Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **May/June 2023**

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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[Turn over

1 What are excretion, sensitivity and reproduction characteristics of?

A all animals and all plants

B animals only

C plants only

D some animals and some plants

2 The photograph shows an organism.



Which visible feature can be used to classify this organism as a bird?

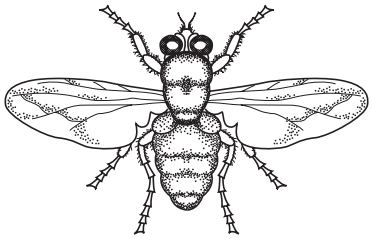
A feathers

B lays eggs

C two legs

D wings

3 The diagram shows an arthropod.



Which features are characteristic of **all** arthropods?

A jointed legs and segmented body

B jointed legs and thorax

C segmented body and wings

D thorax and wings

4 Which statement about cell structure is correct?

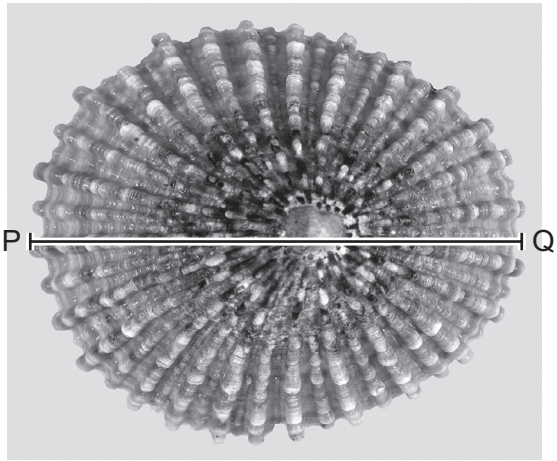
A An animal cell has a cell wall.

B A bacterium has a cell wall.

C An animal cell has chloroplasts.

D A bacterium has chloroplasts.

5 The photograph shows a limpet. The length of line PQ on the image is 65 mm.



×2.5

What is the actual diameter of the limpet along line PQ?

A 2.6 mm **B** 19.5 mm **C** 26 mm **D** 195 mm

6 By which process does oxygen pass out of a leaf?

A diffusion

B osmosis

C egestion

D transpiration

7 A tuber from a potato plant was cut into pieces of identical length. The pieces of potato were placed in four different solutions for three hours.

1 pure water

2 a sugar solution that is less concentrated than the potato cell contents

3 a sugar solution that is more concentrated than the potato cell contents

4 a sugar solution that is the same concentration as the potato cell contents

Which solutions will cause the pieces of potato to change in length?

A 1, 2, 3 and 4

B 1, 2 and 3 only

C 1 and 4 only

D 2 and 3 only

8 Which row shows the features of active transport?

	requires energy from respiration	movement against a concentration gradient	movement of water molecules only
A	✓	✗	✓
B	✗	✗	✓
C	✓	✓	✗
D	✗	✓	✓

key

✓ = yes

✗ = no

9 Four different foods were tested to find out what they contained.

The results are shown in the table.

Which food contains protein but **not** reducing sugar or starch?

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

10 What is a characteristic of all catalysts?

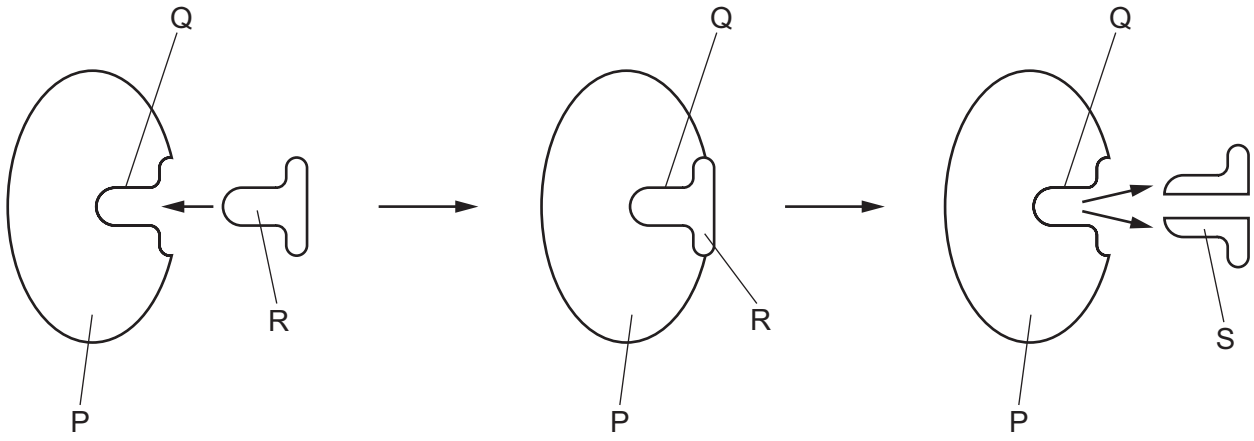
A They are broken down in the reaction.

B They are made in the pancreas.

C They are **not** changed by the reaction.

D They do **not** change the rate of the reaction.

11 This sequence of diagrams shows how an enzyme works.

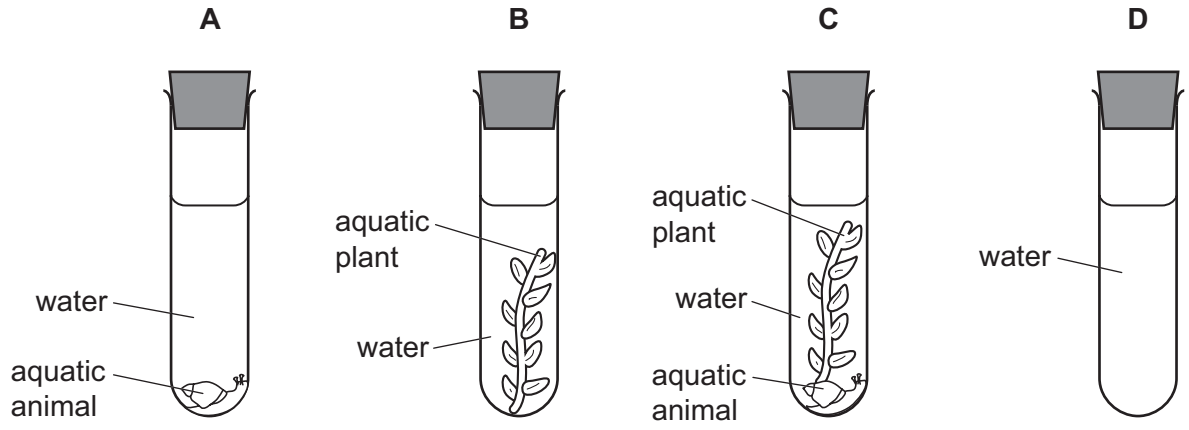


Which labelled part is the active site?

A P **B** Q **C** R **D** S

12 Four test-tubes are set up as shown and left in bright sunlight.

After several hours, which test-tube contains the most oxygen?



13 Which statement about photosynthesis is correct?

A Carbon dioxide and glucose are the raw materials.

B Carbon dioxide and glucose are produced.

C Oxygen and glucose are produced.

D Oxygen and glucose are the raw materials.

14 In humans, which two components of the diet can be broken down to release energy?

A carbohydrate and fat

B carbohydrate and mineral ions

C protein and water

D vitamins and protein

15 Which is a part of the small intestine?

A colon

B ileum

C oesophagus

D rectum

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16 Which of these is digested by protease?

A ■

B ●

C ■—■—■—■

D ●—●—●—●

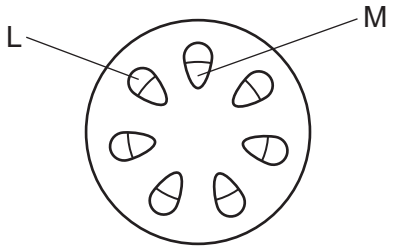
key

■ amino acid

● glucose

— chemical bond

17 A stem was cut from a plant. The base of the stem was placed into a beaker containing water and a red stain for two hours. The diagram shows a cross-section of the plant stem.



In which tissue will the red stain be found and what is the name of the tissue?

	red stain located in	name of tissue
A	L	phloem
B	L	xylem
C	M	phloem
D	M	xylem

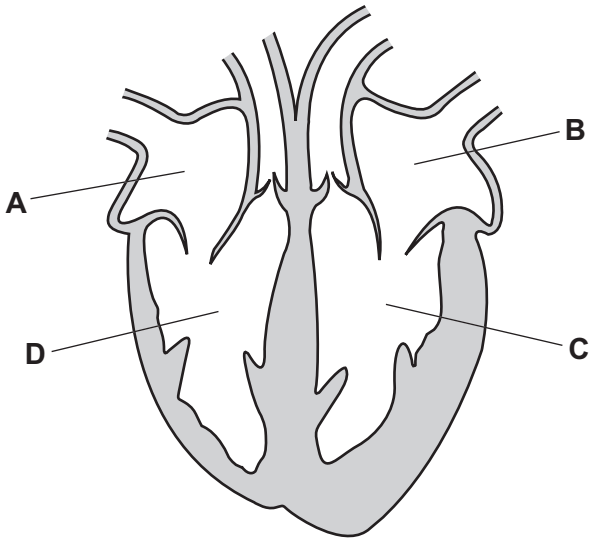
18 Which pair of processes causes transpiration in plant leaves?

	at the surface of mesophyll cells	through the stomata
A	absorption of water	evaporation of water
B	absorption of water	diffusion of water vapour
C	diffusion of water vapour	evaporation of water
D	evaporation of water	diffusion of water vapour

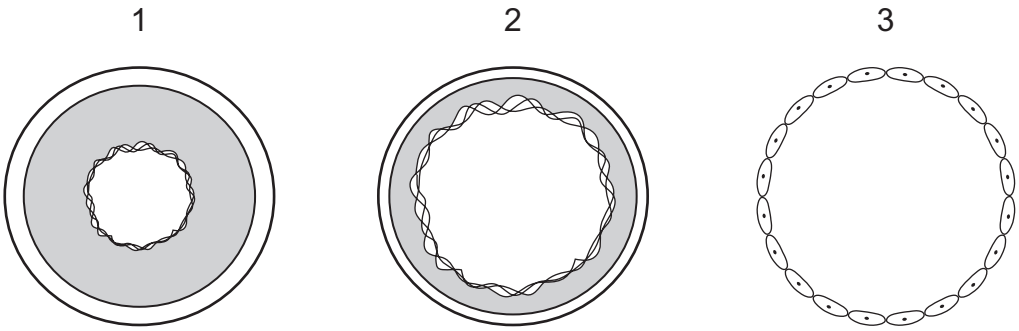
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19 The diagram shows a section of the human heart.

Which label identifies the right ventricle?



20 The diagrams show sections through three types of blood vessel. They are **not** drawn to the same scale.



In which order will red blood cells flow through these vessels in the human body when travelling from the aorta to the right atrium of the heart?

A $1 \rightarrow 2 \rightarrow 3$ **B** $1 \rightarrow 3 \rightarrow 2$ **C** $2 \rightarrow 3 \rightarrow 1$ **D** $3 \rightarrow 1 \rightarrow 2$

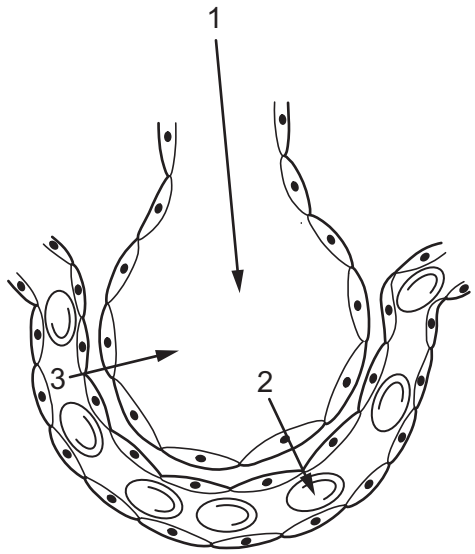
21 In some animals, gas exchange occurs through the skin.

What are the most likely characteristics of the skin in these animals?

	surface area	skin	blood supply
A	large	thick	poor
B	large	thin	good
C	small	thick	poor
D	small	thin	good

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22 The diagram shows an alveolus and part of a blood vessel. The arrows show the direction of movement of gases.



Which arrows represent oxygen only and carbon dioxide only?

	oxygen only	carbon dioxide only
A	1	2
B	1	3
C	2	3
D	3	2

23 Which row about aerobic respiration is correct?

	substrates	products
A	glucose + carbon dioxide	oxygen + water
B	glucose + carbon dioxide	oxygen only
C	glucose + oxygen	carbon dioxide + water
D	glucose only	carbon dioxide + water

24 What is a product of anaerobic respiration in yeast?

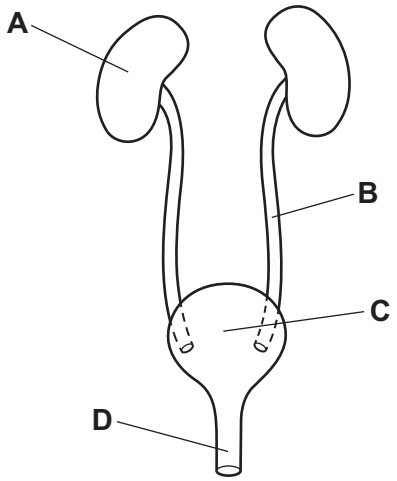
A alcohol

B glucose

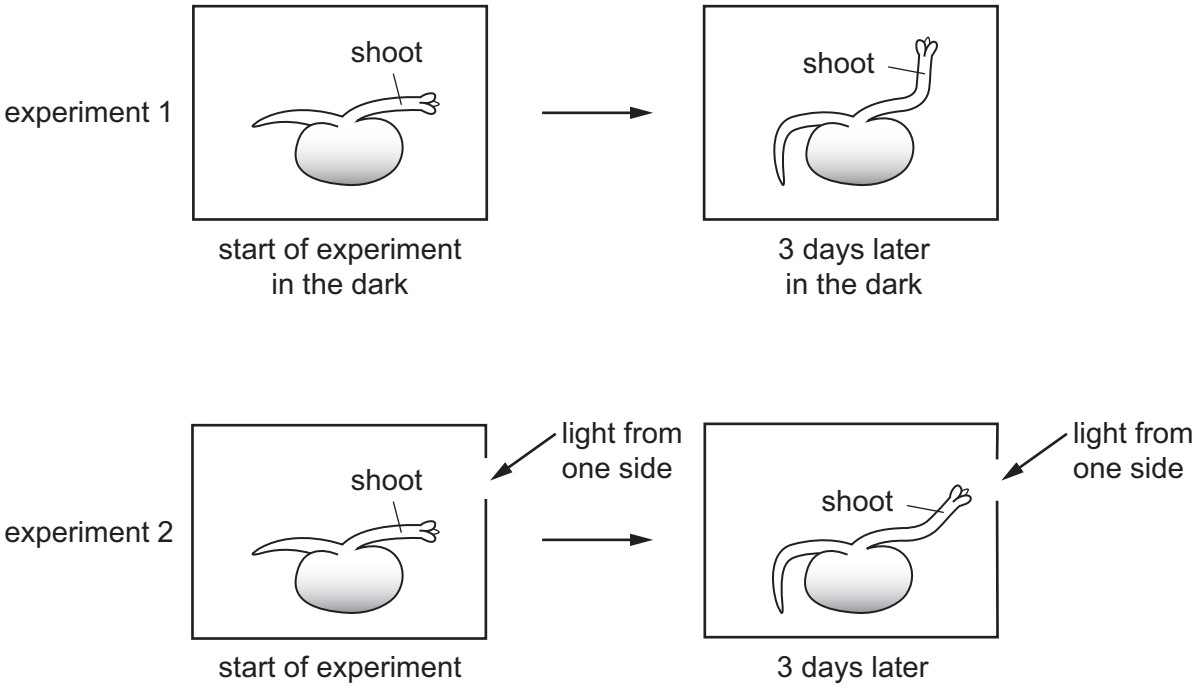
C oxygen

D water

25 Which part of the diagram of the excretory system is the urethra?



26 The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.

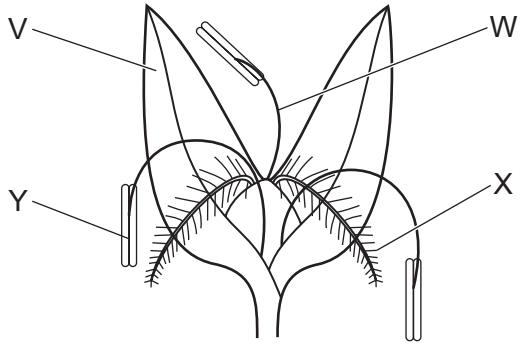


Which stimuli have the seedlings responded to?

	experiment 1	experiment 2
A	gravity and light	light only
B	gravity only	gravity and light
C	gravity and light	light only
D	light only	gravity and light

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27 The diagram shows a wind-pollinated flower.



Which labels are the stigma and anther?

A V and W **B** W and X **C** X and V **D** X and Y

28 What is the process when a pollen nucleus fuses with the nucleus in an ovule?

A fertilisation

B germination

C implantation

D pollination

29 During puberty, secretion of hormones causes the development of secondary sexual characteristics.

What is a characteristic caused by the secretion of testosterone?

A breast development

B deepening of voice

C start of the menstrual cycle

D widening of hips

30 Which type of organism causes AIDS?

A bacterium

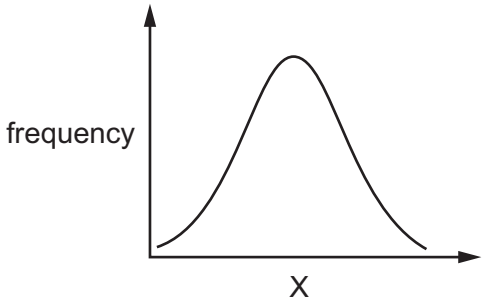
B fungus

C myriapod

D virus

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31 The graph shows the frequency of a human characteristic, X.



Which characteristics can be represented by X?

	blood groups	height	sex
A	✓	✓	✗
B	✗	✗	✓
C	✗	✓	✗
D	✓	✗	✓

key
✓ = yes
✗ = no

32 Which row shows some of the features involved in natural selection?

	many offspring are produced	humans choose desirable features	alleles are passed onto offspring
A	✓	✗	✗
B	✗	✓	✗
C	✗	✓	✓
D	✓	✗	✓

key
✓ = yes
✗ = no

33 Which statement is correct?

A Chromosomes are made of DNA.

B Chromosomes make up a gene.

C Each chromosome is a length of DNA that codes for a protein.

D Different forms of chromosomes are called alleles.

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34 In a species of mammal, black fur colour is dominant and brown fur colour is recessive.

Two parents with black fur produce offspring which all have black fur. Later that year, the same parents produce more offspring. One of these offspring has brown fur.

Which statement about fur colour is correct?

A Both parents are heterozygous.

B Only one of the parents is heterozygous.

C Both parents are homozygous.

D Only one of the parents is homozygous.

35 What is an example of a characteristic that shows discontinuous variation in humans?

A body mass

B height

C ABO blood groups

D width of hand

36 Where does the energy being transferred along a food chain originally come from?

A producer

B photosynthesis

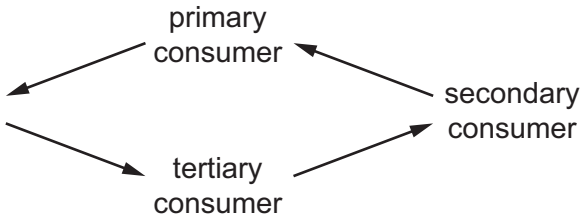
C carbon dioxide

D the Sun

37 Which diagram shows energy passing along a food chain?

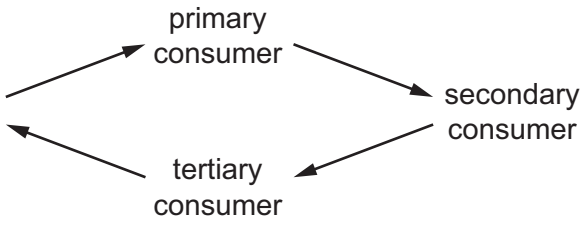
A producer → primary consumer → secondary consumer → tertiary consumer

B

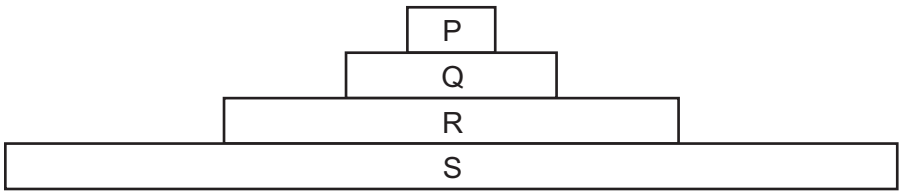


C producer ← primary consumer ← secondary consumer ← tertiary consumer

D



38 The diagram shows a pyramid of biomass for all the organisms in an ecosystem.



Which organisms are carnivores?

A P and Q **B** P and R **C** Q and R **D** R and S

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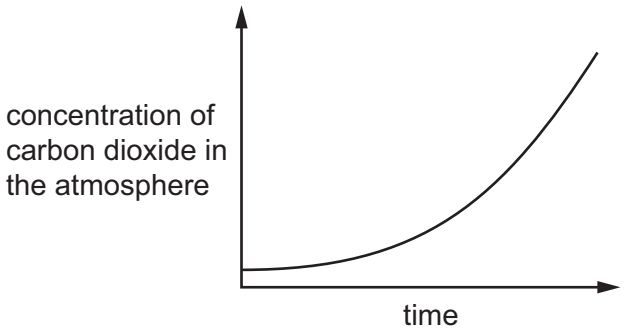
39 Three human activities are listed.

1 burning fossil fuels

2 deforestation

3 replanting forests

Which activities can cause the change shown in the graph?



A 1, 2 and 3 **B** 1 and 2 only **C** 1 only **D** 2 and 3 only

40 What is a reason for using bacteria in biotechnology?

A Bacteria are found inside the human body.

B Bacteria do **not** become resistant to antibiotics.

C Bacteria can make complex molecules.

D Bacteria reproduce slowly.

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