Cambridge Assessment International Education

# 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.



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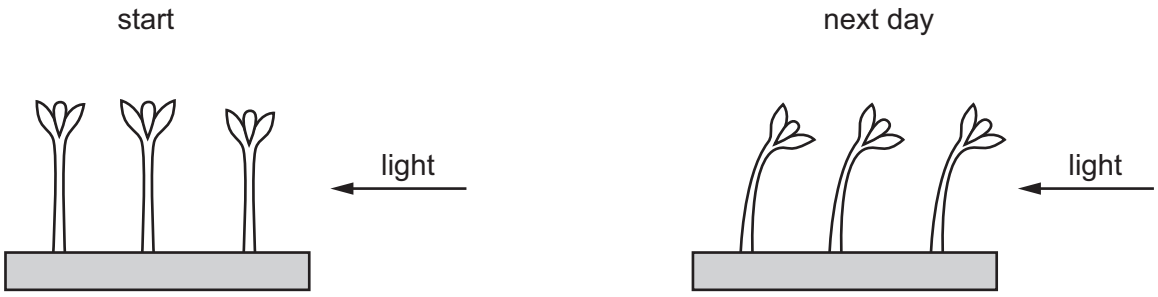
**1** The diagram shows what happened in an experiment with plant seedlings.

View solution




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?

View solution

**A** dentine

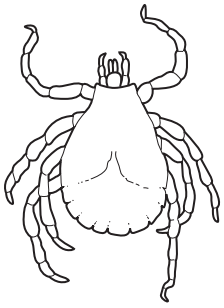
**B** platelet

**C** ventricle

**D** xylem

**3** The diagram shows an arthropod.

View solution



Which group of arthropods does it belong to?

**A** arachnids

**B** crustaceans

**C** insects

**D** myriapods

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

View solution

**A** cell membrane

**B** cell wall

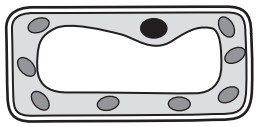
**C** cytoplasm

**D** nucleus

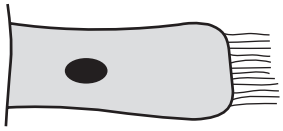
**5** Which cell is adapted for swimming?

View solution

**A**



**B**



**C**



**D**



NOT TO SCALE

**6** A pollen grain was viewed with a microscope using ×500 magnification.

View solution

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** $\frac{500}{75 \times 1000}$

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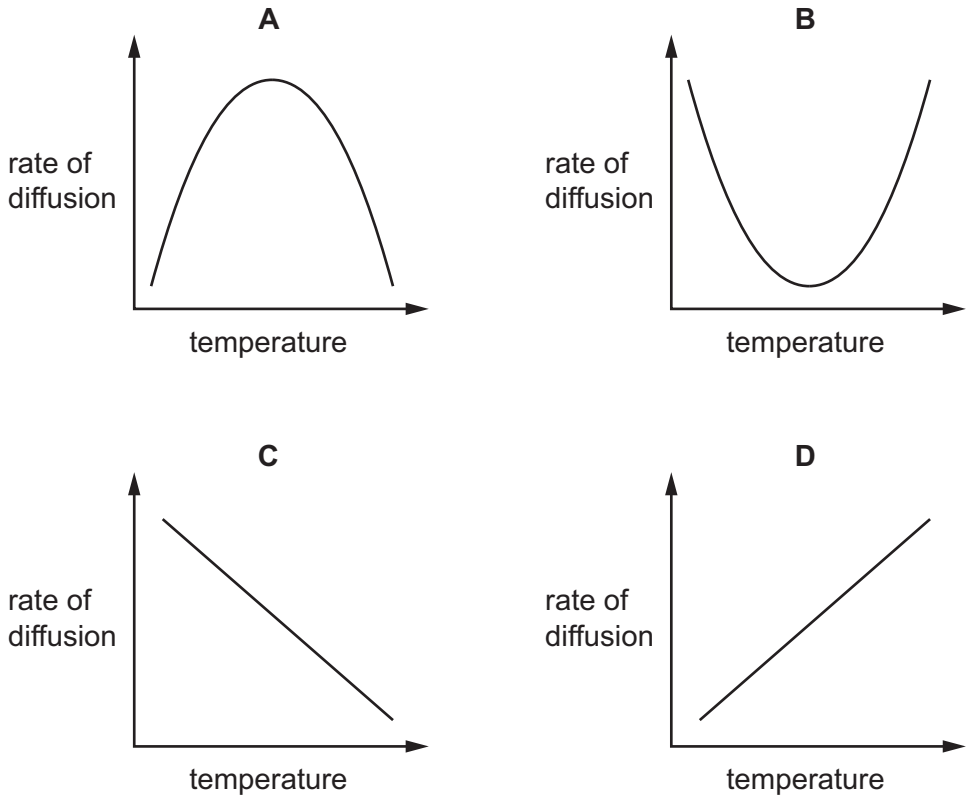
**7** Which graph represents the effect of increasing temperature on the rate of diffusion?

View solution




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

View solution

| | require a partially permeable membrane | require a concentration gradient | are energy-consuming processes |
|---|---|---|---|
| **A** | ✓ | ✓ | ✗ |
| **B** | ✓ | ✗ | ✓ |
| **C** | ✗ | ✓ | ✗ |
| **D** | ✗ | ✗ | ✓ |

key
✓ = yes
✗ = no

**9** Which row describes active transport?

View solution

| | direction of movement of particles through a membrane | using energy from respiration |
|---|---|---|
| **A** | against the concentration gradient | no |
| **B** | down the concentration gradient | yes |
| **C** | against the concentration gradient | yes |
| **D** | down the concentration gradient | no |

**10** What is a correct statement about biological molecules?

View solution

**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.

View solution

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 |
|---|---|---|
| **A** | 2 | 20 |
| **B** | 2 | 35 |
| **C** | 7 | 20 |
| **D** | 7 | 35 |

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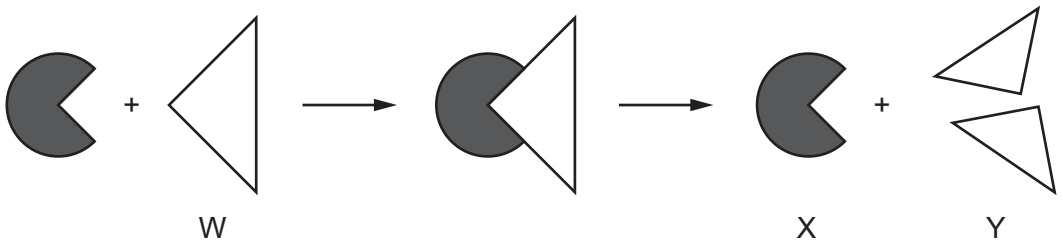
**12** The diagram represents enzyme action in a chemical reaction.

View solution




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

| | enzyme | product | substrate |
|---|---|---|---|
| **A** | W | X | Y |
| **B** | X | W | Y |
| **C** | X | Y | W |
| **D** | 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.

View solution

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?

View solution

**A** lower epidermis

**B** palisade layer

**C** upper epidermis

**D** vascular bundle

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**15** Which four organs are part of the digestive system?

View solution

**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?

View solution

**A** fats

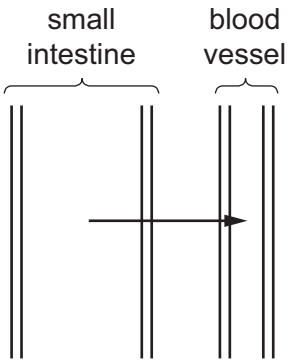
**B** fibre (roughage)

**C** iron

**D** protein

**17** The diagram shows part of the small intestine and an associated blood vessel.

View solution




What is represented by the arrow?

**A** absorption of sugars

**B** assimilation of sugars

**C** digestion of sugars

**D** ingestion of sugars

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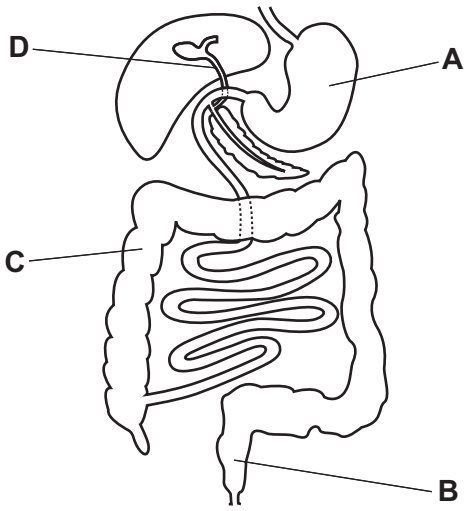
**18** The diagram shows the human alimentary canal.

View solution

Which labelled part absorbs the most water?




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

View solution

**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?

View solution

| | mouth | oesophagus | stomach |
|---|---|---|---|
| **A** | ✓ | ✓ | ✗ |
| **B** | ✓ | ✗ | ✓ |
| **C** | ✗ | ✓ | ✗ |
| **D** | ✗ | ✗ | ✓ |

key

✓ = yes

✗ = no

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

View solution

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?

View solution

**A** colon

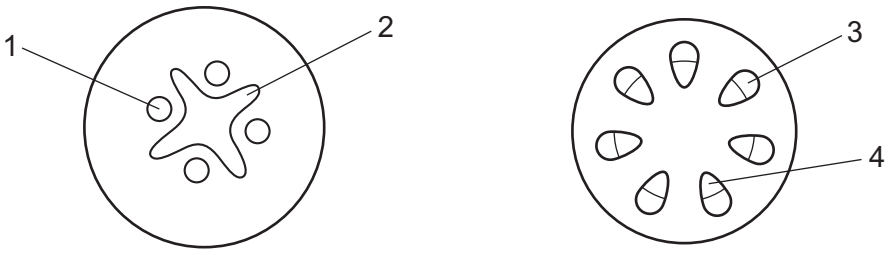
**B** oesophagus

**C** small intestine

**D** stomach

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

View solution




root stem

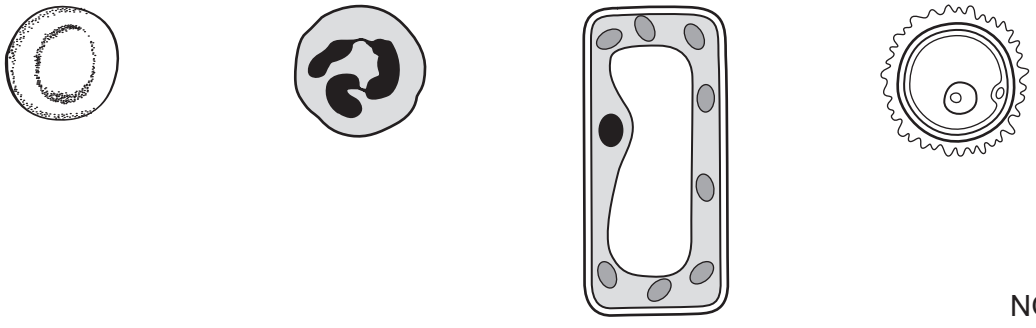
In which tissues are amino acids transported?

**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?

View solution

**A** **B** **C** **D**



NOT TO SCALE

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

View solution

What is an example of direct contact?

**A** breathing in pathogens

**B** contact with blood or other body fluids

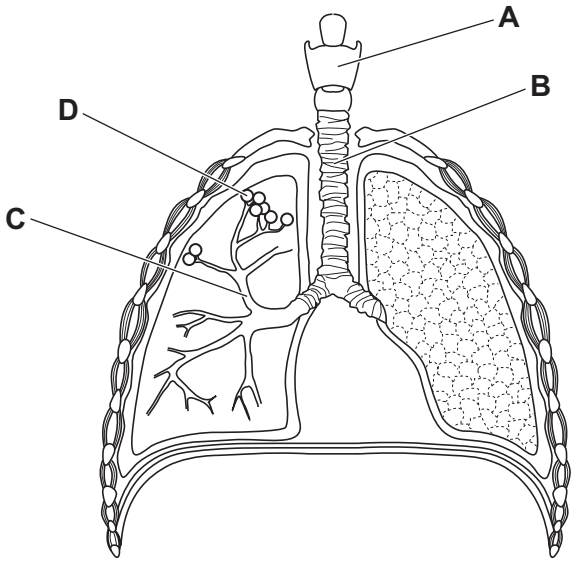
**C** contact with contaminated surfaces

**D** eating or handling contaminated food

**26** The diagram shows the breathing system in humans.

View solution

Which labelled part is surrounded by blood capillaries for gas exchange?




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

View solution

**A** alcohol and carbon dioxide

**B** carbon dioxide and lactic acid

**C** carbon dioxide and water

**D** lactic acid only

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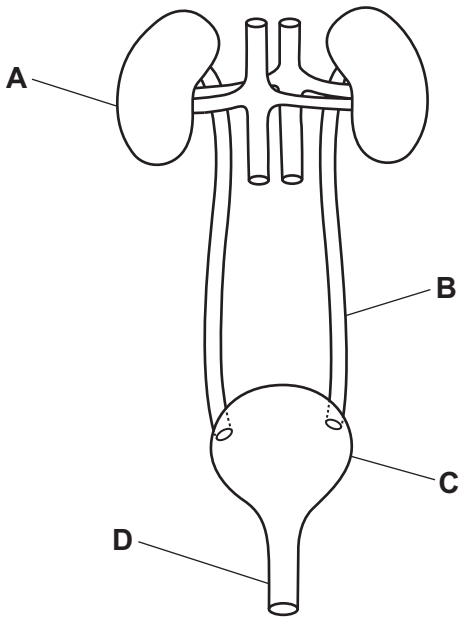
**28** The diagram shows some structures associated with human excretion.

View solution

Which structure excretes urea?




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

View solution

| | organ that secretes insulin | insulin transported by |
|---|---|---|
| **A** | adrenal glands | blood |
| **B** | adrenal glands | nervous system |
| **C** | pancreas | blood |
| **D** | pancreas | nervous system |

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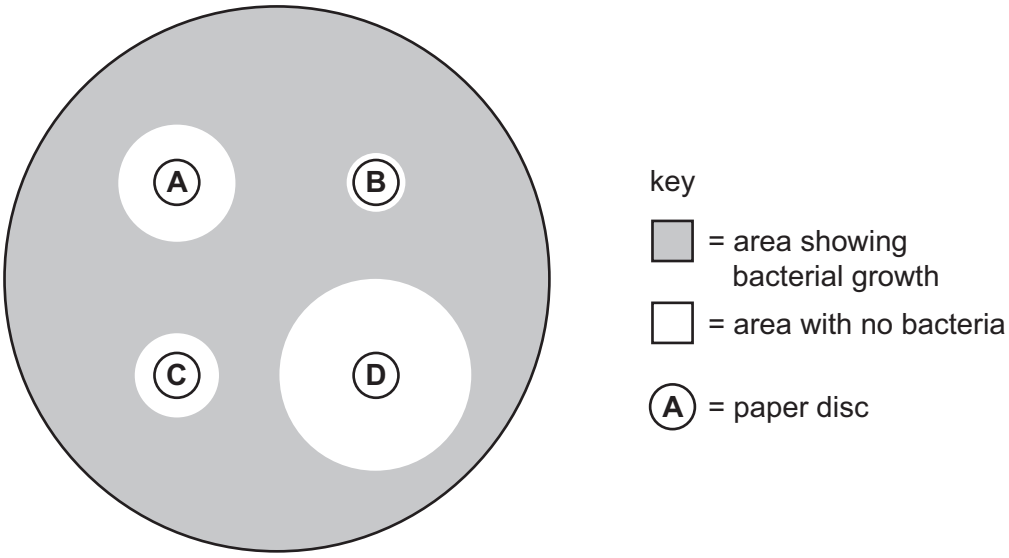
**30** In an experiment, bacteria were grown on agar. Four paper discs, **A**, **B**, **C** and **D**, were placed on top of the agar. Each paper disc contained a different antibiotic.

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?

View solution




**31** The list shows secondary sexual characteristics.

View solution

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

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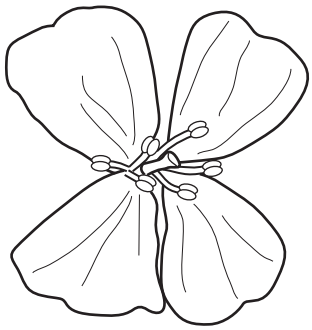
**32** The diagram shows a flower seen from above.

View solution



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 | **A** *Scrophulariaceae* |
| | six stamens | **B** *Brassicaceae* |
| 3 | petals joined | **C** *Caryophyllaceae* |
| | petals separate | **D** *Rosaceae* |

**33** Which statement about a heterozygous individual is correct?

View solution

**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?

View solution

**A** ABO blood groups in humans

**B** body mass in humans

**C** seed shape in pea plants

**D** seed colour in pea plants

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

View solution

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?

View solution

**A** combustion

**B** decomposition

**C** respiration

**D** photosynthesis

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

View solution

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?

View solution

**A** carbon dioxide and methane

**B** carbon dioxide and nitrogen

**C** methane and oxygen

**D** nitrogen and oxygen

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

View solution

| | using fish stocks | using wood from forests |
|---|---|---|
| **A** | yes | yes |
| **B** | yes | no |
| **C** | no | yes |
| **D** | no | no |

**40** Which features make bacteria useful in biotechnology?

View solution

| | features of bacteria | | |
|---|---|---|---|
| | have cell walls | make complex molecules | have a rapid reproduction rate |
| **A** | ✓ | ✓ | ✗ |
| **B** | ✓ | ✗ | ✗ |
| **C** | ✗ | ✓ | ✓ |
| **D** | ✗ | ✗ | ✓ |

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

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