



Oxford Cambridge and RSA

F

Monday 15 June 2015 – 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

Duration: 1 hour

Other materials required:

- Pencil
- Ruler (cm/mm)
- Calculator



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. 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 (-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 The photograph shows different varieties of apple.



The table shows information about four different varieties of apple, **A**, **B**, **C** and **D**.

	Variety of apple			
	A	B	C	D
Colour	green	red	green	red
Resistant to disease	no	yes	no	no
Large fruit	yes	no	no	no
Sweet fruit	yes	no	no	yes

(a) Selective breeding can be used to produce new varieties of apple.

Which **two** varieties should be used to breed **large** apples that are **resistant to disease** and **green in colour**?

..... and [2]

(b) The different characteristics of these apple varieties could have arisen by mutation.

(i) What is meant by the term mutation?

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

(ii) Suggest **one** possible cause of mutation.

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

[Total: 4]

2 The photograph shows a garden plant, *Pelargonium*.



(a) This plant developed from a fertilised egg.

The fertilised egg (ovule) contains 66 chromosomes.

(i) How many chromosomes are in the egg (ovule) **before** it is fertilised?

Answer [1]

(ii) How many chromosomes are there in one leaf cell of this plant?

Answer [1]

(b) A gardener takes cuttings to propagate (clone) his *Pelargoniums*.

Read the sentences (**A** to **D**) about taking cuttings.

- A** The cutting is put in a pot of sandy compost.
- B** The end of the stem is dipped in rooting powder.
- C** A polythene bag is put over the cutting.
- D** A short stem is cut from the parent plant.

The sentences are in the wrong order.

Fill in the boxes to show the correct order. One has been done for you.

		A	
--	--	----------	--

[2]

(c) *Pelargoniums* are often grown from seed in a glasshouse.

They are then planted out in flower beds in the summer.

Describe the techniques used to grow plants from seed through to the process of planting out in the flower bed.



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

[6]

. [6]

[Total: 10]

3 Some fruits and vegetables were tested for their magnesium content.

The table shows the results of tests performed in 1930 and in 1980.

	Magnesium content (arbitrary units)	
	1930	1980
Carrots	12	3
Peas	30	34
Tomatoes	11	7
Bananas	42	34
Strawberries	12	10

(a) Describe the trends shown in the table.

Use figures from the table to support your answer.

.....

 [3]

(b) Suggest **two** reasons why any conclusions made from these results might **not** be valid.

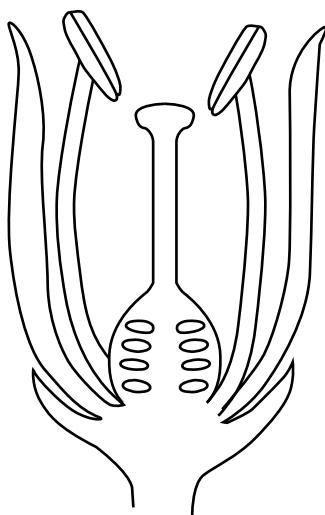
.....

 [2]

(c) State **one** sign of magnesium deficiency in plants.

..... [1]
 [Total: 6]

4 The diagram shows a vertical section through a flower.



Plants can be self-pollinated or cross-pollinated.

Describe the differences between self-pollination and cross-pollination.

Explain how plants are adapted to prevent self-pollination and encourage cross-pollination.



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

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[6]

[Total: 6]

5 The table shows the amount of food that different breeds of dog need each day.

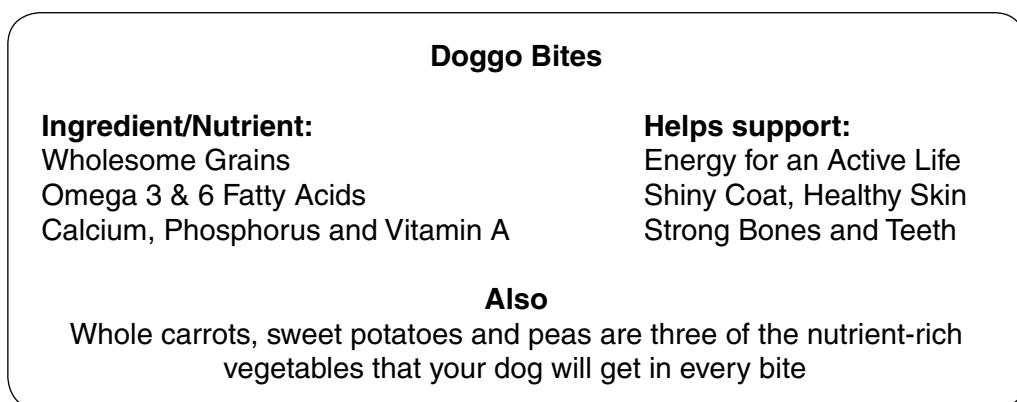
Breed	Mass of an adult dog (kg)	Amount of dry food (cups per day)
Miniature Poodle	12.5	$\frac{1}{2}$
Cocker Spaniel	25	1
Labrador	50	2

(a) One cup of food weighs 200 g.

Calculate the daily amount of dry food, in grams per kilogram of dog, for an adult Labrador.

Answer grams per kilogram of dog [1]

(b) The label shows ingredients in a dry dog food.



(i) To stay healthy, all animals need a balanced diet.

Write down **one** essential nutrient of a balanced diet that is **not** mentioned on this dog food label.

..... [1]

(ii) Suggest **one** reason why there are carrots, sweet potatoes and peas in this dry dog food.

..... [1]

(c) A supermarket has refused to sell this dry dog food.

They claim that the label does not give the pet owners enough information.

Suggest a reason why the supermarket has made this decision.

.....

..... [1]

[Total: 4]

6 The table below provides some information about the reproductive cycle of two breeds of hamster.

	Syrian	Dwarf
Gestation period in days (how long the hamster is pregnant for)	17	20
Typical litter size (how many offspring the hamster gives birth to)	8	4
Weaning age in weeks (the age at which the offspring can be taken away from their mother)	3	3



Syrian hamster



Dwarf hamster

(a) Rosie wants to breed hamsters to earn some money.

She decides to breed Syrian hamsters, not Dwarf hamsters.

Suggest **two** reasons why. Use only information from the table.

.....
.....
.....

[2]

(b) When the hamsters are a few weeks old, Rosie does a routine health check.

Draw a straight line to match each **symptom of ill health** with a **possible cause**.

Symptom of ill health

Possible cause

Limping

Stomach upset

Diarrhoea

Parasites

Scratching

Leg injury

[2]

(c) Rosie is ready to sell her hamsters.

She has people who want to buy them.

Suggest **two** things that the buyers might need to know before taking the hamsters home.

[2]

[2]

(d) Mammals have similar reproductive cycles.

For a hamster, or other small mammal that you have studied, describe its reproductive cycle. Include the sequence of events from mating to birth.



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

Name of small mammal:

- [6]

[Total: 12]

7 The photograph shows an aquarium for fish.



(a) This aquarium holds 260 litres of water.

One goldfish requires 50 litres of water to keep it healthy.

What is the maximum number of goldfish that this tank should hold?

Answer [1]

(b) Which **two** of the following features do fish need in a healthy aquarium?

Put ticks (✓) in the boxes next to the **two** correct features.

Colourful coral for stimulation

Gravel to eat

Living plants to provide oxygen

Pump to circulate the water

Statues to swim through

[2]

[Total: 3]

13

8 Many domestic dogs were first bred from wolves.



(a) Describe how selective breeding has produced domestic dogs from wolves.

.....
.....
.....
.....
.....
.....

[3]

(b) Patrick is a 10-year-old boy who wants a pet dog.

Domestic dogs have been bred for different characteristics.

Suggest **one** characteristic that Patrick should look for when choosing his dog.

Explain your answer.

.....
.....
.....

[2]

[Total: 5]

END OF QUESTION PAPER

14

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

15

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

PLEASE DO NOT WRITE ON THIS PAGE



Oxford Cambridge and RSA

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.