



# Cambridge IGCSE™

## BIOLOGY

0610/13

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.

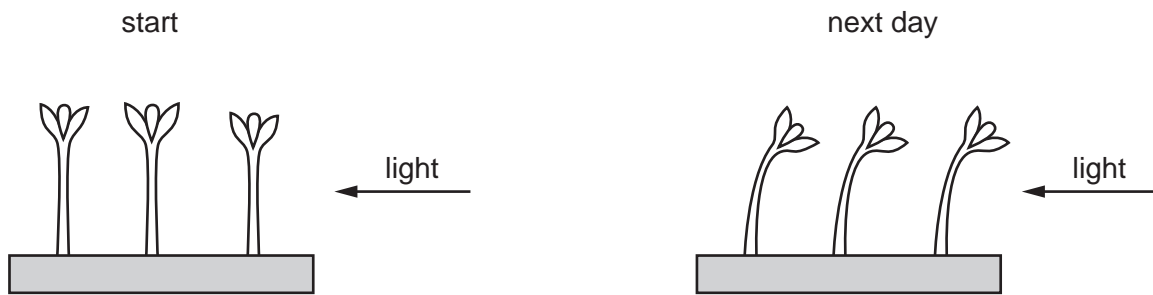
## INFORMATION

- 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 **16** pages. Any blank pages are indicated.

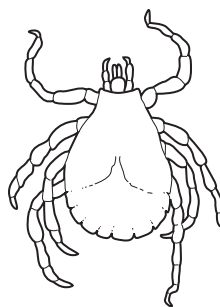


- 1 The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

- A excretion
  - B nutrition
  - C respiration
  - D sensitivity
- 2 Which structure or substance is found in a plant root?
- A dentine
  - B platelet
  - C ventricle
  - D xylem
- 3 The diagram shows an arthropod.



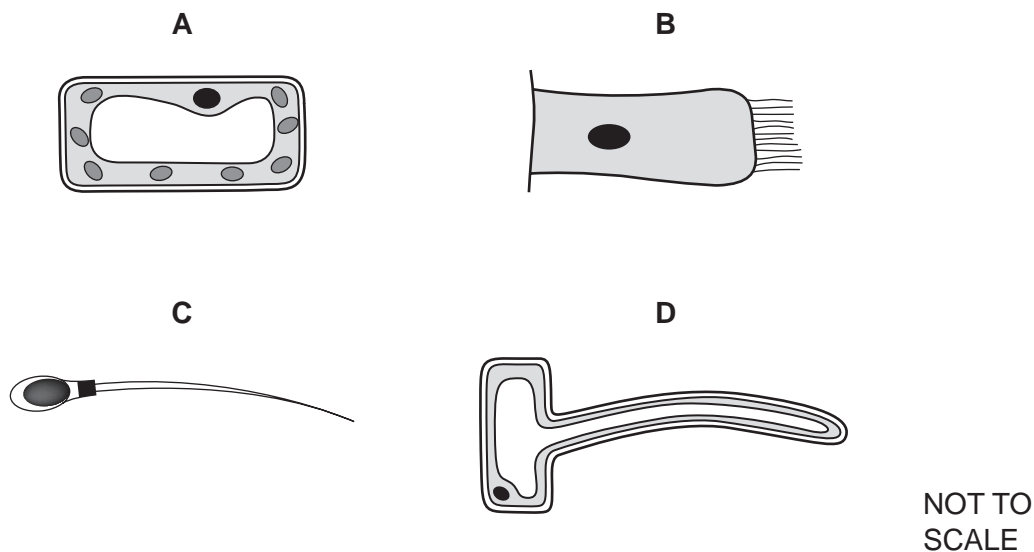
Which group of arthropods does it belong to?

- A arachnids
- B crustaceans
- C insects
- D myriapods

4 Which structure is present in plant cells but absent from bacterial cells?

- A cell membrane
- B cell wall
- C cytoplasm
- D nucleus

5 Which cell is adapted for swimming?



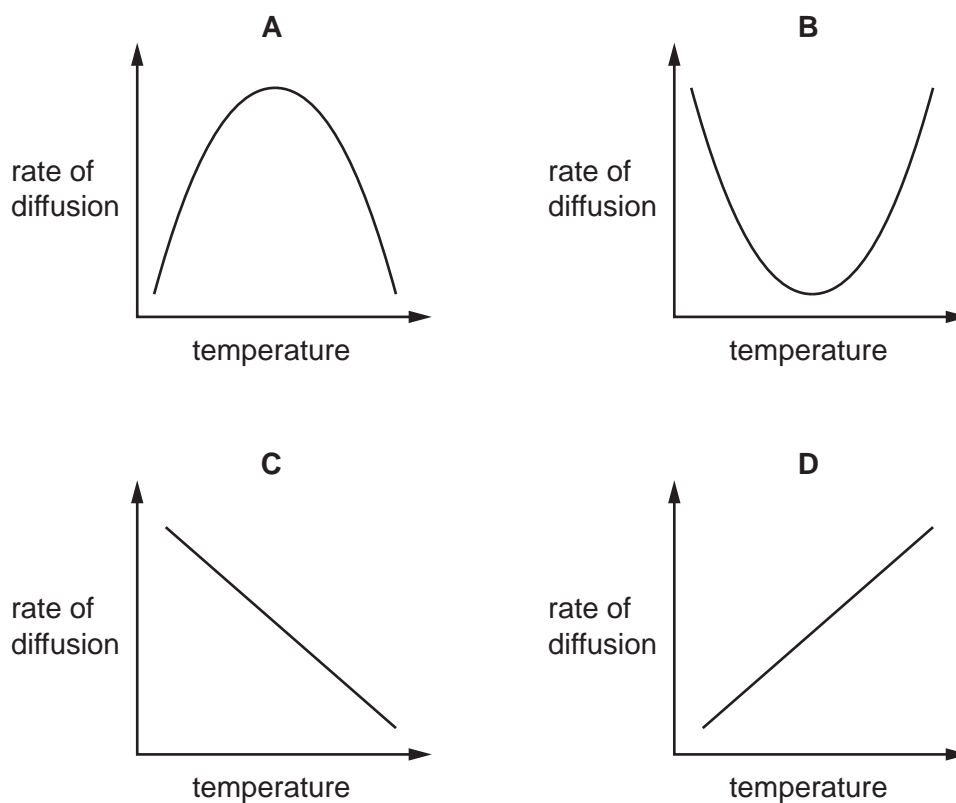
6 A pollen grain was viewed with a microscope using  $\times 500$  magnification.

The image size of the pollen grain was measured as 75 mm.

Which calculation would give the actual size of the pollen grain in millimetres?

- A  $\frac{75}{500}$
- B  $\frac{500}{75}$
- C  $\frac{75 \times 1000}{500}$
- D  $\frac{500}{75 \times 1000}$

7 Which graph represents the effect of increasing temperature on the rate of diffusion?



8 Which characteristics are correct for **both** osmosis and diffusion?

	require a partially permeable membrane	require a concentration gradient	are energy-consuming processes
<b>A</b>	✓	✓	✗
<b>B</b>	✓	✗	✓
<b>C</b>	✗	✓	✗
<b>D</b>	✗	✗	✓

key  
 ✓ = yes  
 ✗ = no

9 Which row describes active transport?

	direction of movement of particles through a membrane	using energy from respiration
<b>A</b>	against the concentration gradient	no
<b>B</b>	down the concentration gradient	yes
<b>C</b>	against the concentration gradient	yes
<b>D</b>	down the concentration gradient	no

10 What is a correct statement about biological molecules?

- A** Biuret reagent is used to test for reducing sugars.
- B** Glycogen is made of smaller glycerol molecules.
- C** Oils contain the chemical elements carbon, hydrogen, oxygen and nitrogen.
- D** Protein is made of smaller amino acid molecules.

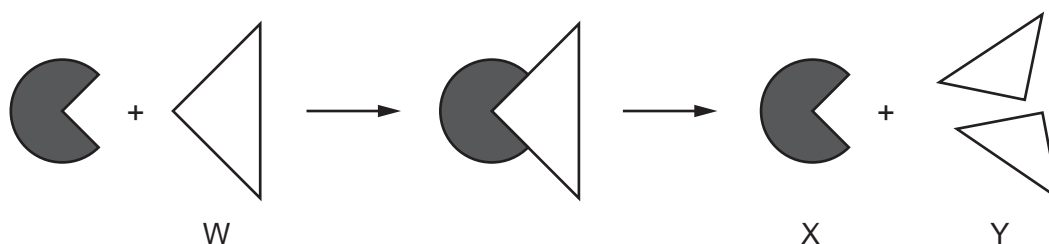
11 Enzyme X digests starch in the duodenum.

The same volumes of starch suspension and enzyme X were put into four test-tubes, **A**, **B**, **C** and **D**. Each test-tube was kept at a different pH and temperature, as shown in the table.

In which test-tube will starch digestion be the quickest?

	pH	temperature / °C
<b>A</b>	2	20
<b>B</b>	2	35
<b>C</b>	7	20
<b>D</b>	7	35

12 The diagram represents enzyme action in a chemical reaction.



What are parts W, X and Y in this chemical reaction?

	enzyme	product	substrate
<b>A</b>	W	X	Y
<b>B</b>	X	W	Y
<b>C</b>	X	Y	W
<b>D</b>	Y	W	X

13 Aquatic plants were placed in two test-tubes. Each test-tube was sealed to prevent the entry or exit of gases. One test-tube was kept in the light and one test-tube was kept in the dark.

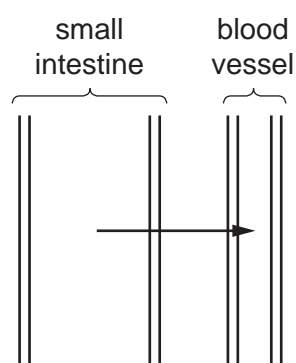
What needs to be added to the test-tubes to detect any differences in gas exchange?

- A** Benedict's solution
- B** biuret reagent
- C** hydrogencarbonate indicator
- D** iodine solution

14 Which part of a leaf contains the highest concentration of chloroplasts?

- A** lower epidermis
- B** palisade layer
- C** upper epidermis
- D** vascular bundle

- 15 Which four organs are part of the digestive system?
- A lung, liver, salivary gland, pancreas
  - B kidney, liver, colon, ureter
  - C pancreas, liver, uterus, gall bladder
  - D salivary gland, liver, gall bladder, pancreas
- 16 What should be increased in the diet of a person suffering from constipation?
- A fats
  - B fibre (roughage)
  - C iron
  - D protein
- 17 The diagram shows part of the small intestine and an associated blood vessel.

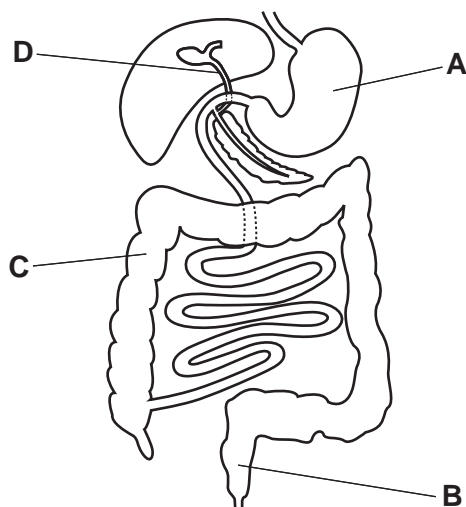


What is represented by the arrow?

- A absorption of sugars
- B assimilation of sugars
- C digestion of sugars
- D ingestion of sugars

**18** The diagram shows the human alimentary canal.

Which labelled part absorbs the most water?



**19** Which description of molar teeth is correct?

- A** pointed teeth used to tear food
- B** sharp-edged teeth to cut food
- C** teeth with a jagged surface to bite food
- D** teeth with a large surface to grind food

**20** Which organs are involved in physical digestion?

	mouth	oesophagus	stomach	
<b>A</b>	✓	✓	✗	key ✓ = yes ✗ = no
<b>B</b>	✓	✗	✓	
<b>C</b>	✗	✓	✗	
<b>D</b>	✗	✗	✓	



**21** What is produced by the action of lipase on fats?

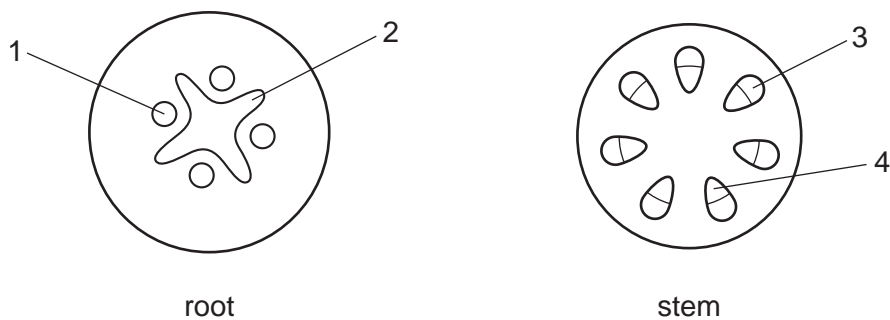
- 1 amino acids
- 2 fatty acids
- 3 glycerol

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

**22** Where are most nutrients absorbed in the digestive system?

- A** colon
- B** oesophagus
- C** small intestine
- D** stomach

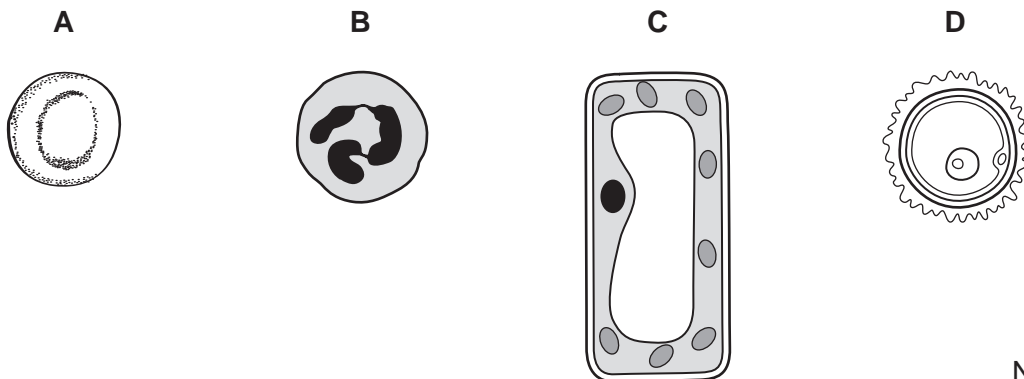
**23** The diagrams show a section through a root and a section through a stem.



In which tissues are amino acids transported?

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

**24** Which diagram represents a cell responsible for the transport of oxygen?

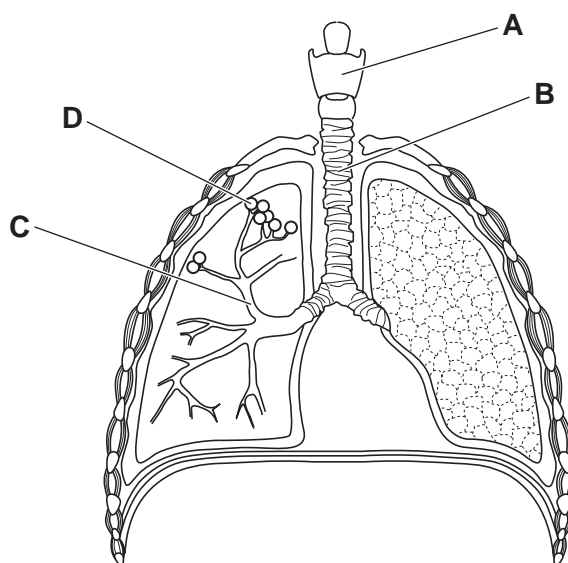


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- 25** Transmissible diseases are transmitted when a pathogen is passed from one host to another.

What is an example of direct contact?

- A** breathing in pathogens
  - B** contact with blood or other body fluids
  - C** contact with contaminated surfaces
  - D** eating or handling contaminated food
- 26** The diagram shows the breathing system in humans.
- Which labelled part is surrounded by blood capillaries for gas exchange?

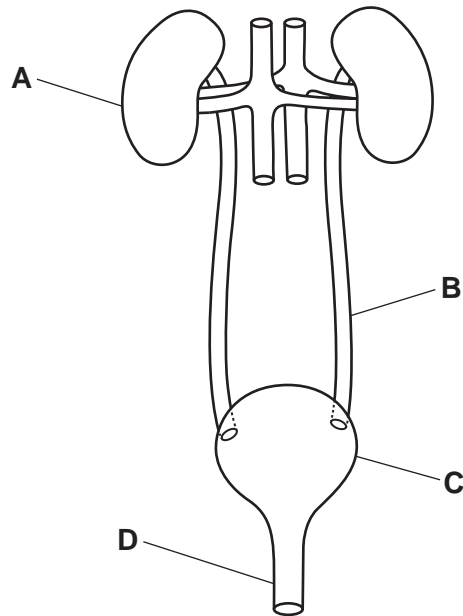


- 27** What are the products of aerobic respiration in plants?

- A** alcohol and carbon dioxide
- B** carbon dioxide and lactic acid
- C** carbon dioxide and water
- D** lactic acid only

**28** The diagram shows some structures associated with human excretion.

Which structure excretes urea?



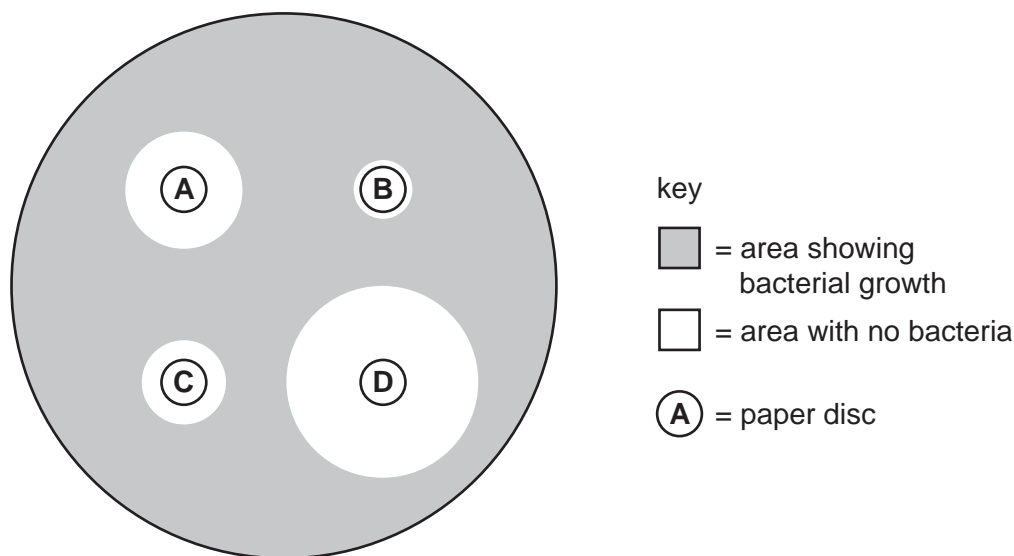
**29** Which organ secretes insulin and how is it transported?

	organ that secretes insulin	insulin transported by
<b>A</b>	adrenal glands	blood
<b>B</b>	adrenal glands	nervous system
<b>C</b>	pancreas	blood
<b>D</b>	pancreas	nervous system

- 30** In an experiment, bacteria were grown on agar. Four paper discs, **A**, **B**, **C** and **D**, were placed on top of the agar. Each paper disc contained a different antibiotic.

The diagram shows the agar after 48 hours. The clear areas show where bacteria are **not** growing.

Which antibiotic are the bacteria most resistant to?



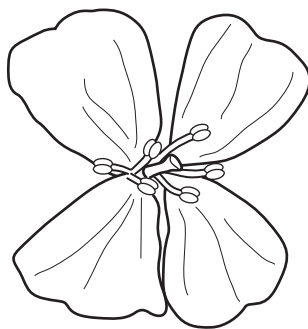
- 31** The list shows secondary sexual characteristics.

- 1 Hair grows on the face.
- 2 Hips become wider.
- 3 Voice becomes deeper.

Which secondary sexual characteristics are caused by testosterone?

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

32 The diagram shows a flower seen from above.



Use the key to find the name of the family to which it belongs.

1	four petals	go to 2
	five petals	go to 3
2	two stamens	<b>A</b> <i>Scrophulariaceae</i>
	six stamens	<b>B</b> <i>Brassicaceae</i>
3	petals joined	<b>C</b> <i>Caryophyllaceae</i>
	petals separate	<b>D</b> <i>Rosaceae</i>

33 Which statement about a heterozygous individual is correct?

- A** is pure-breeding
- B** has two identical alleles
- C** has a dominant allele and a recessive allele
- D** expresses the recessive allele in its phenotype

34 What is an example of continuous variation?

- A** ABO blood groups in humans
- B** body mass in humans
- C** seed shape in pea plants
- D** seed colour in pea plants

**35** A particular animal species only eats plants.

What is a description of this animal species?

- A** a carnivore
- B** a primary consumer
- C** a producer
- D** a secondary consumer

**36** In the carbon cycle, which process uses carbon dioxide?

- A** combustion
- B** decomposition
- C** respiration
- D** photosynthesis

**37** Which statements about deforestation are correct?

- 1 Deforestation causes an increase in atmospheric carbon dioxide.
- 2 Deforestation causes an increase in biodiversity.
- 3 Deforestation causes an increase in the loss of soil.

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

**38** Which two gases enhance the greenhouse effect?

- A** carbon dioxide and methane
- B** carbon dioxide and nitrogen
- C** methane and oxygen
- D** nitrogen and oxygen

39 Which row shows whether the two natural resources are **always** managed sustainably?

	using fish stocks	using wood from forests
<b>A</b>	yes	yes
<b>B</b>	yes	no
<b>C</b>	no	yes
<b>D</b>	no	no

40 Which features make bacteria useful in biotechnology?

	features of bacteria		
	have cell walls	make complex molecules	have a rapid reproduction rate
<b>A</b>	✓	✓	✗
<b>B</b>	✓	✗	✗
<b>C</b>	✗	✓	✓
<b>D</b>	✗	✗	✓

key

✓ = feature is useful in biotechnology

✗ = feature is **not** useful in biotechnology

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