Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/12**

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

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1 Which type of cell moves mucus?

A ciliated cell

B egg cell

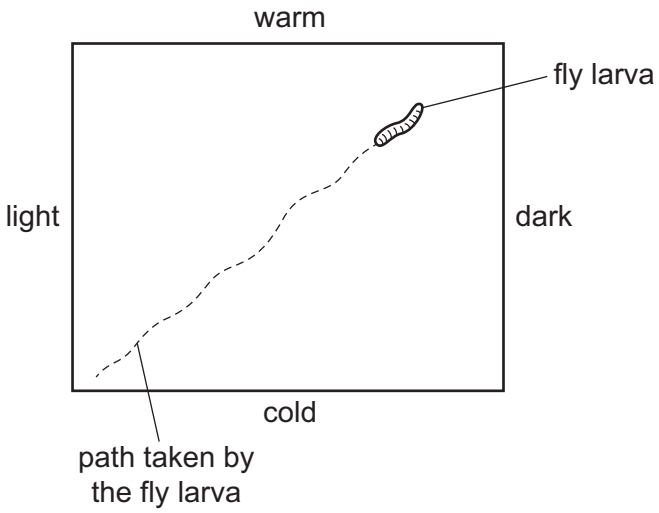
C guard cell

D root hair cell

2 A student exposed a fly larva to light and temperature gradients.

They lit the area from one side and made one side of the area warmer than the other.

They traced the path of the fly larva's movement.



Which statement describes the response of the fly larva?

A The fly larva does **not** respond to temperature or light intensity.

B The fly larva moves away from a higher temperature and a higher light intensity.

C The fly larva moves away from a higher temperature and towards a higher light intensity.

D The fly larva moves towards a higher temperature and away from a higher light intensity.

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3 The table shows the scientific names and the common names of four plants.

scientific name	common name
Althaea officinalis	marsh mallow
Hottonia palustris	water violet
Viola palustris	marsh violet
Viola tricolor	wild pansy

Which word is a genus name?

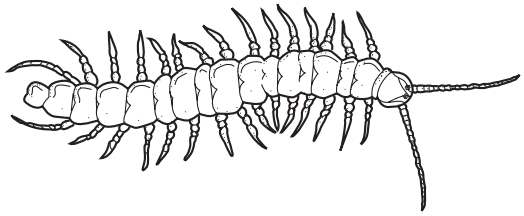
A marsh

B *palustris*

C *Viola*

D violet

4 The diagram shows an arthropod.



Which group does this arthropod belong to?

A arachnid

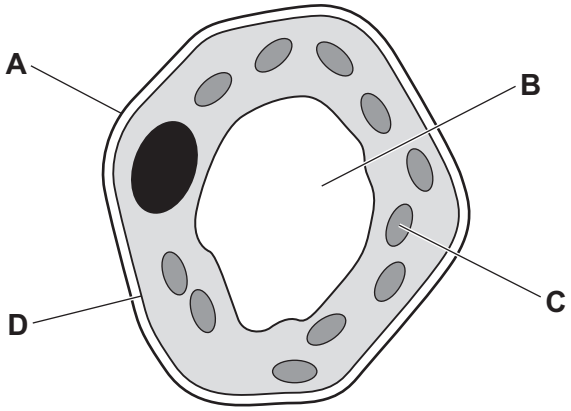
B crustacean

C insect

D myriapod

5 The diagram shows a plant cell.

Which letter indicates the location of the cell membrane?



6 Which magnification formula is correct?

A magnification = actual size ÷ image size

B magnification = actual size + image size

C magnification = image size ÷ actual size

D magnification = image size × actual size

7 A frog is an animal. The skin of a frog is permeable to oxygen and carbon dioxide.

Which directions will have a net diffusion of oxygen and carbon dioxide when a frog swims in pond water?

	from the frog into the water	from the water into the frog
A	carbon dioxide	oxygen
B	carbon dioxide and oxygen	no movement
C	oxygen	carbon dioxide
D	no movement	carbon dioxide and oxygen

8 Which statement about plant support is correct?

A The pressure of water inside the cells presses inwards on the cell walls.

B The pressure of water inside the cells presses outwards on the cell walls.

C The pressure of water outside the cells presses inwards on the cell walls.

D The pressure of water outside the cells presses outwards on the cell walls.

9 What is a correct statement about active transport?

A Particles move into cells, using energy released by photosynthesis.

B Particles move across a cell wall without using energy.

C Particles move from a region of higher concentration to a region of lower concentration.

D Particles move across a cell membrane, using energy released by respiration.

10 A sample of food was tested with biuret reagent.

Which colour would be seen if the food sample contained protein?

A blue-black

B brick red

C yellow-brown

D purple

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11 Which elements are found in fats?

A carbon, hydrogen and iron

B carbon, hydrogen and oxygen

C carbon, hydrogen and nitrogen

D carbon, oxygen and nitrogen

12 Which statements about enzymes are correct?

1 Enzymes are biological catalysts.

2 Enzymes are carbohydrates.

3 Enzymes have an active site.

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

13 The equation for photosynthesis is shown.

.....1..... + ...2..... → glucose + ...3.....

Which words correctly complete gaps 1, 2 and 3?

	1	2	3
A	carbon dioxide	light	oxygen
B	carbon dioxide	water	oxygen
C	oxygen	light	carbon dioxide
D	oxygen	water	carbon dioxide

14 Which carbohydrate is used to make cell walls?

A cellulose

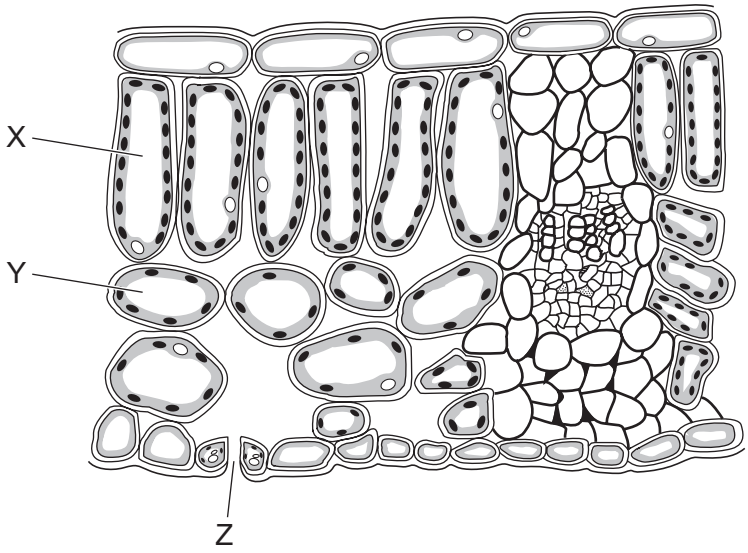
B glycogen

C starch

D sucrose

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15 The diagram shows a cross-section of a leaf.



Which row shows the correct labels?

	palisade mesophyll cell	spongy mesophyll cell	stoma
A	X	Y	Z
B	X	Z	Y
C	Y	X	Z
D	Y	Z	X

16 The table shows some of the nutrients found in yoghurt.

nutrient	content per 100 g of yoghurt / g
carbohydrate	6.90
protein	4.80
fat	1.50
calcium	0.16

One serving size of yoghurt is 150 g.

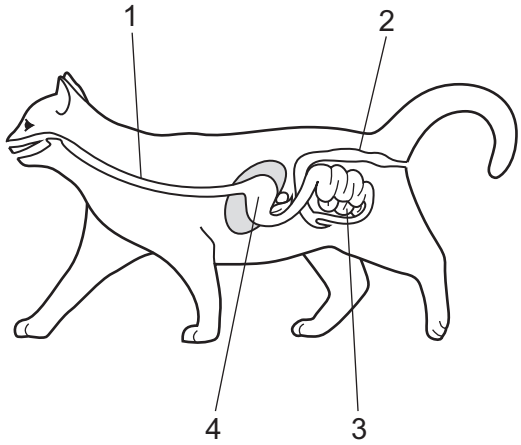
One of the nutrients in the yoghurt is required for healthy bones and teeth.

What is the mass of this nutrient in one serving of yoghurt?

A 0.24 g **B** 2.25 g **C** 7.20 g **D** 10.35 g

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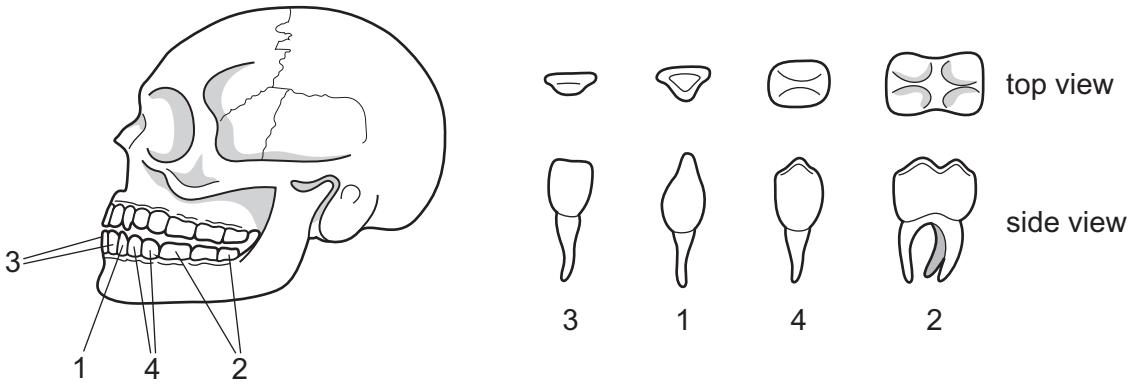
17 The diagram shows the alimentary canal and some of the associated organs in a cat. The alimentary canal of a cat is similar to that of a human.



Which row identifies the structures labelled 1–4?

	1	2	3	4
A	oesophagus	anus	large intestine	liver
B	oesophagus	large intestine	small intestine	stomach
C	trachea	anus	large intestine	stomach
D	trachea	large intestine	small intestine	liver

18 The diagram shows the four types of teeth in a human jaw.



Which row correctly identifies all four types of teeth?

	1	2	3	4
A	canine	incisor	molar	premolar
B	canine	molar	incisor	premolar
C	premolar	incisor	molar	canine
D	premolar	molar	incisor	canine

19 What are the products of protein digestion in the stomach?

A amino acids

B fatty acids

C glycerol

D proteases

20 Where is water absorbed?

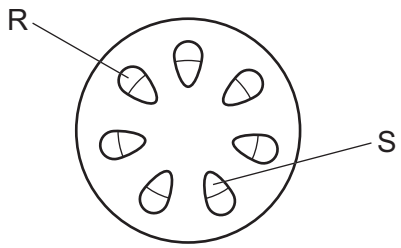
A colon and small intestine

B large intestine only

C gall bladder and colon

D small intestine only

21 The diagram shows a cross-section of a stem.



Which statement correctly describes the location and function of phloem?

A Structure R is phloem and transports amino acids and starch.

B Structure S is phloem and transports amino acids and starch.

C Structure R is phloem and transports amino acids and sucrose.

D Structure S is phloem and transports amino acids and sucrose.

22 Some environmental factors are listed.

1 carbon dioxide concentration

2 temperature

3 oxygen concentration

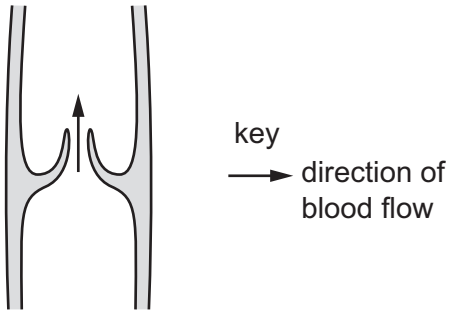
4 wind speed

Which factors directly affect the rate of transpiration?

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

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23 The diagram shows part of a blood vessel.



Which evidence in the diagram shows that it is a vein and **not** an artery?

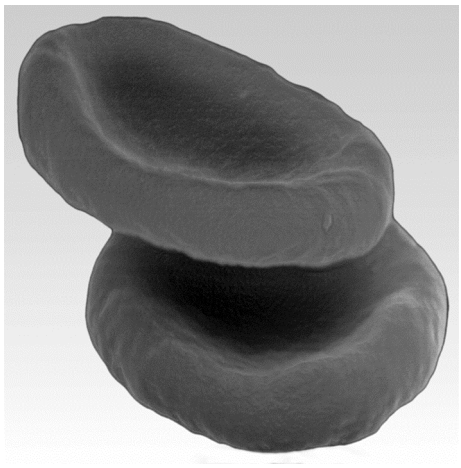
A There is a valve inside the blood vessel.

B Blood is flowing in an upwards direction.

C The blood vessel has a relatively small lumen.

D The blood vessel has a relatively thick wall.

24 The photomicrograph shows two blood cells.



What is the function of these cells?

A to carry out phagocytosis

B to produce antibodies

C to transport oxygen

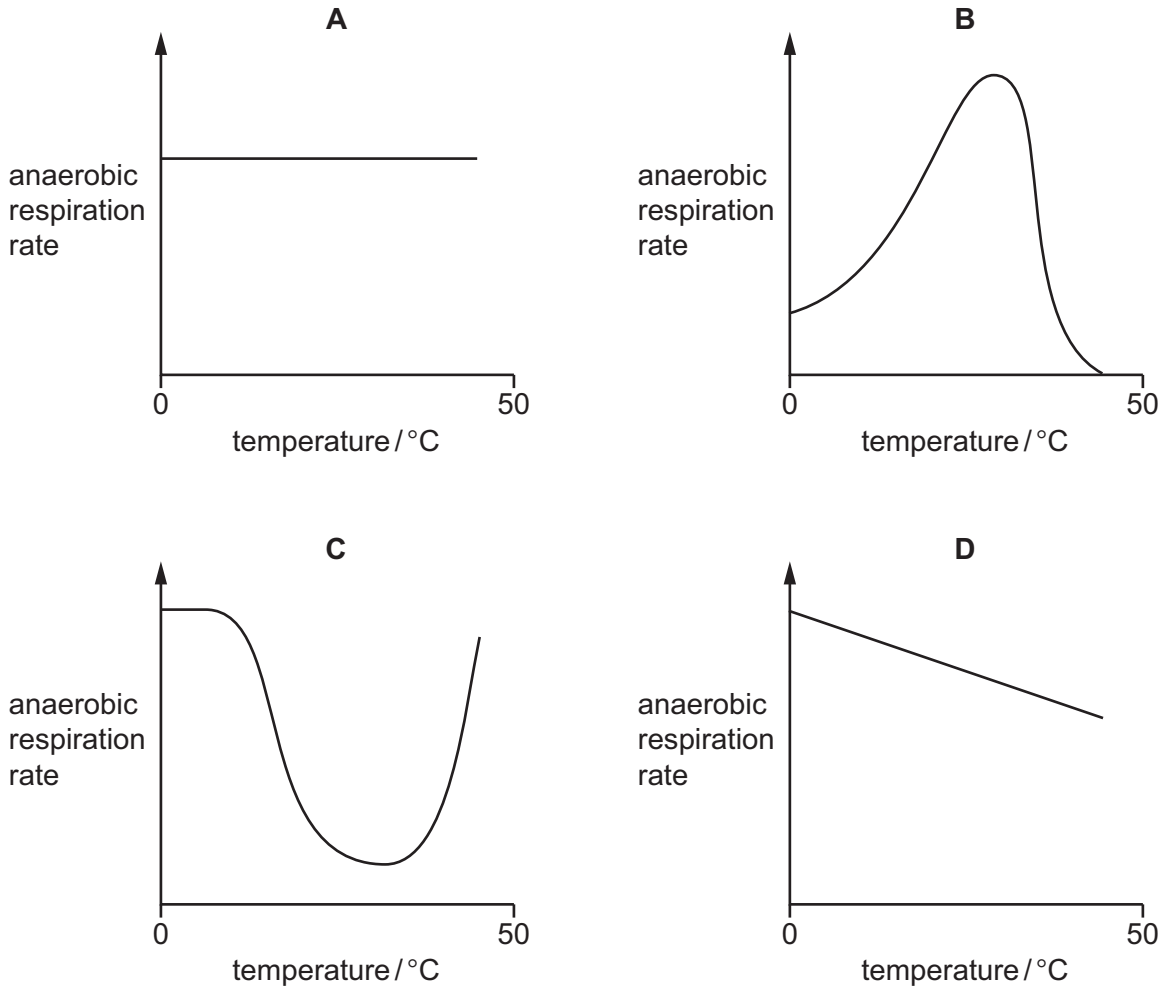
D to transport vitamins

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25 Which row matches a gas in expired air with a substance that can be used to test for the presence of that gas?

	gas present in expired air	test substance
A	carbon dioxide	DCPIP
B	carbon dioxide	limewater
C	oxygen	DCPIP
D	oxygen	limewater

26 Which graph shows how temperature affects the rate of anaerobic respiration in yeast?



27 What is the pathway of a reflex arc from the receptor to the effector?

A motor neurone → relay neurone → sensory neurone

B motor neurone → sensory neurone → relay neurone

C sensory neurone → motor neurone → relay neurone

D sensory neurone → relay neurone → motor neurone

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28 What is an effect of adrenaline secretion?

A decreased breathing rate

B decreased pupil diameter

C development of secondary sexual characteristics

D increased heart rate

29 What is phototropism?

A absorbing mineral ions

B absorbing water

C directional growth in response to gravity

D directional growth in response to light

30 A gardener wants to grow some new plants that are identical to plants that she already has.

Which method of reproduction is used, and how many parents are needed for her to grow some new identical plants?

	method of reproduction	number of parents needed
A	asexual	one
B	asexual	two
C	sexual	one
D	sexual	two

31 What must **always** be present for seeds to germinate?

A chlorophyll

B light

C soil

D water

32 What is a flagellum?

A a ball of cells that implants into the lining of the uterus

B a cell structure that releases energy

C a cell that forms after the sperm cell fuses with the egg cell

D an adaptive feature used for movement of sperm cells

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[Turn over

33 Which word describes a fertilised cell?

A acrosome

B embryo

C gamete

D zygote

34 Which secondary sexual characteristic is caused by both testosterone and oestrogen?

A breast development

B changes in body shape

C growth of facial hair

D sudden deepening of voice

35 Some ways that diseases can be transmitted are listed.

1 airborne droplets

2 blood and needles

3 food and drink

4 unprotected sex

Which ways can transmit HIV?

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

36 What do genes code for?

A fats

B proteins

C starch

D sugars

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37 When white-flowered pea plants are crossed with red-flowered pea plants, the offspring plants all have red flowers.

If these offspring plants are crossed, the next generation of plants contains both red-flowered and white-flowered plants.

Which statement explains this?

A The allele for red flowers is dominant, and the offspring plants are heterozygous.

B The allele for red flowers is dominant, and the offspring plants are homozygous.

C The allele for red flowers is recessive, and the offspring plants are heterozygous.

D The allele for red flowers is recessive, and the offspring plants are homozygous.

38 What is a description of an adaptive feature?

A an inherited characteristic that helps an organism to survive and reproduce

B the differences between individuals of the same species

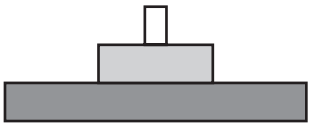
C the genetic make-up of an organism

D the transmission of information from generation to generation

39 Which diagram shows a pyramid of biomass for the food chain shown?



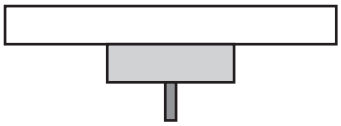
A



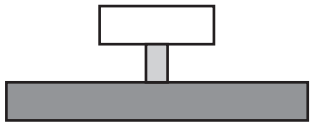
B



C



D



40 Which statement about conservation is correct?

A Captive breeding programmes can be used to conserve endangered species.

B Climate change is reducing the number of species that are endangered.

C Habitat protection increases the number of species that are endangered.

D Sustainable resources are those that are used more rapidly than they are replaced.

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