Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/11**

Paper 1 Multiple Choice (Core) **October/November 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.

This document has **16** pages. Any blank pages are indicated.

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1 Some processes carried out by living organisms are listed.

1 egestion

2 excretion

3 reproduction

4 respiration

Which processes are carried out by **all** living organisms?

A 1, 2, 3 and 4

B 1, 2 and 3 only

C 2, 3 and 4 only

D 3 and 4 only

2 The scientific name for humans is *Homo sapiens*.

What does *Homo* refer to?

A mammal

B genus

C kingdom

D species

3 Which row is correct for arthropod classification?

	arthropod group	antennae present	number of body parts	number of legs
A	arachnids	no	2	6
B	crustaceans	yes	3	8
C	insects	yes	3	6
D	myriapods	no	2	4

4 In a mesophyll cell, where are chloroplasts found?

A between the cell wall and the cell membrane

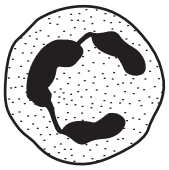
B in the cytoplasm

C in the nucleus

D in the vacuole

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5 The cell shown in the diagram has been magnified 3000 times. The diagram is 21 mm wide.



What is the actual diameter of the cell?

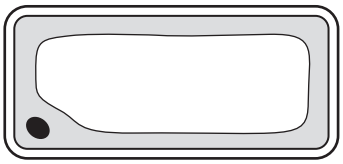
A 21 mm

B $\frac{21\text{mm}}{3000}$

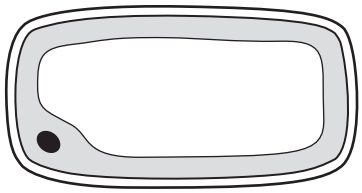
C 21 mm × 3000

D $\frac{3000}{21\text{mm}}$

6 The diagrams show how a cell appears under the microscope at the start of an experiment and after it has been placed in a dilute solution of salts for 5 minutes.



start of the experiment



after placing in a dilute solution of salts

Which statement explains what happens?

A Dissolved salts enter the cell by diffusion.

B Dissolved salts leave the cell by diffusion.

C Water enters the cell by osmosis.

D Water leaves the cell by osmosis.

7 What causes the diffusion of oxygen into a plant cell?

A active transport

B movement of molecules

C osmosis

D photosynthesis

8 What is the colour change shown by Benedict's solution when heated with a reducing sugar?

A blue to purple

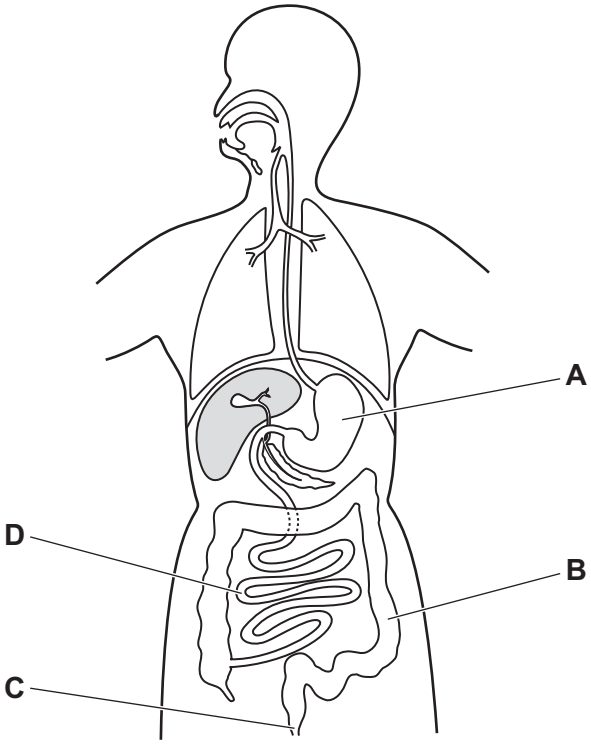
B blue to red

C brown to blue-black

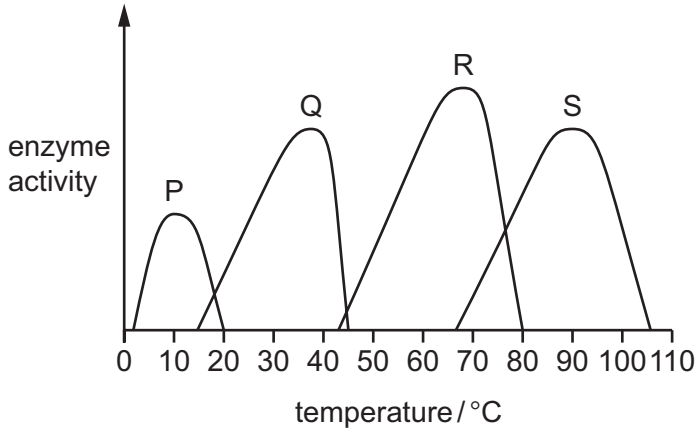
D red to yellow

9 The diagram shows the digestive system.

Which part absorbs the most water?



10 The graph shows the effect of temperature on the activity of four different enzymes.



Which conclusion about the data in the graph is correct?

A Enzyme P and enzyme Q are both active at 25 °C.

B Enzyme R and enzyme S are both active at 75 °C.

C Enzyme P has an optimum temperature of 0 °C.

D Enzyme S has an optimum temperature above 100 °C.

11 Which colour does hydrogencarbonate indicator turn if the carbon dioxide concentration is increased?

A green

B red

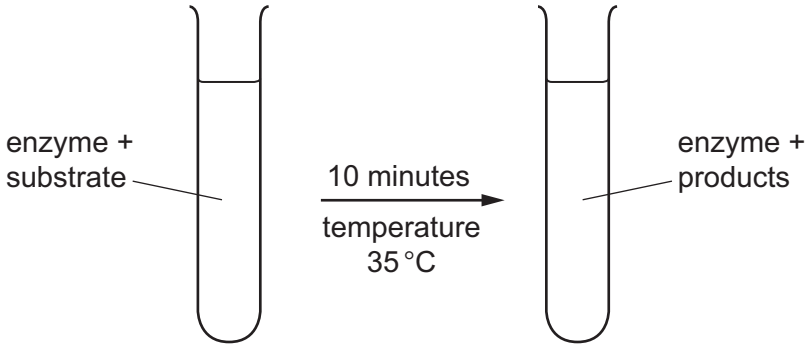
C violet

D yellow

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12 The diagram shows a test-tube at the start and at the end of an enzyme experiment.



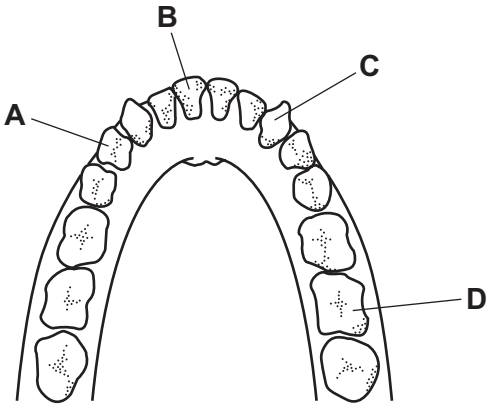
At the end of the experiment, the mixture in the test-tube contains glycerol.

Which row correctly identifies the enzyme and the substrate it acts on?

	enzyme	substrate it acts on
A	amylase	fat
B	amylase	glucose
C	lipase	fat
D	lipase	glucose

13 The diagram shows the teeth in the lower jaw of a human.

Which tooth is a molar?



14 What is meant by chemical digestion?

A Large insoluble molecules are broken down into small soluble molecules.

B Large soluble molecules are broken down into small insoluble molecules.

C Small insoluble molecules are built up into large soluble molecules.

D Small soluble molecules are built up into large insoluble molecules.

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15 Which food is a good source of vitamin C?

A bread

B cheese

C chicken

D oranges

16 What is a description of transpiration?

A exchange of gases between the leaf and the atmosphere

B loss of water vapour from the leaves of a plant

C movement of water from the roots to the leaves

D movement of water through the cells of the leaf

17 Parts of a plant are listed.

1 mesophyll cells

2 root cortex cells

3 root hair cells

4 xylem vessels

What is the pathway taken by water in the plant?

A $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$

B $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

C $3 \rightarrow 1 \rightarrow 4 \rightarrow 2$

D $3 \rightarrow 2 \rightarrow 4 \rightarrow 1$

18 Parts of the human circulatory system are listed.

1 arteries

2 capillaries

3 heart

4 veins

Which structures have valves to ensure the one-way flow of blood?

A 1 and 2 **B** 2 and 4 **C** 2 and 3 **D** 3 and 4

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19 Which type of cells produce antibodies?

A ciliated cells

B platelets

C red blood cells

D white blood cells

20 What is an example of a transmissible disease?

A coronary heart disease caused by eating a high fat diet

B AIDS

C liver disease caused by excessive alcohol consumption

D scurvy

21 Which table correctly shows the difference in composition of inspired air compared with expired air?

A

	inspired air	expired air
oxygen	less	more
carbon dioxide	less	more

B

	inspired air	expired air
oxygen	less	more
carbon dioxide	more	less

C

	inspired air	expired air
oxygen	more	less
carbon dioxide	less	more

D

	inspired air	expired air
oxygen	more	less
carbon dioxide	more	less

22 What is the site of gas exchange in humans?

A nose

B alveoli

C bronchus

D trachea

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23 Three statements about anaerobic respiration are listed.

1 In humans, the product is lactic acid.

2 In yeast, the product is lactic acid.

3 It releases more energy per glucose molecule than aerobic respiration.

Which statements are correct?

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

24 Which organ produces insulin?

A adrenal gland

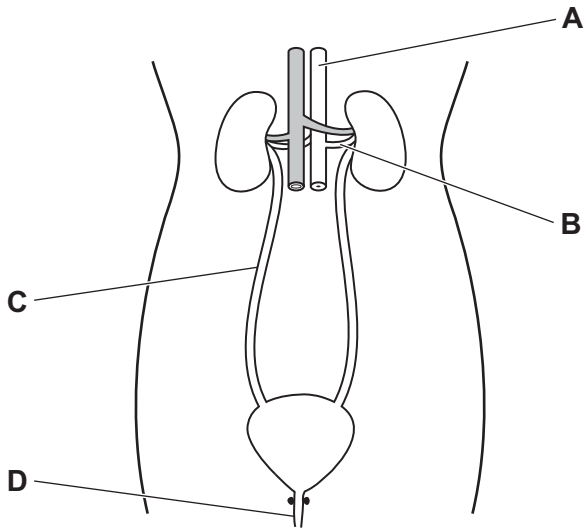
B liver

C ovary

D pancreas

25 The diagram shows the human excretory system.

Which labelled structure is the urethra?

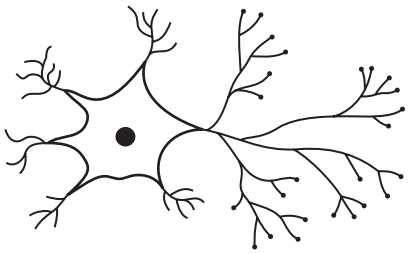


26 The diagrams show three types of neurones.

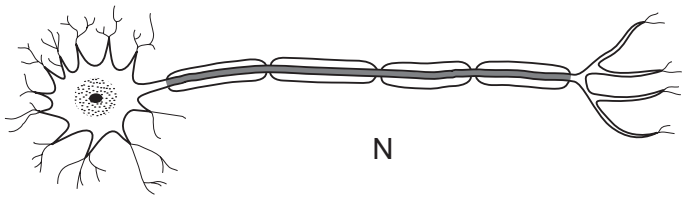


L

NOT TO SCALE



M



N

Which sequence shows the direction that impulses will travel during a reflex action?

A L → M → N

B M → L → N

C M → N → L

D N → M → L

27 Which part of the eye detects red light?

A cornea

B iris

C optic nerve

D retina

28 The diagram shows a human sperm cell.

Which structure digests the egg cell membrane?



29 Which diseases can be successfully treated with antibiotics?

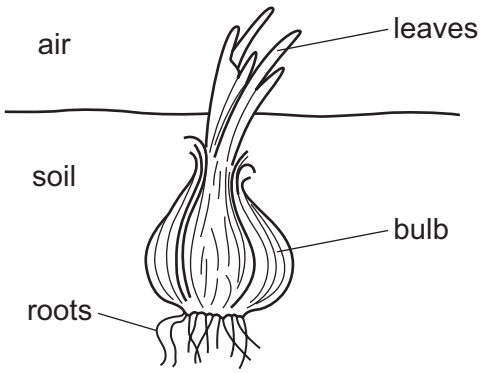
	diseases caused by bacteria	rickets	diseases caused by viruses
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

✓ = can be treated

✗ = cannot be treated

30 Some species of plants can reproduce by producing bulbs. The diagram shows a bulb.



The bulb is produced by one parent plant and will grow into a new plant.

Which statement about the new plant is correct?

A It is genetically different from its parent and is produced by asexual reproduction.

B It is genetically different from its parent and is produced by sexual reproduction.

C It is genetically identical to its parent and is produced by asexual reproduction.

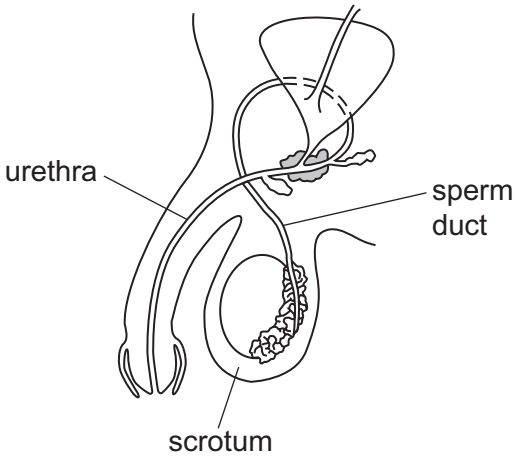
D It is genetically identical to its parent and is produced by sexual reproduction.

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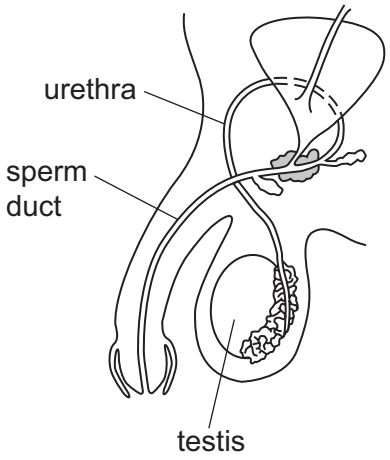
[Turn over

31 Which diagram of the male reproductive system is correctly labelled?

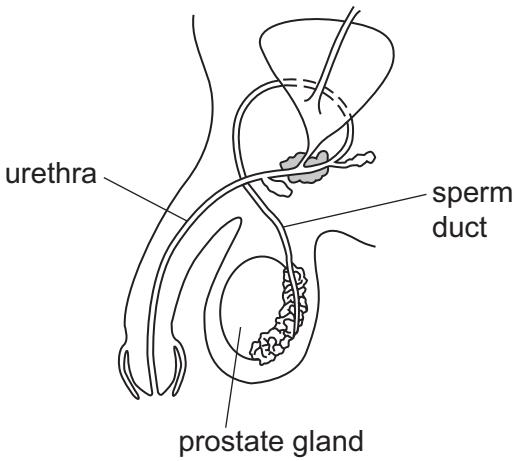
A



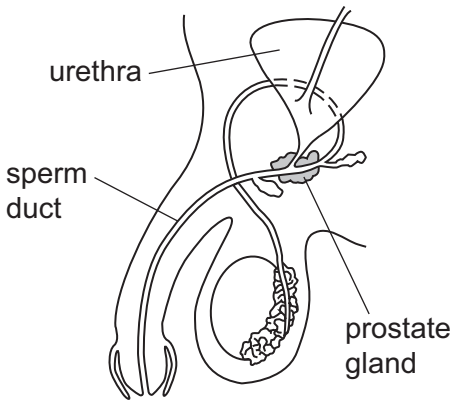
B



C



D



32 What can be used to reduce the transmission of HIV?

	face masks	screening blood donors	sterile needles for drug users	washing hands
A	✓	✗	✗	✗
B	✗	✓	✓	✗
C	✗	✗	✓	✓
D	✓	✓	✗	✗

key

✓ = can be used to reduce transmission

✗ = cannot be used to reduce transmission

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33 Which statement about the human sex chromosomes is correct?

A Females have an X chromosome and a Y chromosome.

B Females have two Y chromosomes.

C Males and females have at least one X chromosome.

D Males and females have at least one Y chromosome.

34 The inheritance of seed colour in pea plants is controlled by a single gene. The allele for yellow seed colour, Y, is dominant. The allele for green seed colour, y, is recessive.

What are the possible genotypes of a pea seed that is yellow?

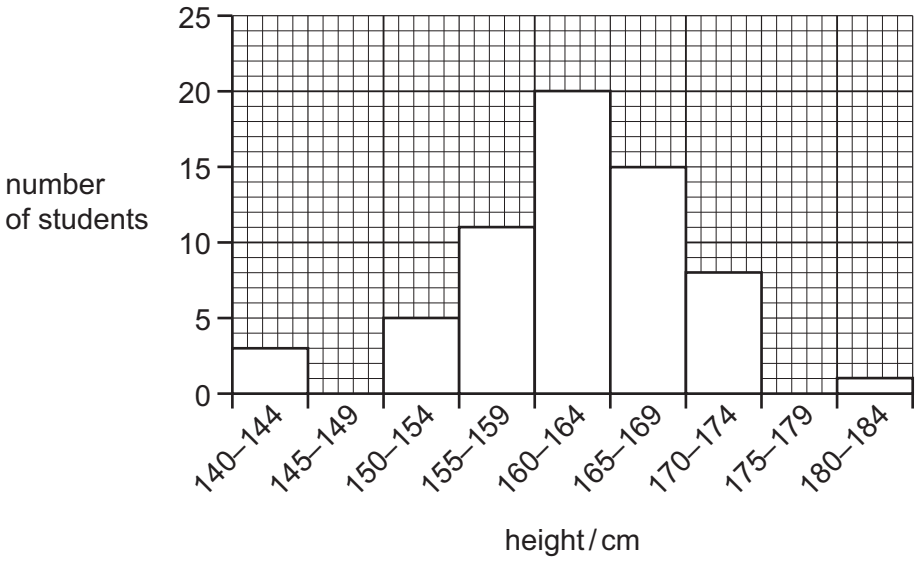
A YY or yy only

B YY, Yy or yy

C YY or Yy only

D Yy or yy only

35 The graph shows the heights of students in a class.



What is a correct statement for these data?

A There are two students who are 147 cm tall.

B The most frequent height range is 160–164 cm.

C The range of student heights measured is 150–174 cm.

D There are 72 students in this study.

36 Which process decreases the amount of carbon dioxide in the atmosphere?

A combustion

B decomposition

C photosynthesis

D respiration

37 It is estimated that 90% of the energy which flows through living organisms in a food chain is lost between one trophic level and the next.

The producers in a food chain contain 1000 units of energy.

How many units will reach the quaternary consumers in the food chain?

A 0.1 units

B 1 unit

C 10 units

D 100 units

38 What can increase as a result of deforestation?

1 extinctions

2 flooding

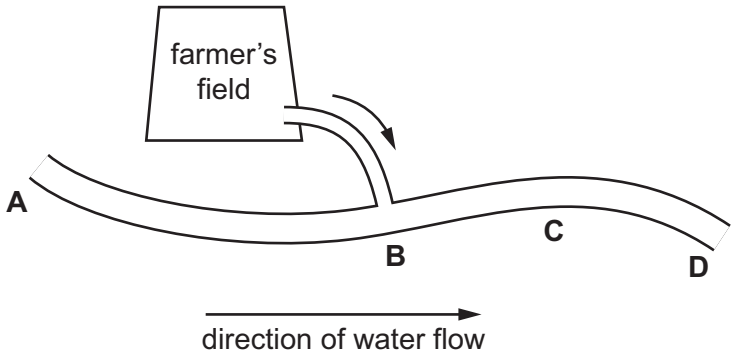
3 biodiversity

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

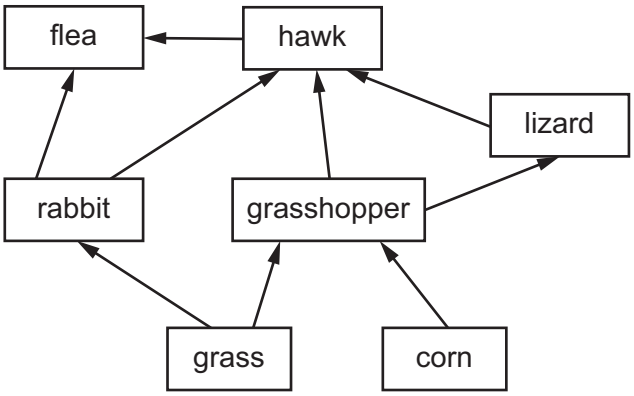
39 The diagram shows the position of a farmer's field near a river.

The farmer uses chemical fertilisers that drain into the river, causing pollution. High concentrations of the chemical fertiliser result in increased growth of aquatic plants.

At which point is the growth of aquatic plants the **least** affected by fertilisers?



40 The diagram shows a food web.



Which food chain shows a correct flow of energy through the web?

A corn → grasshopper → hawk → lizard

B grass → grasshopper → hawk → rabbit

C grass → rabbit → hawk → flea

D corn → grass → rabbit → hawk

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