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Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/01**

Paper 1 Multiple Choice (Core) **For examination from 2023**

SPECIMEN PAPER **45 minutes**

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- There are **forty** questions on this paper. Answer **all** questions.
- For each question there are four possible answers **A**, **B**, **C** and **D**. Choose the **one** you consider correct and record your choice in soft pencil on the multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

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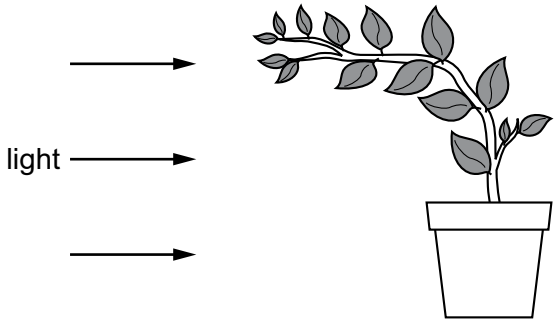
1 The diagram shows a plant.



Which characteristic of living organisms is shown by the plant in the diagram?

A excretion

B reproduction

C respiration

D sensitivity

2 Humans have the scientific name *Homo sapiens*.

What do the two parts of this name refer to?

A genus and species

B group and genus

C kingdom and genus

D kingdom and species

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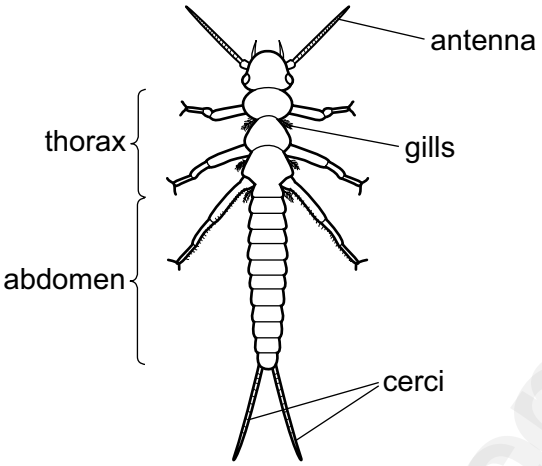
3 The diagram shows a stonefly larva.



Use the key to identify the stonefly larva.

1 has two cerci at the end of the abdomen..... go to 2

has three cerci at the end of the abdomen ..... go to 3

2 abdomen longer than thorax..... **A**

thorax longer than abdomen..... **B**

3 gills visible on the thorax ..... **C**

gills not visible ..... **D**

4 Which part of a plant cell controls the movement of substances into and out of the cell?

A cell membrane

B cell wall

C cytoplasm

D vacuole

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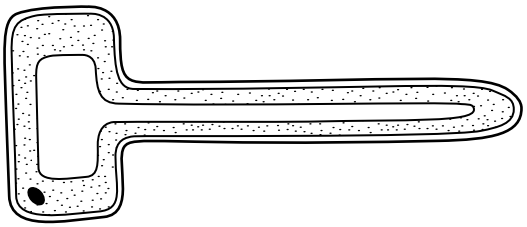
5 The diagram shows the structure of a plant cell.



What is a function of this specialised plant cell?

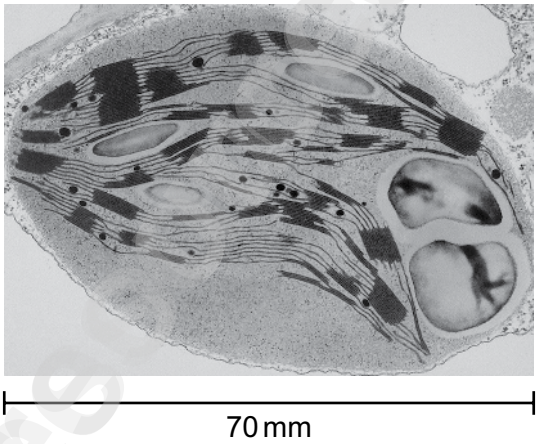
A It absorbs carbon dioxide from the air.

B It absorbs ions from the soil.

C It transports sucrose from leaves.

D It transports water in stems.

6 The photograph shows a chloroplast magnified ×7000.



What is the actual size of the chloroplast?

A 0.0001 mm **B** 0.001 mm **C** 0.01 mm **D** 100 mm

7 How do carbon dioxide and oxygen move into and out of a mesophyll cell?

A active transport

B diffusion

C osmosis

D transpiration

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8 What are the features of active transport?

	occurs through a cell membrane	particles move from a higher concentration to a lower concentration	uses energy from respiration
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✓
D	✗	✓	✓

key:
✓ = yes
✗ = no

9 The data shows the concentrations of sugar and starch in an onion.

total sugar including reducing sugar / g per 100 g	starch / g per 100 g
3.7	0.0

The onion is tested with Benedict's solution and iodine solution.

Which set of results is correct?

	Benedict's solution	iodine solution
A	blue	blue-black
B	blue	brown
C	brick red	blue-black
D	brick red	brown

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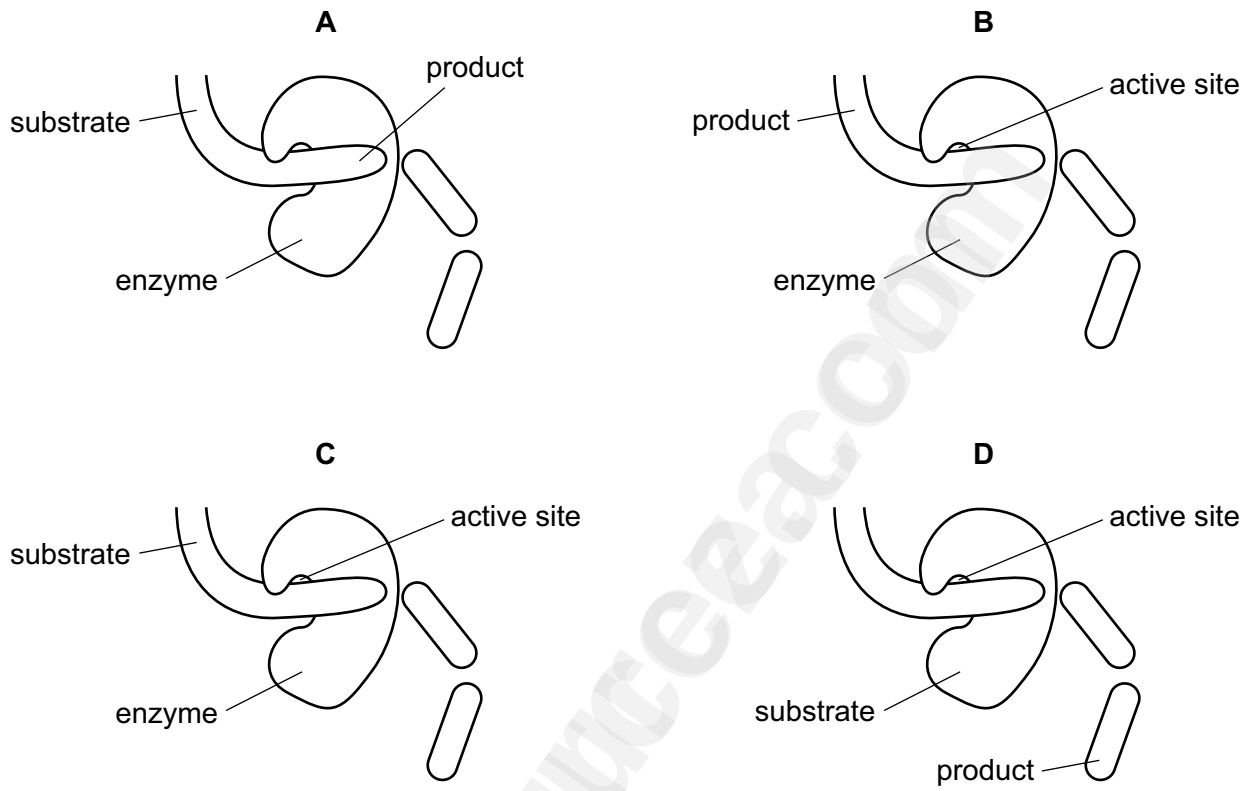
10 The diagrams show a protease enzyme catalysing the breaking of part of a protein molecule into smaller pieces.

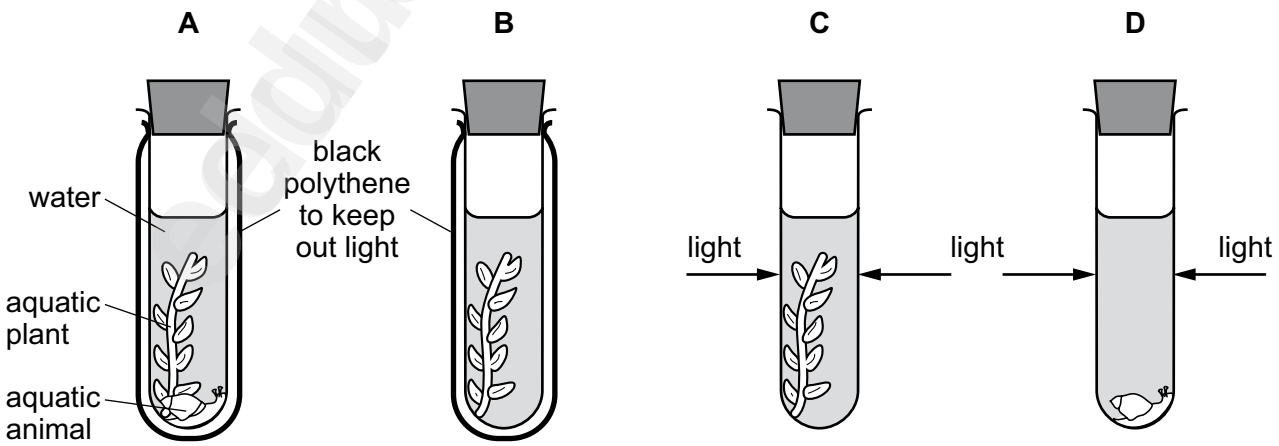
Which diagram has three correct labels?



11 The apparatus shown was used in an experiment.

The carbon dioxide content of the water in each test-tube was measured at the start of the experiment and again three hours later.

In which test-tube will the carbon dioxide concentration decrease?



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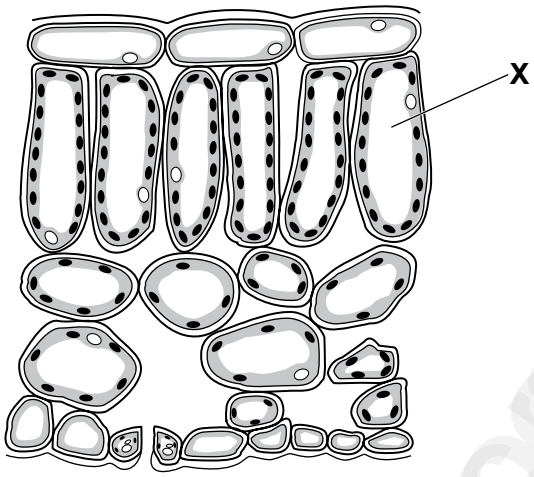
12 The diagram shows a cross-section of part of a leaf.



What is the name of the cell labelled X?

A epidermal cell

B guard cell

C palisade mesophyll cell

D spongy mesophyll cell

13 Why do plants need nitrate ions?

A Nitrogen is a component of amino acids.

B Nitrogen is a component of fatty acids.

C Nitrogen is a component of glucose.

D Nitrogen is a component of starch.

14 In which part of the body of a mammal does physical digestion occur?

A gall bladder

B liver

C mouth

D pancreas

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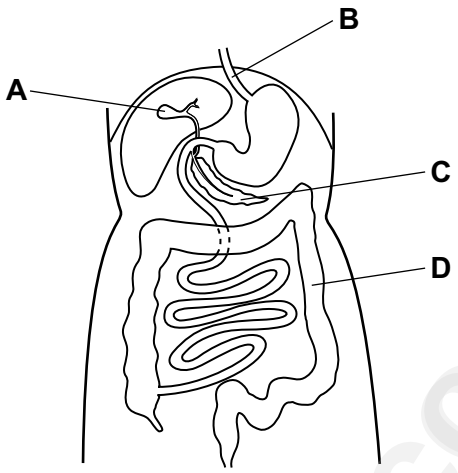
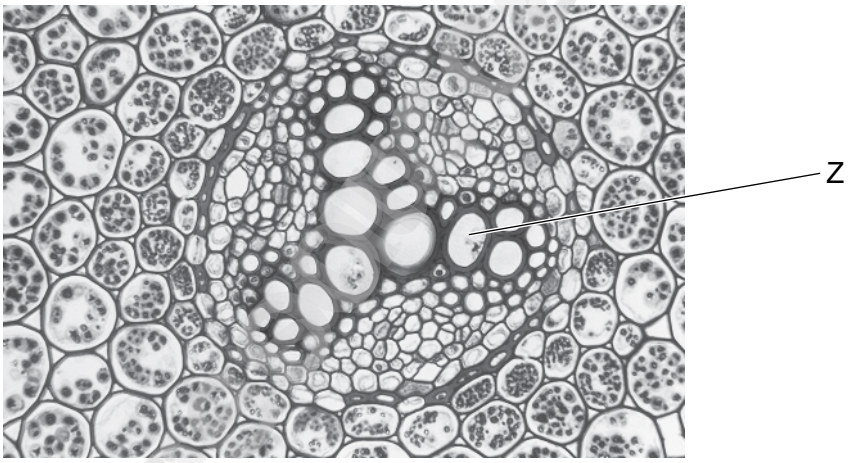
15 The diagram shows part of the human digestive system.

Which structure produces lipase?



16 The photomicrograph shows a cross-section through the root of a buttercup plant.



What is the main function of the tissue labelled Z?

A photosynthesis

B respiration

C transport of sugars

D transport of water

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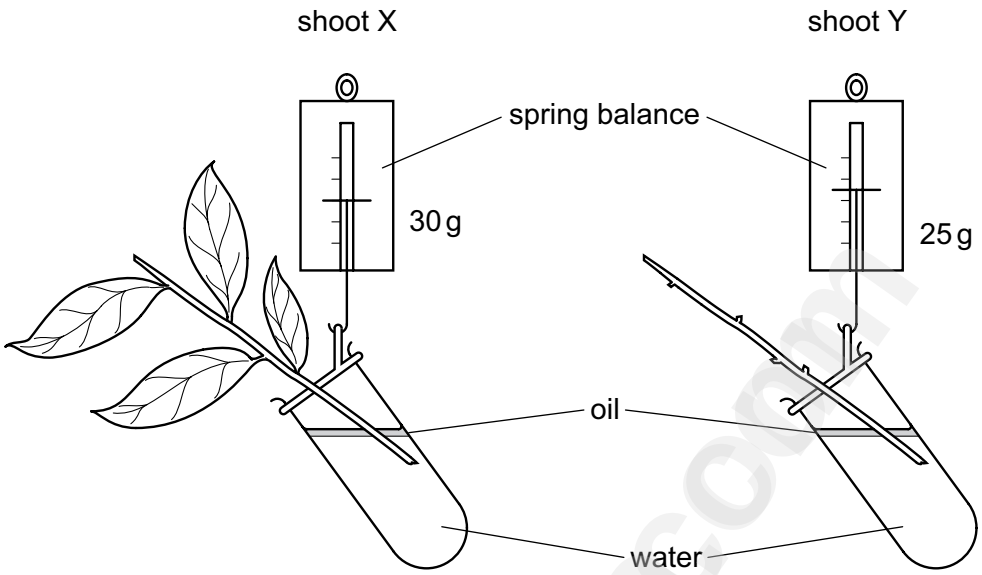
17 The diagram shows two shoots at the start of an experiment on transpiration.

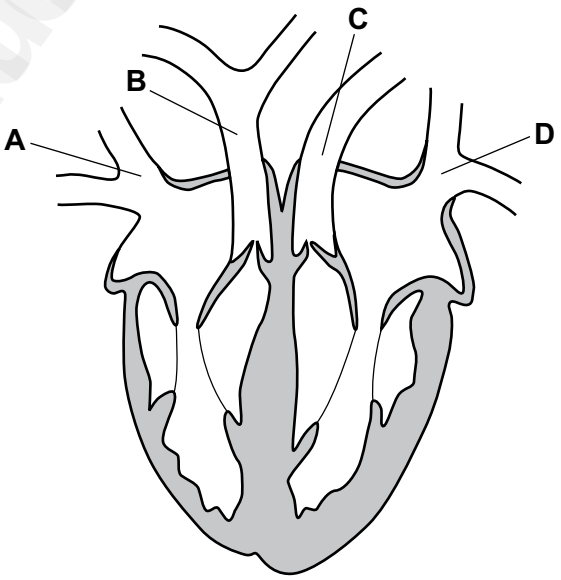


What are the likely readings on the spring balances after three days?

	shoot X / g	shoot Y / g
A	25	30
B	25	25
C	30	25
D	30	30

18 The diagram shows a section through a human heart.

Which blood vessel is the pulmonary vein?



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19 Which part of the blood contains haemoglobin?

A plasma

B platelets

C red blood cells

D white blood cells

20 What are the approximate percentages of oxygen and carbon dioxide in inspired air?

	percentage of oxygen	percentage of carbon dioxide
A	16	4.00
B	16	8.00
C	20	0.04
D	20	4.00

21 Which environmental conditions must always be present for seed germination?

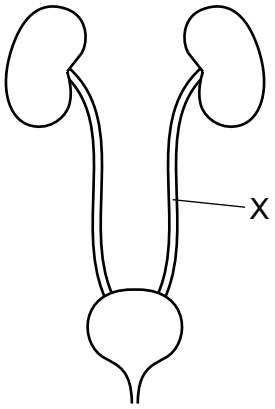
A carbon dioxide and water

B light and suitable temperature

C oxygen and carbon dioxide

D water and oxygen

22 The diagram shows part of the excretory system.



What is structure X?

A bladder

B kidney

C ureter

D urethra

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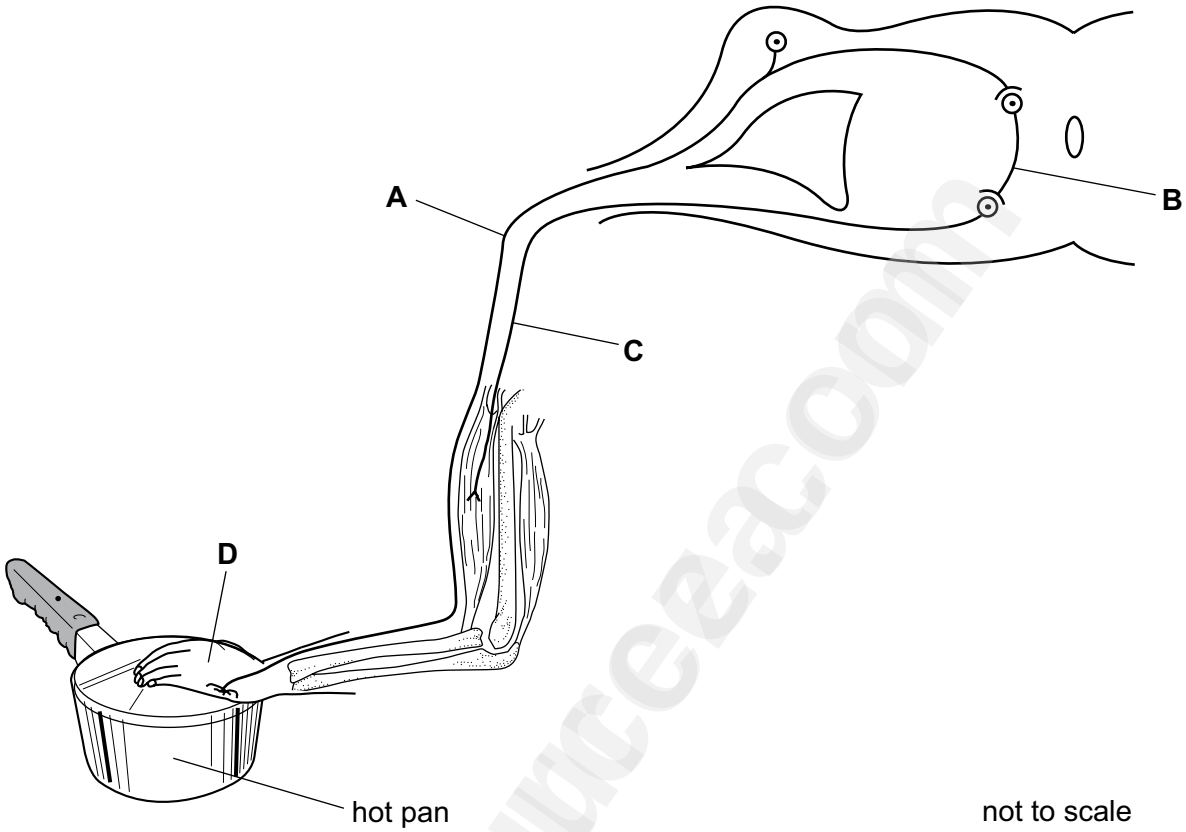
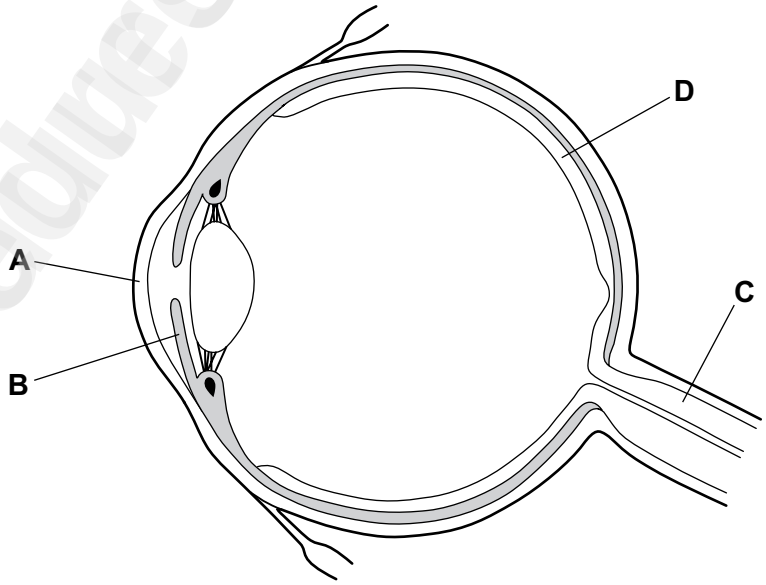
23 The diagram shows a reflex arc.

Which structure is the sensory neurone?



24 The diagram shows the structure of the eye.

Which structure refracts light?



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25 Which disease can be caused by a lack of vitamin C?

A AIDS

B coronary heart disease

C rickets

D scurvy

26 What is formed when the nucleus of a sperm fuses with the nucleus of an egg?

A gamete

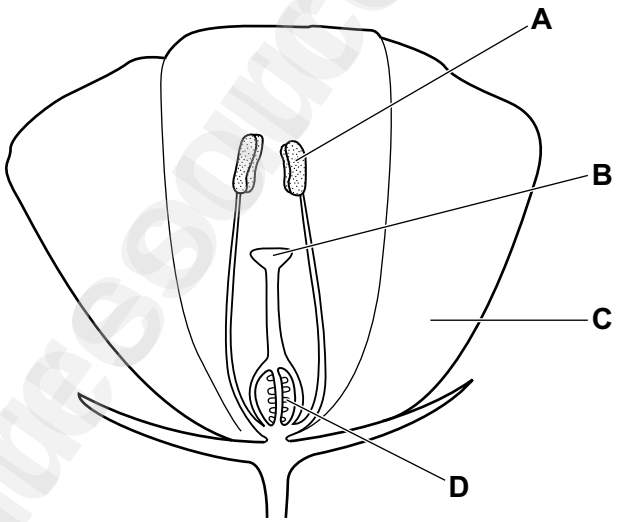
B ovule

C stamen

D zygote

27 The diagram shows part of a flower.

Where does fertilisation occur?



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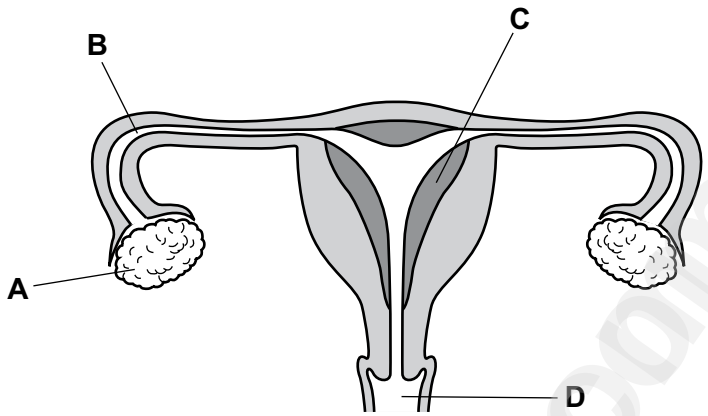
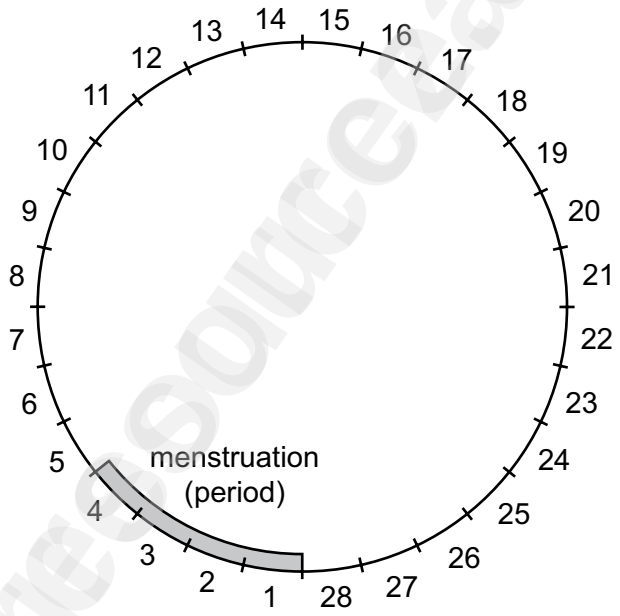
28 The diagram shows the female reproductive system.

Where does implantation normally occur?



29 The diagram shows a timeline of a woman's menstrual cycle, which lasts for 28 days.



On which days of the menstrual cycle is a woman most likely to ovulate?

A days 1–4

B days 7–10

C days 13–16

D days 20–23

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30 The human immunodeficiency virus (HIV) can be transmitted in body fluid.

Some examples of body fluids are listed.

1 blood

2 saliva

3 semen

4 tear fluid

Which body fluids can transmit HIV?

A 1, 2, 3 and 4

B 1, 2, and 3 only

C 1 and 3 only

D 3 only

31 The information shows what happens during some of the stages of sexual reproduction in a human.

egg + sperm → fertilised egg → male embryo

Which sex chromosomes are present in the egg, sperm and fertilised egg shown?

	egg	sperm	fertilised egg
A	X	X	XX
B	X	Y	XY
C	Y	X	XY
D	Y	Y	YY

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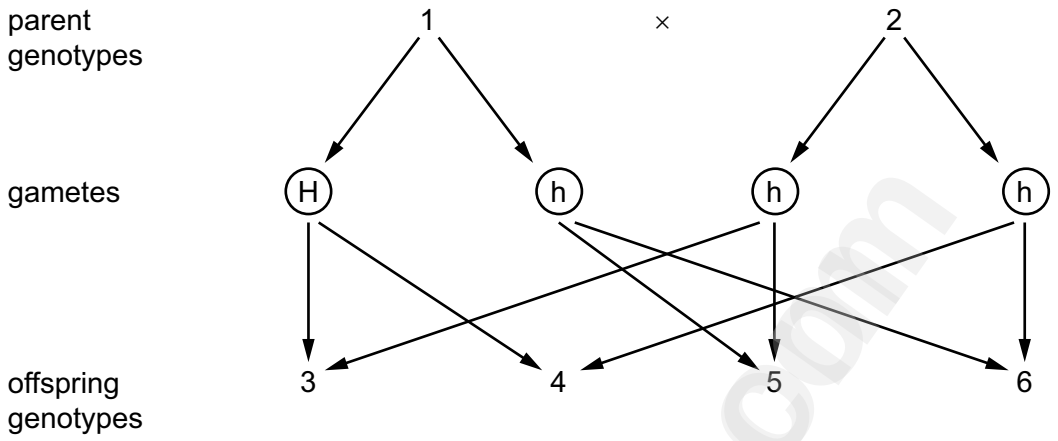
32 The genetic diagram shows a monohybrid cross.

H is the dominant allele and h is the recessive allele.



Which of the parents and offspring are heterozygous?

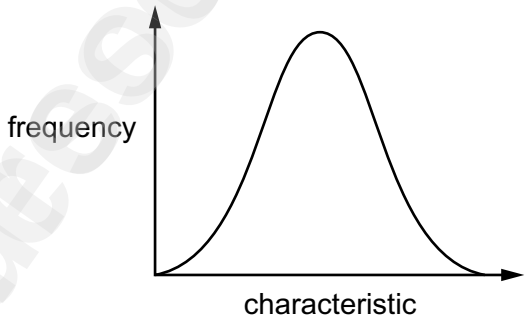
A 1, 3 and 4

B 1, 5 and 6

C 2, 3 and 4

D 2, 5 and 6

33 The graph shows the distribution of a characteristic in a population.



Which characteristic is shown by the curve?

A ABO blood groups in humans

B body length in humans

C seed colour in peas

D seed shape in peas

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34 Dates are a type of fruit.

The table shows some features of the dates a farmer grows.

variety	colour	texture	yield	size
Barhee	amber	soft	high	small to medium
Dayri	dark reddish brown	semi dry	variable	medium to large
Hayany	purplish black	soft	medium	large
Maktoom	amber	soft	medium	medium to large
Thoory	straw coloured	dry	medium	medium to large

The farmer would like to produce a new variety of date using selective breeding.

He wants a medium-sized date that is straw coloured and soft, with a high yield.

Which two varieties could the farmer breed together to get the variety he wants?

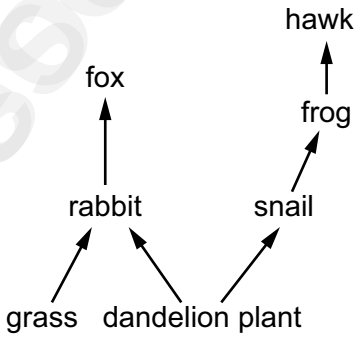
A Barhee and Dayri

B Barhee and Thoory

C Dayri and Maktoom

D Maktoom and Thoory

35 The diagram shows a woodland food web.



Which statement is correct?

A The rabbit and the frog are both herbivores.

B The fox and the hawk are both secondary consumers.

C The frog is a tertiary consumer.

D The rabbit and the snail are both primary consumers.

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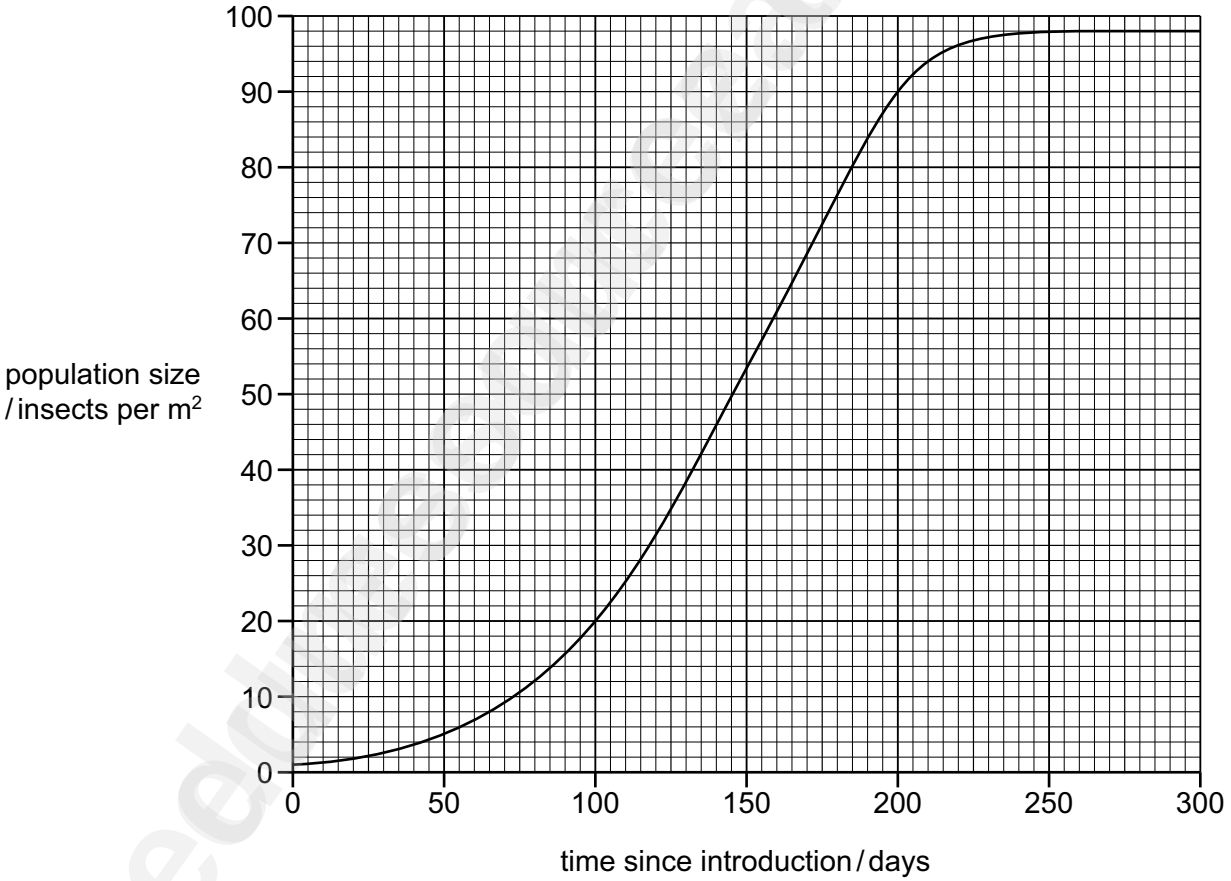
36 The table shows processes in the carbon cycle that release carbon dioxide into the air, or remove carbon dioxide from the air.

Which row is correct?

	releases carbon dioxide into the air	removes carbon dioxide from the air
A	decay	photosynthesis
B	combustion	respiration
C	photosynthesis	combustion
D	respiration	decay

37 The graph shows a population growth curve for a species of insect which has been introduced to an island.



How long after the introduction does the insect population start to be limited by resources such as food?

A 50 days **B** 100 days **C** 150 days **D** 200 days

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38 What is a negative impact of large-scale monocultures?

A Crops need harvesting at the same time.

B Monocultures produce different types of food.

C Monocultures produce more food.

D The genetic variation of organisms is reduced.

39 What could help to prevent a species from becoming endangered?

A a captive breeding programme

B deforestation

C introduction of other species

D pollution

40 What is an example of genetic modification?

A inserting genes into bacteria

B inserting insulin into bacteria

C spraying plants with herbicides

D using biological washing powders

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