

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE
B682/01
ENVIRONMENTAL AND LAND-BASED
SCIENCE
Plant Cultivation and Small Animal Care
(Foundation Tier)
MONDAY 15 JUNE 2015: Morning
DURATION: 1 hour
plus your additional time allowance
MODIFIED ENLARGED 24pt

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. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).

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 The table below 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 (a) A garden plant, *Pelargonium*, develops 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]

[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.

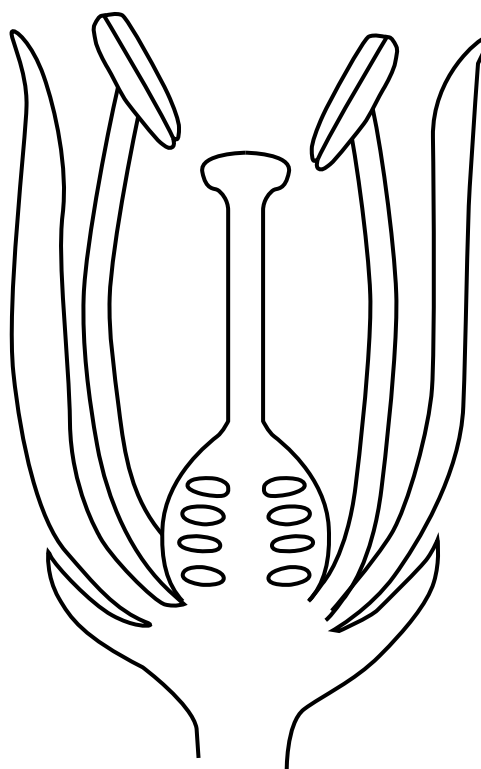
[2]

(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. **[6]**



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

[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.

DOGGO BITES

INGREDIENT/NUTRIENT:

Wholesome Grains

Omega 3 & 6 Fatty Acids

Calcium, Phosphorus and Vitamin A

HELPS SUPPORT:

Energy for an Active Life

Shiny Coat, Healthy Skin

Strong Bones and Teeth

ALSO

Whole carrots, sweet potatoes and peas are three of the nutrient-rich vegetables that your dog will get in every bite

(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
<div>Limping</div>	<div>Stomach upset</div>
<div>Diarrhoea</div>	<div>Parasites</div>
<div>Scratching</div>	<div>Leg injury</div>

[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]

(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]

[6]

[TOTAL: 12]

7 (a) An 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]

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

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