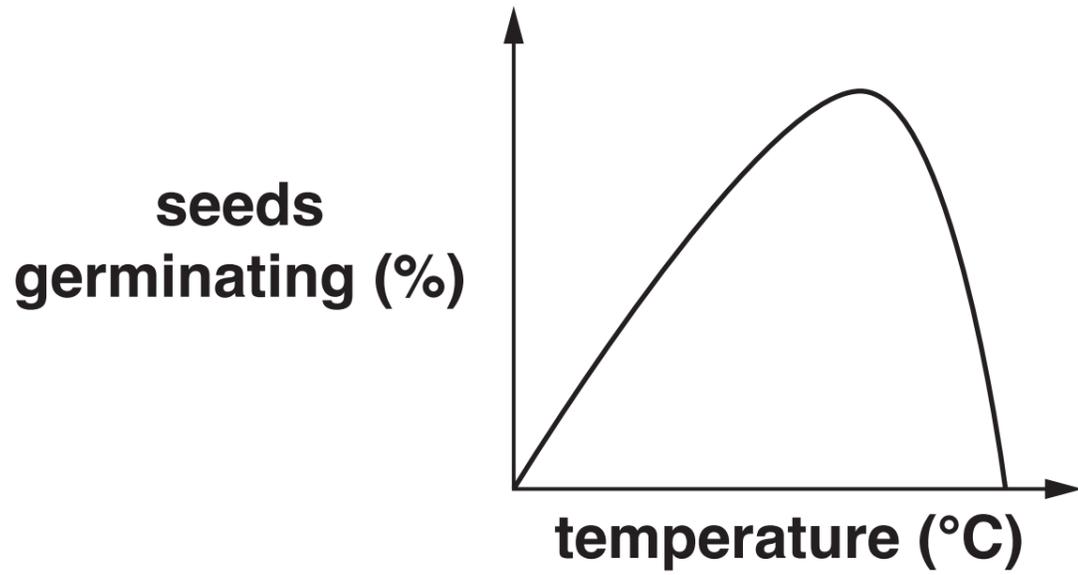
C

Radicle

D

Testa

**(b) The graph shows the effect of temperature on seed germination.**



**Describe AND explain the shape of the graph.**

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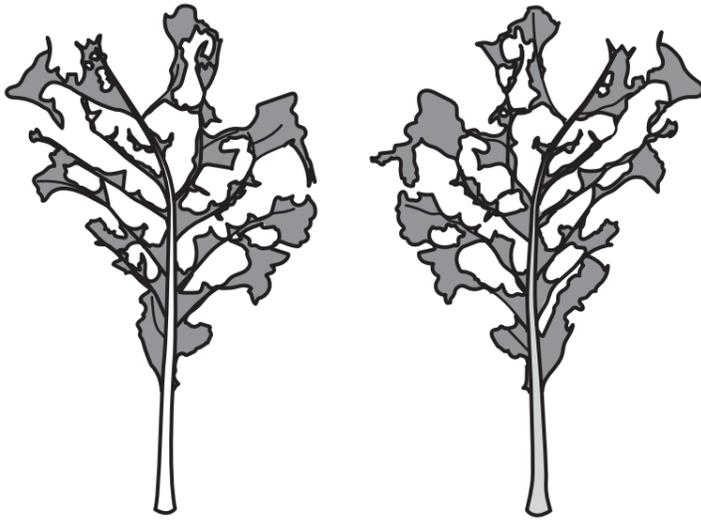
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**[3]**

**[TOTAL: 6]**

**2 The photograph shows pest damage on the leaf of a potato plant.**



**(a) Which ONE of the following is the most likely cause of the pest damage?**

**Put a tick (✓) in the box next to the correct answer.**

**Damping off**

**Potato blight**

**Slugs**

**Aphids**  **[1]**

**(b) There are many reasons why plants become unhealthy.**

**Apart from pests and diseases, state TWO other causes of poor health in plants.**

**1** \_\_\_\_\_

**2** \_\_\_\_\_

**[2]**

**[TOTAL: 3]**

**3 The table shows the nutrient content of three different organic fertilisers.**

| <b>Organic fertiliser type</b> | <b>Nitrogen (N)<br/>kg/m<sup>3</sup></b> | <b>Phosphorus (P)<br/>kg/m<sup>3</sup></b> | <b>Potassium (K)<br/>kg/m<sup>3</sup></b> |
|--------------------------------|--|--|---|
| <b>Organic Growmore</b>        | <b>1.35</b>                              | <b>2.0</b>                                 | <b>6.0</b>                                |
| <b>Grow Green</b>              | <b>2.1</b>                               | <b>0.8</b>                                 | <b>1.9</b>                                |
| <b>Rooster Booster</b>         | <b>5.5</b>                               | <b>6.0</b>                                 | <b>12.0</b>                               |

**(a) Which fertiliser contains the HIGHEST concentration of all three nutrients?**

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

**(b) Which fertiliser contains three times as much potassium as phosphorus?**

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

**(c) A gardener used one of these organic fertilisers on their allotment.**

**Later in the growing season they noticed that many of the plants had poor root growth and purple leaves.**

**Suggest which type of organic fertiliser they had used.**

**Explain your answer.**

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**[2]**



- 4 The photograph shows a red spider mite and a predatory mite.



The red spider mite is a pest of cucumber plants. They can be controlled using a predatory mite. This is known as biological pest control.

- (a) Suggest how the predatory mite reduces the number of spider mites.

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[1]

- (b) Red spider mites can be controlled by other methods.

Suggest ONE other way the red spider mite can be controlled.

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[1]

**(c) Cucumber plants could be selectively bred to stop attack by red spider mites.**

**Which ONE of the following characteristics would need to be selected?**

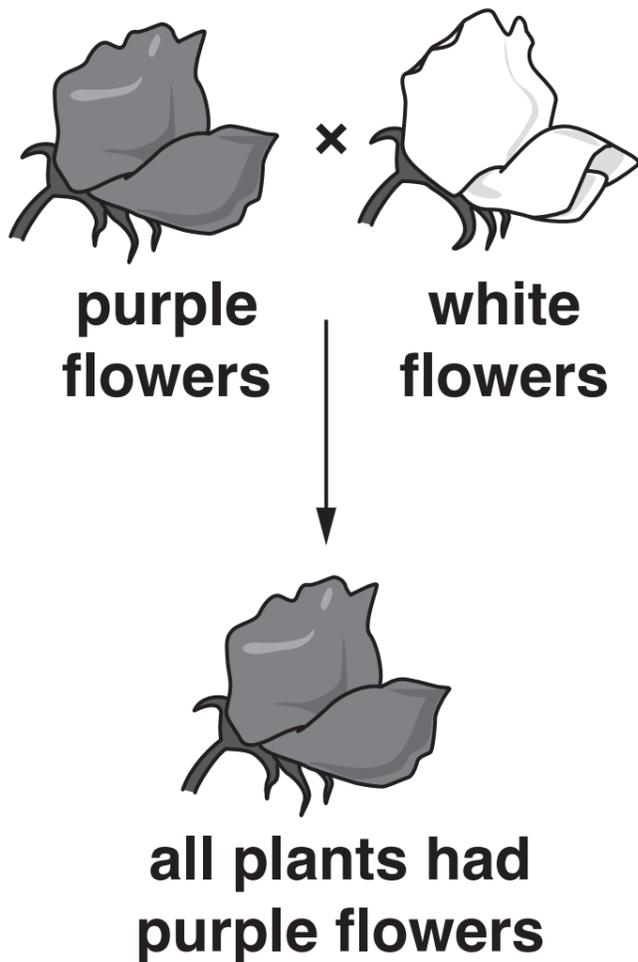
- A Appearance**
- B Pest resistance**
- C Hardiness**
- D Yield**

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

**[TOTAL: 3]**

5 A scientist bred a purple flowered pea plant with a white flowered pea plant.

ALL the offspring had purple flowers.



(a) Which characteristic is recessive?

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

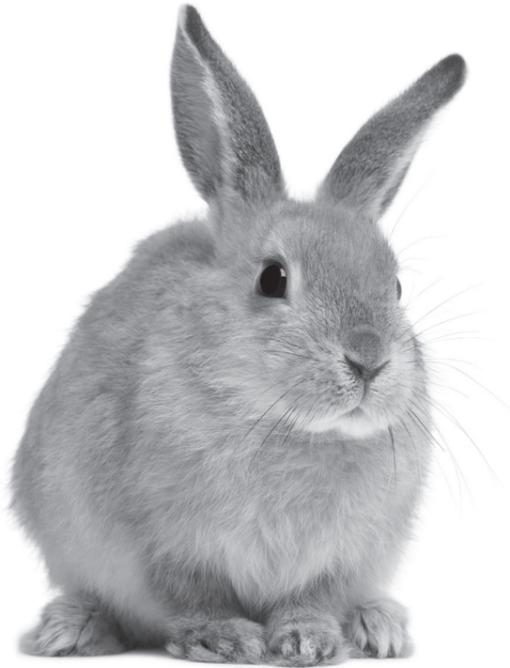
(b) What is the phenotype of the F1 generation?

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

[TOTAL: 2]

**6 The photograph shows a pet rabbit.**

**She has just given birth.**



**Which TWO pieces of advice would be suitable to give to the owner of this rabbit?**

**Circle the TWO correct answers.**

- A Provide extra bedding for a nest.**
- B Check on the mother and babies regularly.**
- C Provide plenty of food and water.**
- D Make plenty of noise so the mother knows you are there.**
- E Carry out a detailed health check of the babies after birth.**
- F Keep the mother in a hutch with other rabbits for company. [2]**

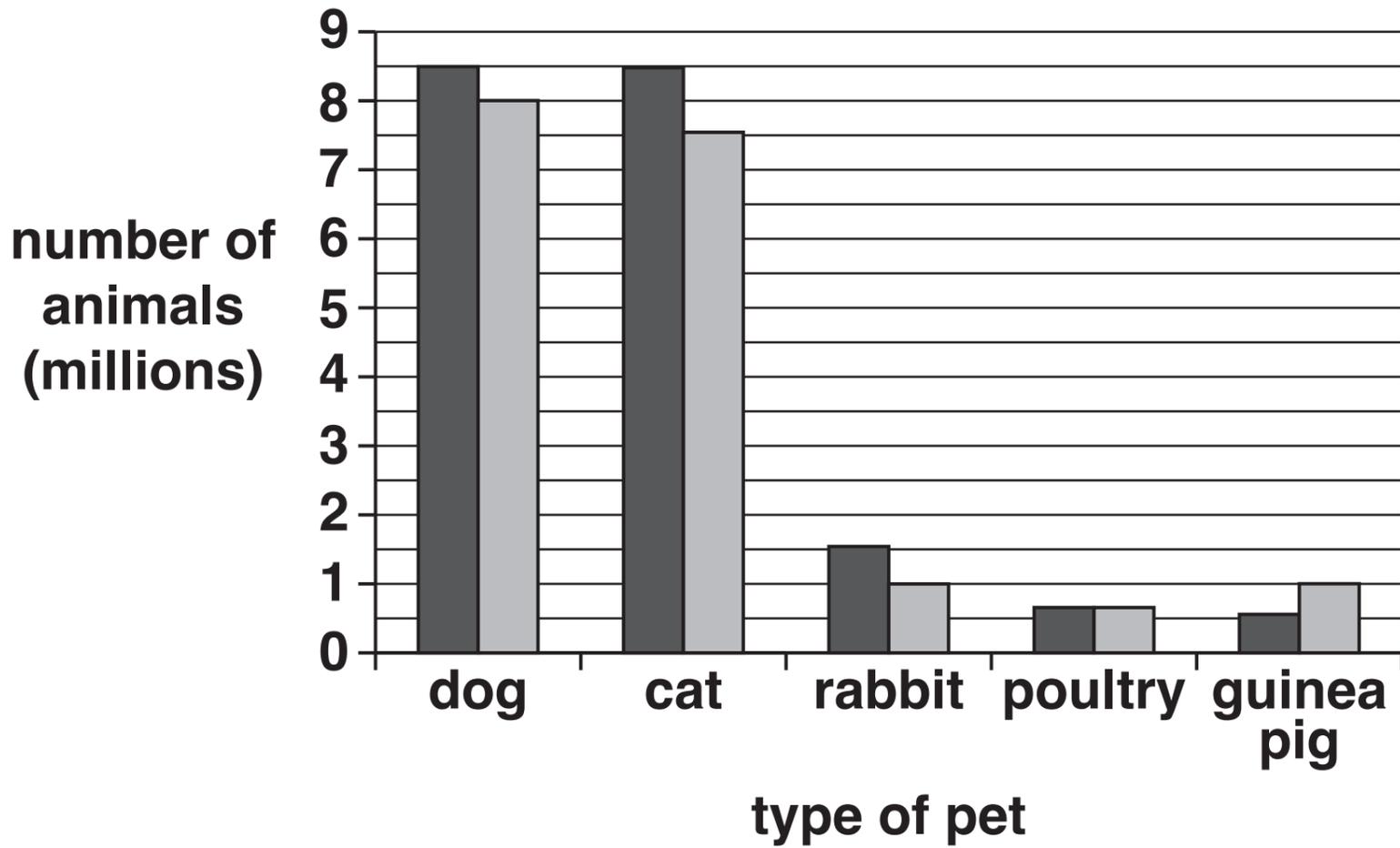
**[TOTAL: 2]**

7 The graph shows the number of pets owned in the UK in 2012 and 2015.

**KEY**

■ 2012

■ 2015



(a) The ownership of which type of pet has reduced the most?

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

(b) Another survey was carried out in 2017.

The number of pet rabbits owned has increased by ONE million since 2015.

How many pet rabbits are owned in 2017 in the UK?

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

**(c) Some people keep reptiles or fish as pets.**

**Name ONE reptile or fish that is suitable as a pet.**

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

**(d) The number of people keeping poultry has stayed the same.**

**Some owners like to show their poultry at competitions.**

**Suggest ONE other reason for keeping poultry.**

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

**(e) The photograph shows a Silkie hen.**



**The owner of this hen wants to exhibit her in a show.**

**Choose a SHOW animal that you have studied and describe, with reasons, the features that are important in this animal.**



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



8 Clara has three hens.

She gave each hen a different type of feed.

After 35 days she calculated the mass of feed they had eaten.

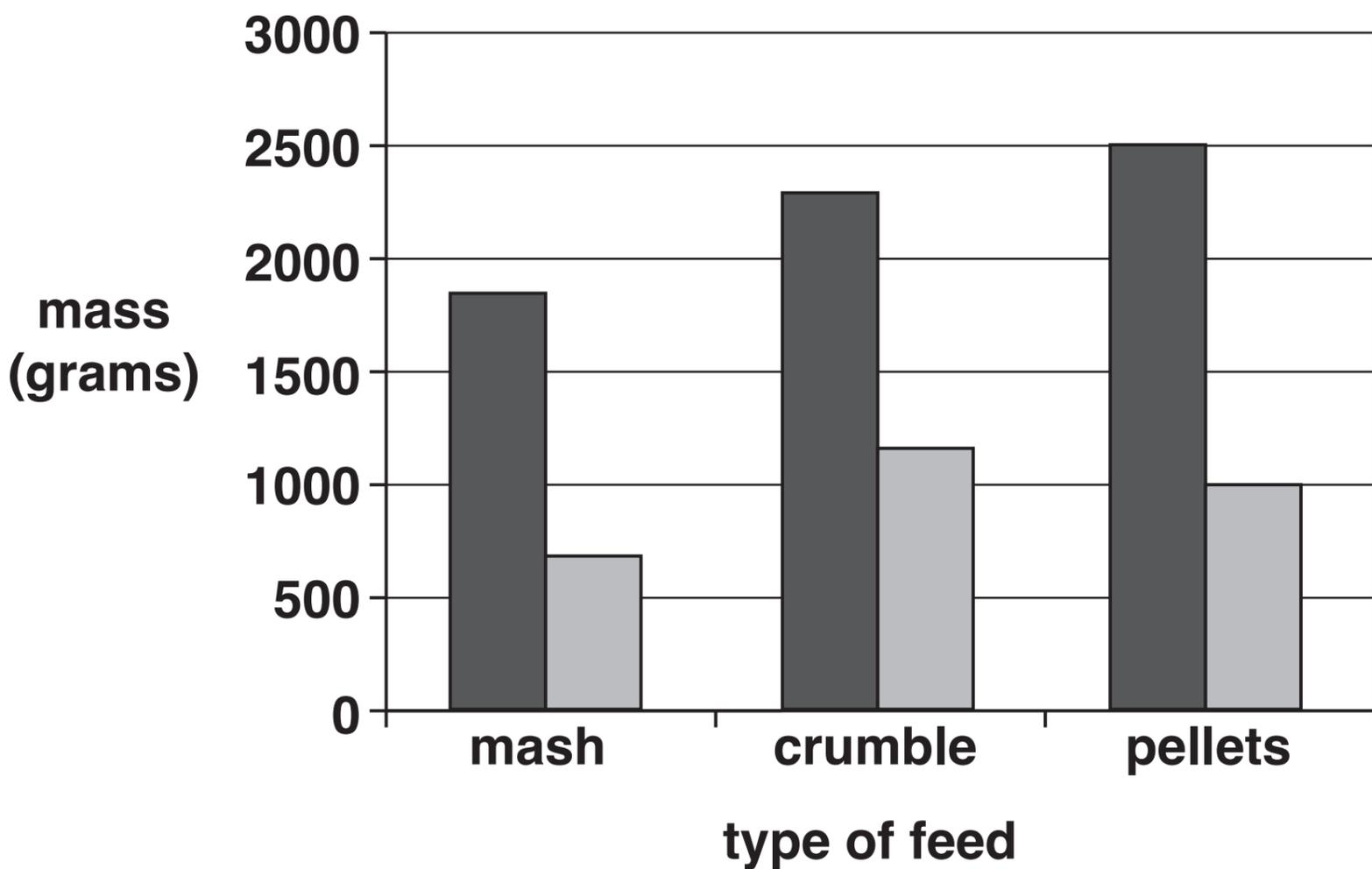
She also worked out how much mass they had gained.

The data is shown in the graph.

**KEY**

 food intake (g)

 mass gain (g)



(a) A 1 kg bag of pellets costs £2.00.

How much did it cost Clara to feed PELLETS to her hen for 35 days?

£ \_\_\_\_\_ [1]

**(b) Using ONLY information from the graph, suggest which feed type Clara should feed her hens.  
Give TWO reasons for your answer.**

Type of feed \_\_\_\_\_

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

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

**(c) Clara's results are not scientifically valid.**

**Suggest what is wrong with her experiment.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

**(d) Hens fed pellets need to be given grit.**

**Hens fed mash do not need grit.**

**Use your knowledge of a bird's digestive system to explain this.**

\_\_\_\_\_

\_\_\_\_\_

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

**[TOTAL: 8]**

**9 The photograph shows a hen with her chicks.**



**Chicks can hatch either by artificial or natural incubation.**

**Describe how you would SET UP an incubator for artificial incubation. What are the ADVANTAGES of using an incubator rather than a broody hen?**



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







