Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **May/June 2024**

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 **20** pages. Any blank pages are indicated.

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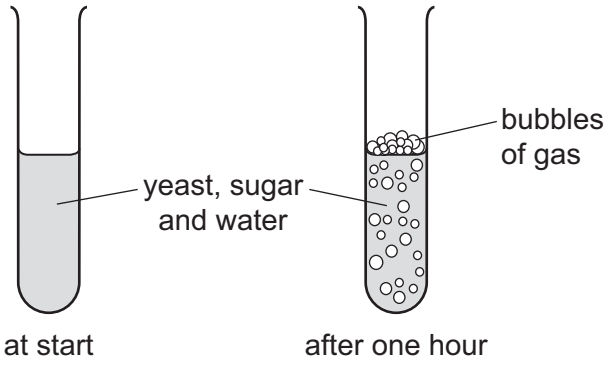
[Turn over

1 Some yeast, sugar and water are mixed in a test-tube. The diagrams show the test-tube at the start and after one hour.



Which process causes this change?

A growth

B reproduction

C respiration

D sensitivity

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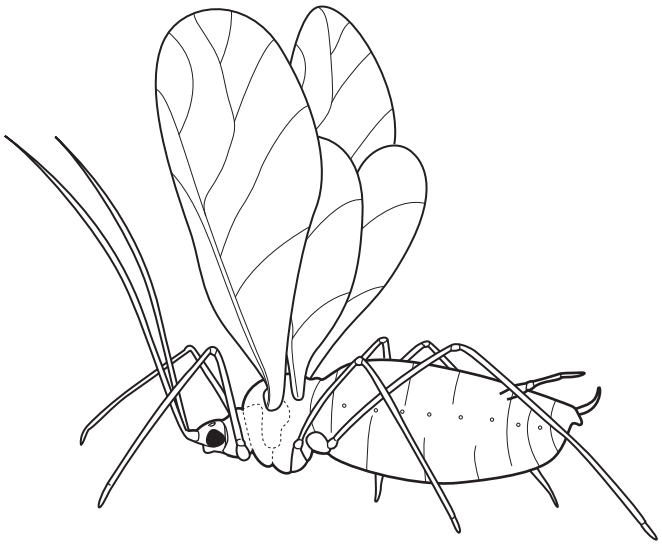
2 The diagram shows an animal.



Use the key to identify the animal.

1	has two wings	go to 2
	has four wings	go to 3
2	has antennae much shorter than legs	**A**
	has antennae about the same length as legs	**B**
3	has feathery antennae	**C**
	has smooth antennae	**D**

3 Donkeys and zebras are different species. They can breed to produce an animal called a zedonk.

Zedonks are not fertile.

Which statement is correct?

A Zedonks and donkeys are the same species.

B Zedonks and zebras are the same species.

C Zedonks are a species.

D Zedonks are **not** a species.

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[Turn over

4 Crabs are arthropods with 10 jointed legs and two pairs of antennae.

To which arthropod class do they belong?

A arachnids

B crustaceans

C insects

D myriapods

5 Heart muscle cells have a high rate of metabolism.

Which structure do they require to be present in high numbers?

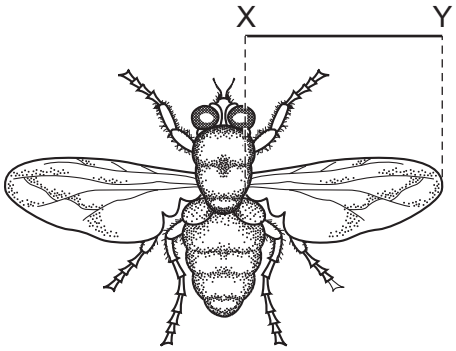
A chloroplasts

B mitochondria

C cell walls

D vacuoles

6 The diagram shows a fly.



The line XY represents the length of the wing.

The length of line XY is 26 mm.

The actual size of the wing between X and Y is 4 mm.

What is the magnification of the diagram?

A ×0.15 **B** ×6.5 **C** ×22 **D** ×104

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7 What is an example of diffusion?

A dust particles being moved by ciliated cells in the trachea

B oxygen molecules moving into a red blood cell in the lungs

C pollen grains moving from anthers to stigmas in the wind

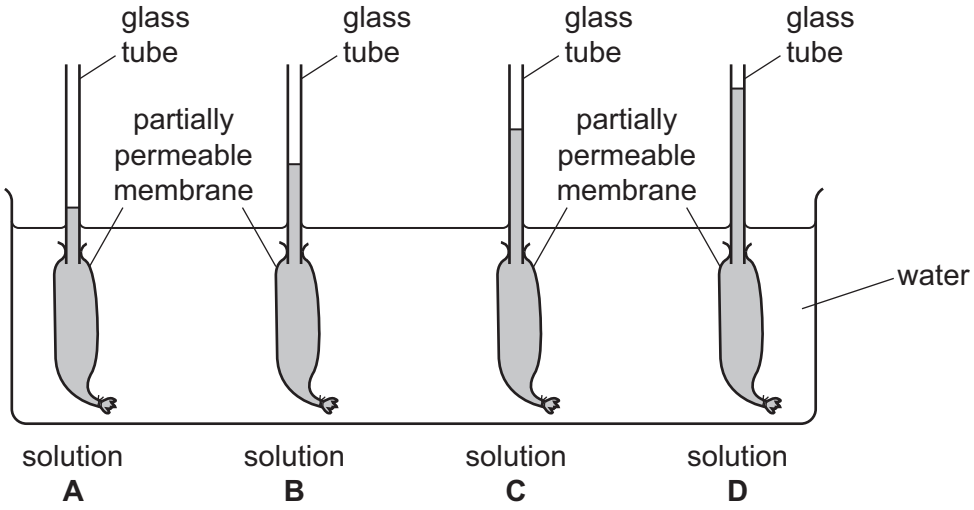
D red blood cells moving in a blood capillary in a muscle

8 The diagram shows apparatus used to investigate osmosis.

The volumes of solutions **A**, **B**, **C** and **D** were the same at the start of the investigation.

After one hour, the solutions had moved up the glass tubes.

Which solution was the most concentrated at the start of the investigation?



9 Which row describes active transport?

	movement of water	uses energy from respiration	movement through a cell membrane
A	yes	no	no
B	yes	no	yes
C	no	yes	no
D	no	yes	yes

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[Turn over

10 Iodine solution is added to a food sample that contains starch.

What is the colour of the sample after the iodine solution has been added?

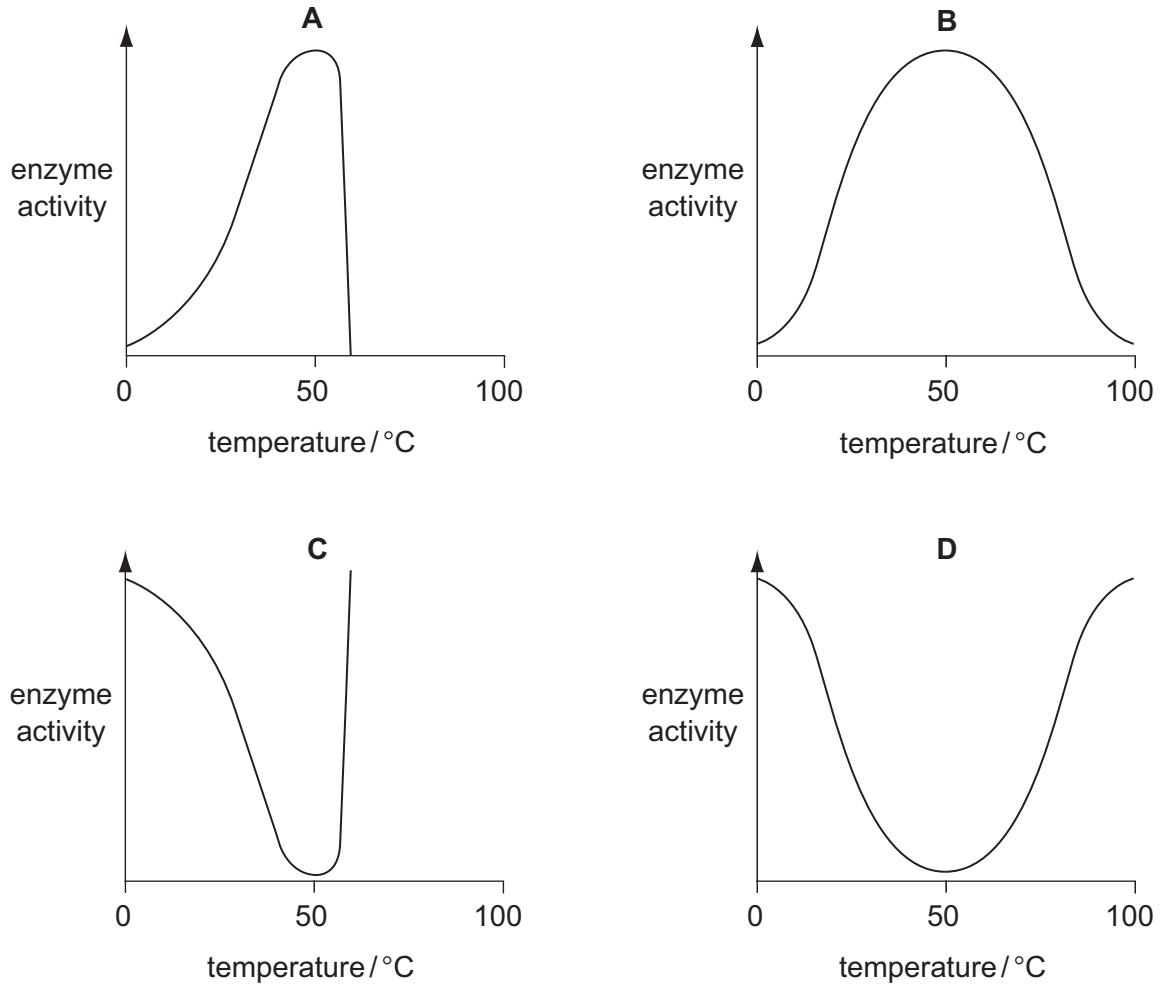
A blue-black

B purple

C red

D yellow

11 Which graph shows the effect of temperature on the activity of an enzyme?



12 Which of these statements about enzymes are correct?

1 enzymes are proteins

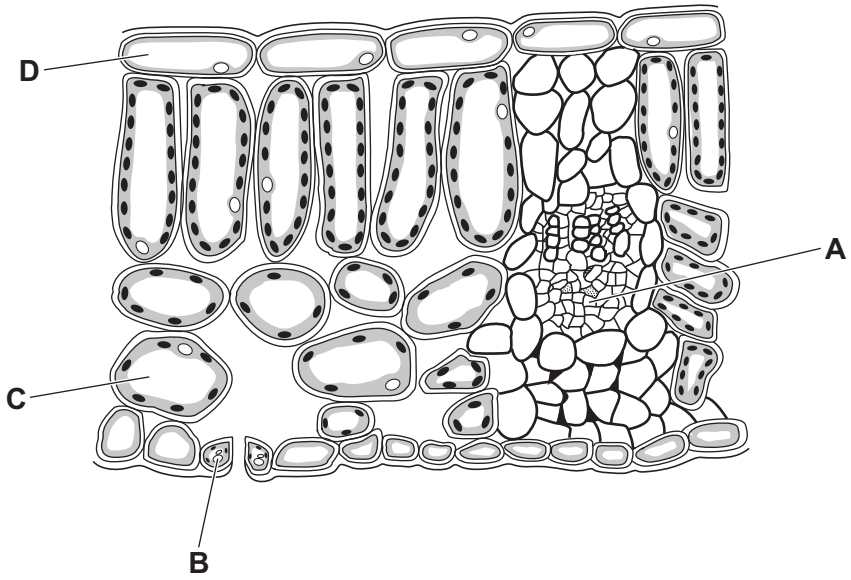
2 enzymes are used up during chemical reactions

3 enzymes speed up metabolic reactions

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

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

Which cell controls the rate of gas exchange?



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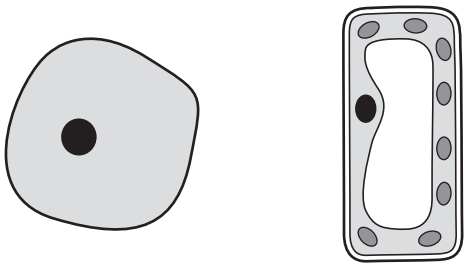
14 The diagram shows two cells.



Which process happens in only one of these cells?

A controlling the chemical reactions in the cell

B controlling the movement of substances into the cell

C making starch inside the cell

D using glucose inside the cell

15 Which organ is part of the digestive system?

A colon

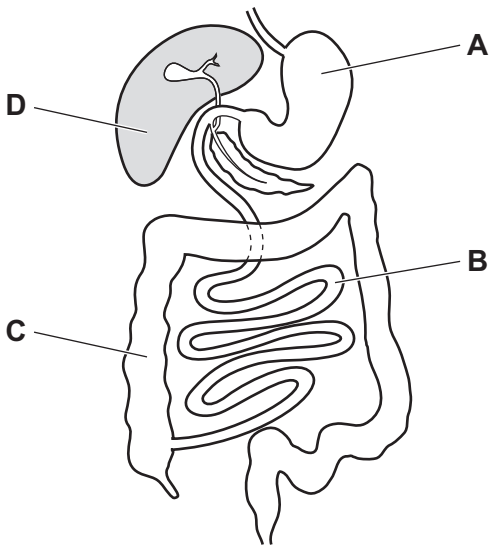
B larynx

C vena cava

D ureter

16 The diagram shows the human alimentary canal.

Where is most digested food absorbed into the blood?



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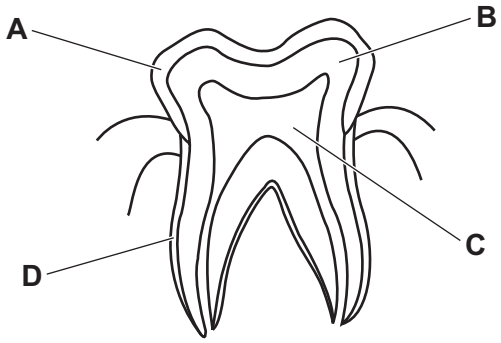
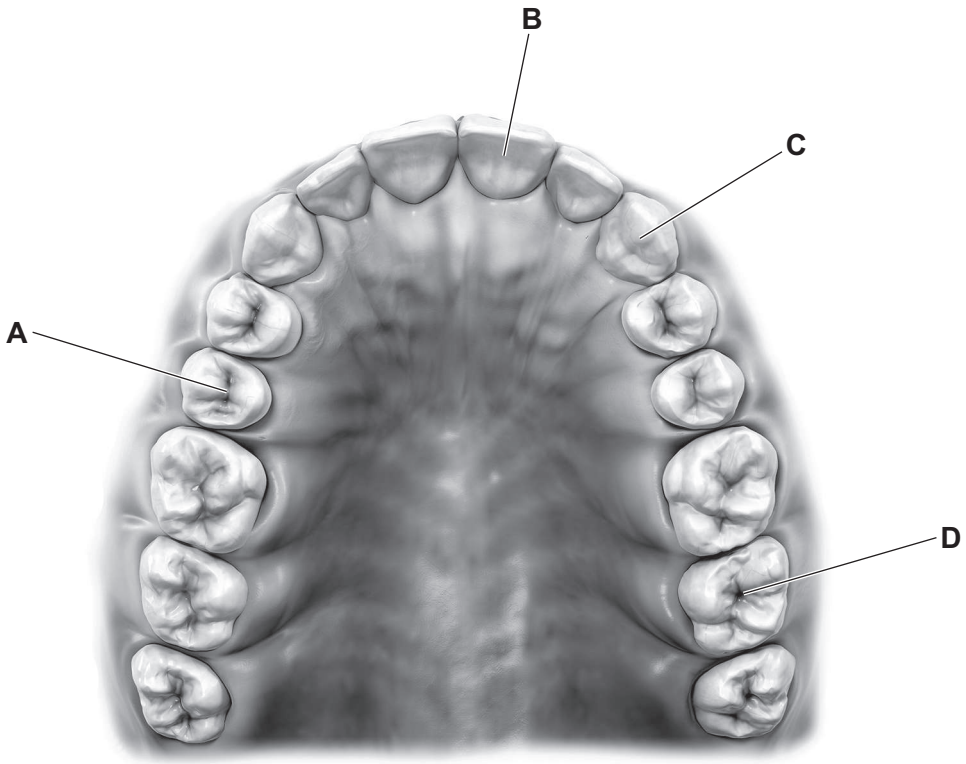
17 Which layer is dentine in the diagram of a human tooth?

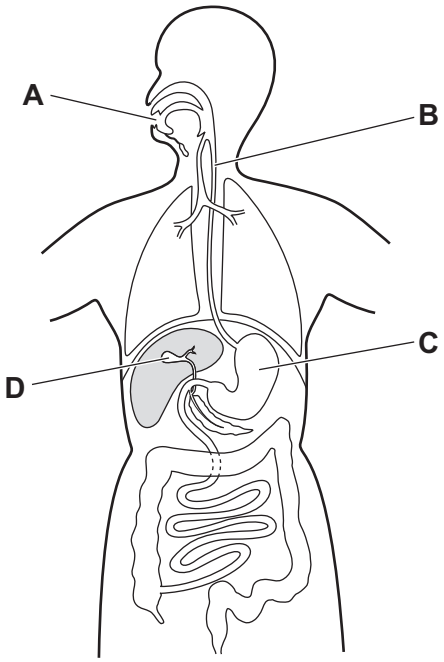


18 The diagram shows a human jaw.

Which labelled tooth is an incisor?



19 Where does protease act?



20 Which statement describes transpiration?

A Water is pulled upwards by active transport.

B Water is pulled up from the roots by phloem.

C Water moves by osmosis inside the xylem vessels.

D Water vapour diffuses out of the leaves.

21 Which statement describes the circulation of blood in the human body?

A Blood is pumped away from the heart by the atria.

B Blood is pumped away from the heart through arteries.

C Blood is pumped away from the heart through veins.

D Blood is pumped to the heart through capillaries.

22 Which method of pathogen transmission is direct?

A breathing in pathogens in air

B eating contaminated food

C transfusing contaminated blood

D touching a door handle that has pathogens on it

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23 Which statement describes anaerobic respiration?

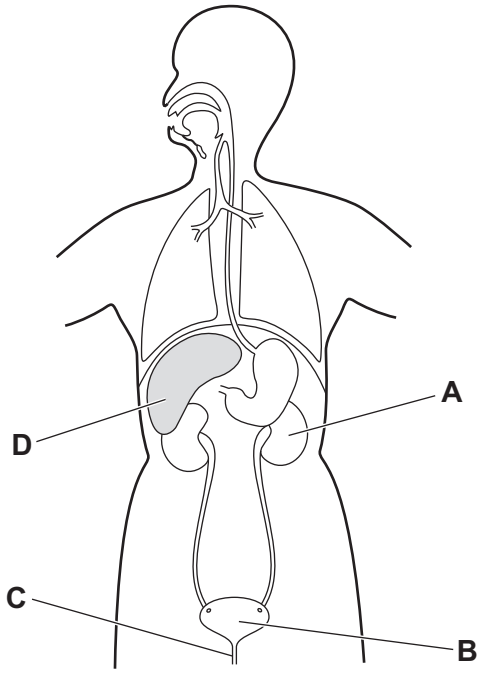
A Anaerobic respiration in humans produces lactic acid and carbon dioxide.

B Anaerobic respiration in yeast produces water and carbon dioxide.

C Anaerobic respiration releases energy from glucose without using oxygen.

D Anaerobic respiration releases more energy per glucose molecule than aerobic respiration.

24 Which organ is responsible for the excretion of urea in the human body?



25 Which part of the eye contains light receptors?

A cornea

B iris

C lens

D retina

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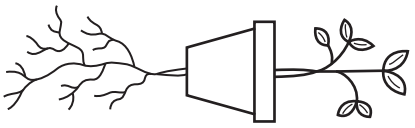
26 Which row shows the effects of adrenaline secretion?

	pupil diameter	heart rate
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

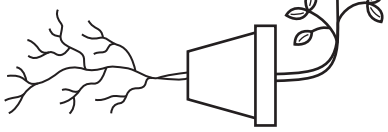
27 A plant pot is placed on its side.

Which diagram shows a plant with roots showing gravitropism and shoots showing phototropism?

A



B



C

D

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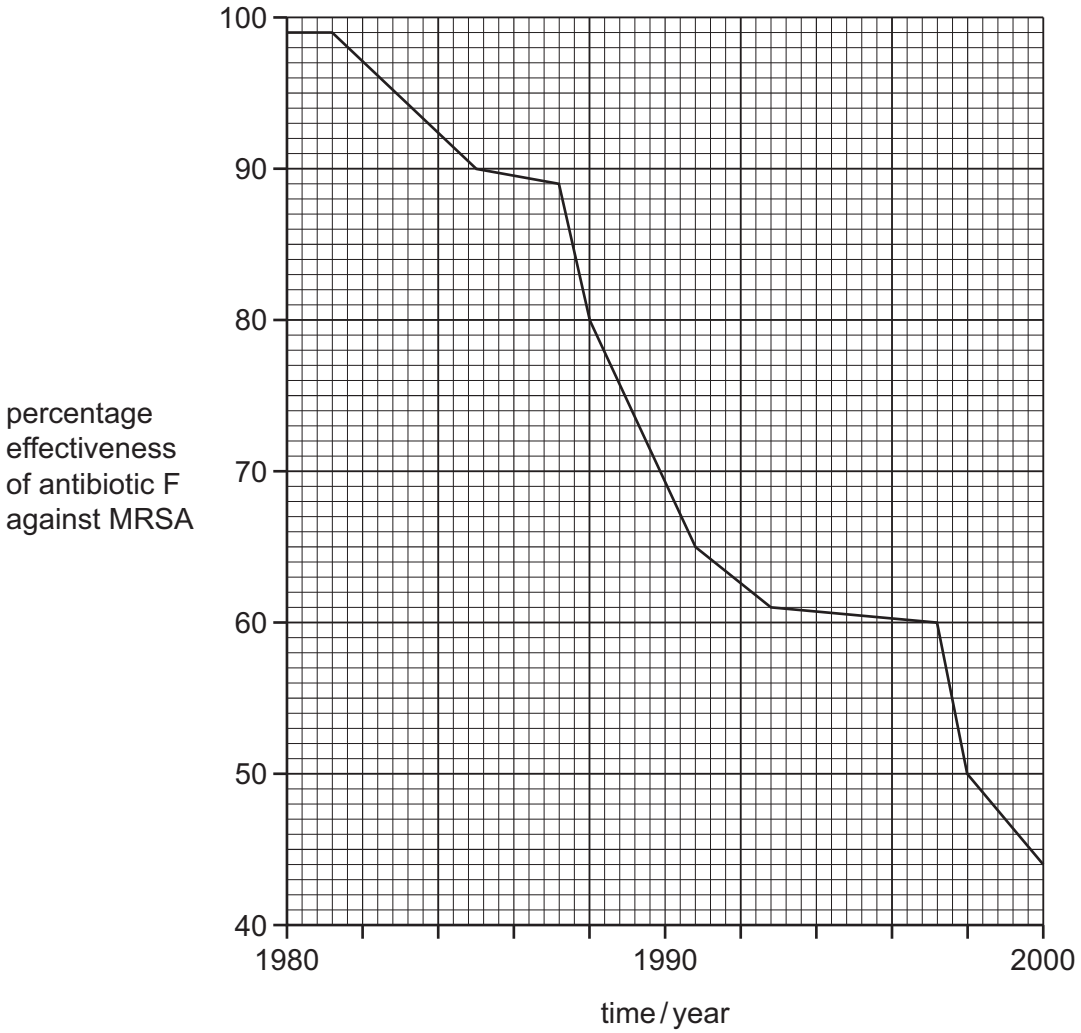
28 The graph shows how the percentage effectiveness of antibiotic F against MRSA bacteria varied between 1980 and 2000.



What is a correct conclusion from the graph?

A Antibiotic F was completely ineffective against MRSA in 2000.

B Antibiotic F was most effective in 1982.

C MRSA developed resistance to antibiotic F between 1981 and 2000.

D The greatest decrease in effectiveness of antibiotic F against MRSA was between 1988 and 1990.

29 Which statement describes asexual reproduction?

A Gametes are involved in this type of reproduction.

B Offspring are genetically different from each other.

C Offspring are genetically identical to the parent.

D Two parents are required for this type of reproduction.

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30 What is the function of the acrosome in a sperm cell?

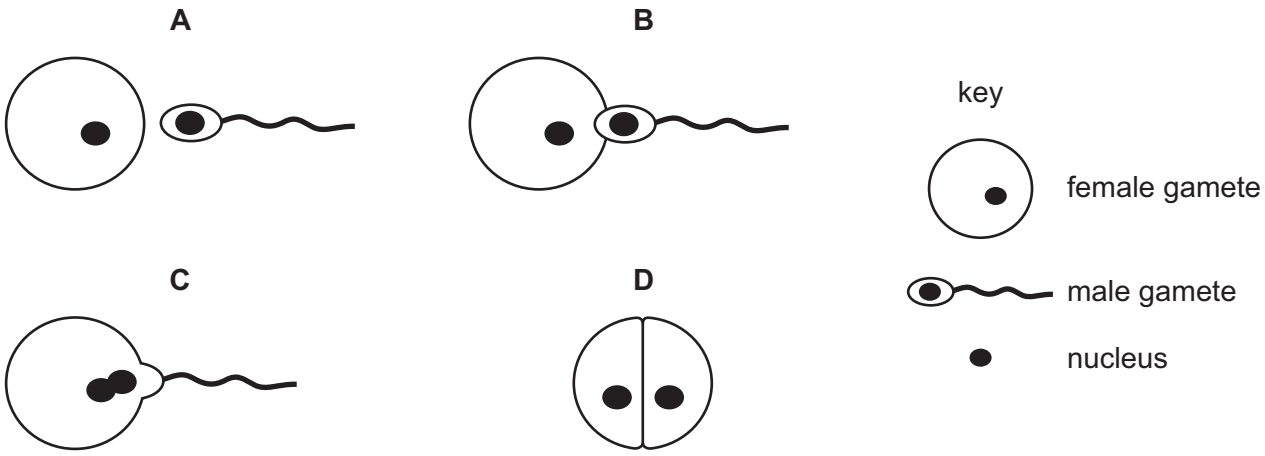
A The acrosome contains enzymes that digest the jelly coat of an egg cell.

B The acrosome is needed for the sperm cell to move.

C The acrosome releases energy.

D The acrosome stores genetic information.

31 Which diagram shows fertilisation?



32 What is HIV?

A a bacterium

B an enzyme

C a pathogen

D an antibody

33 What describes an allele?

A an alternative form of a chromosome made of DNA

B an alternative form of a chromosome made of protein

C an alternative form of a gene made of DNA

D an alternative form of a gene made of protein

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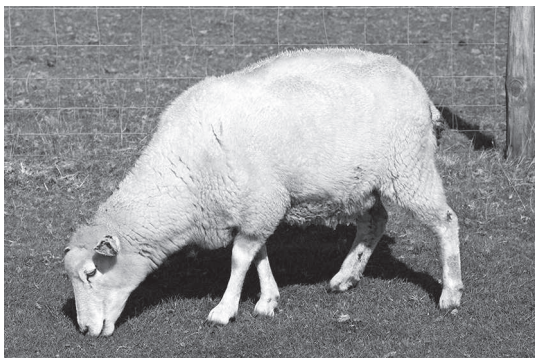
34 The images show four animals.

1



sheep

2

eagle

3

tortoise

4

tiger

Which two animals show adaptive features for being secondary consumers?

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

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[Turn over

35 A gene is added to the genetic material of an avocado plant.

This gene makes the avocado fruits stay ripe for longer before they start to decompose.

What is this process an example of?

1 adaptation
2 genetic modification
3 selective breeding

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

36 The diagram shows a food chain.

plant leaf → slug → frog → fox

Which terms describe the position of the fox in this food chain?

	consumer	trophic level
A	quaternary	fourth
B	tertiary	third
C	quaternary	third
D	tertiary	fourth

37 These are processes found in the carbon cycle.

- combustion
- decomposition
- feeding
- photosynthesis
- respiration

How many of these processes release carbon dioxide into the atmosphere?

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

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38 Which change occurs when areas of forest are cleared for farming?

A decreased release of carbon dioxide into the atmosphere

B increased biodiversity

C increased loss of soil

D increased release of oxygen into the atmosphere

39 What is a use of ethanol?

A biofuel production

B biological washing powder

C bread-making

D fruit juice production

40 The diagram shows a label found on a container of biological washing powder.

Which stains does the washing powder remove?

	food stain containing carbohydrates	food stain containing protein	food stain containing fat	food stain containing oil
A	✓	✓	✗	✗
B	✓	✗	✗	✓
C	✗	✓	✓	✓
D	✗	✗	✓	✗

key

✓ = yes

✗ = no

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