Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/23**

Paper 2 Multiple Choice (Extended) **October/November 2016**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO **NOT** WRITE IN ANY BARCODES.

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 separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages and **1** blank page.

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CAMBRIDGE
International Examinations

1 Breathing out combines which two characteristics of living organisms?

View solution

A excretion and movement

B excretion and respiration

C movement and sensitivity

D sensitivity and respiration

2 Scientists discover a new species of animal.

View solution

It has a segmented body with two pairs of legs on each segment.

To which group of animals does this new species belong?

A arachnids

B crustaceans

C insects

D myriapods

3 The diagram shows an insect.

View solution



Use the key to identify the insect.

1	wings present	.....	go to 2
	wings absent	.....	**A**
2	two pairs of wings	.....	go to 3
	one pair of wings	.....	**B**
3	wings with circular markings	.....	**C**
	wings without circular markings	.....	**D**

4 Which feature shows that a cell is a plant cell?

View solution

A cell membrane

B cell wall

C cytoplasm

D nucleus

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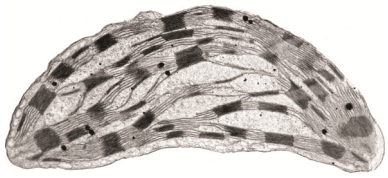
5 The diagram shows an image of a chloroplast. The image is 5 cm long.

View solution



The actual length of the chloroplast is 5 μm.

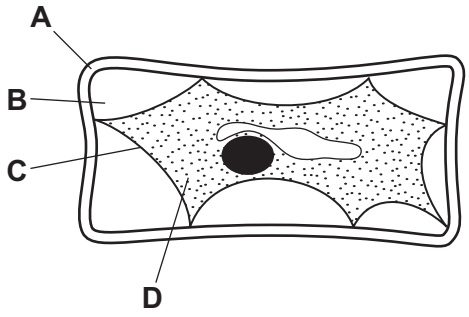
What is the magnification of the image?

A ×10 **B** ×1000 **C** ×10 000 **D** ×100 000

6 The diagram shows a plant cell which has lost water to its surroundings by osmosis.

View solution

Which part is the partially permeable membrane?



7 What describes active transport?

View solution

	energy required	particles move against concentration gradient
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

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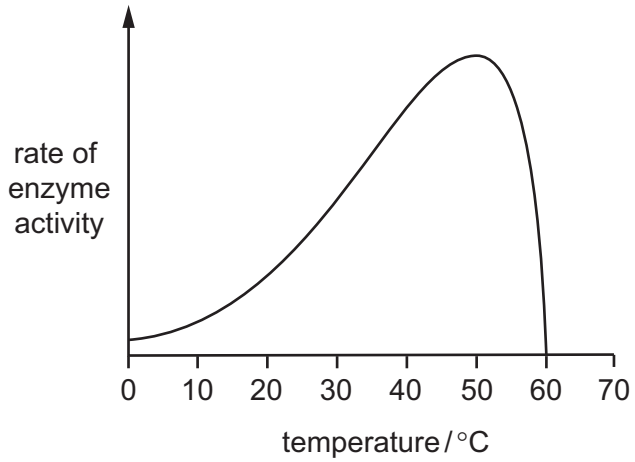
8 The graph shows how the activity of an enzyme varies with temperature.

View solution



What is the best or optimum temperature for this enzyme and at what temperature is the enzyme not working?

	temperature / °C	
	best	not working
A	30	0
B	30	60
C	50	0
D	50	60

9 How does a plant use the sugar that it makes?

View solution

	stored as starch	used for photosynthesis	used for respiration	used to make cellulose
A	✓	✓	✓	✗
B	✓	✓	✗	✓
C	✓	✗	✓	✓
D	✗	✓	✓	✓

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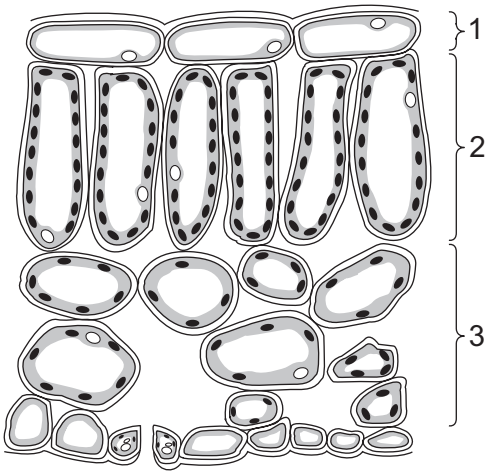
10 The diagram shows a leaf as seen in cross-section under the microscope.

View solution



What are tissues 1, 2 and 3?

	1	2	3
A	epidermis	palisade mesophyll	spongy mesophyll
B	epidermis	spongy mesophyll	palisade mesophyll
C	palisade mesophyll	epidermis	spongy mesophyll
D	spongy mesophyll	palisade mesophyll	epidermis

11 The roots of plants take up nitrates from the soil.

View solution

What are the nitrates used to make?

A fat

B glucose

C protein

D starch

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12 Which disease do children suffer from if they do not get enough iron from their diet?

View solution

A anaemia

B kwashiorkor

C marasmus

D rickets

13 What is the correct order of the processes that take place in the alimentary canal?

View solution

A absorption, digestion, ingestion, egestion

B digestion, ingestion, egestion, absorption

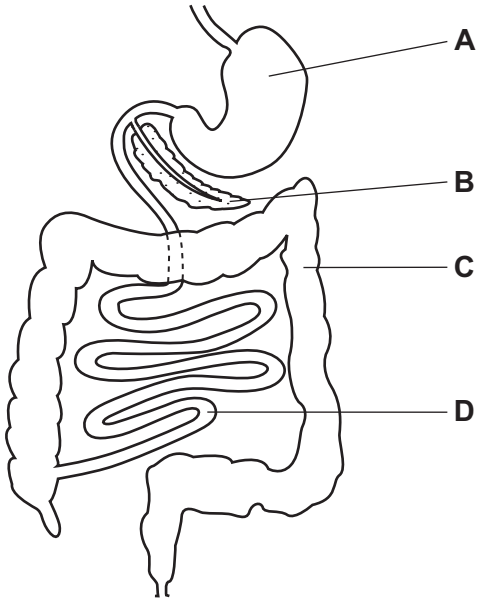
C egestion, digestion, absorption, ingestion

D ingestion, digestion, absorption, egestion

14 The diagram shows part of the human alimentary canal.

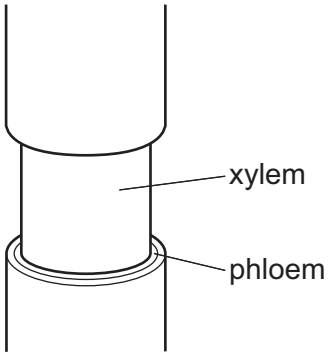
View solution

Which organ produces hydrochloric acid?



15 The diagram shows the stem of a plant. A strip of the outer tissue including the phloem has been removed.

View solution



How is transport in the plant affected?

A Amino acids and sugar cannot pass to the roots.

B Dissolved salts cannot pass to the leaves.

C Water cannot pass to the leaves.

D Water cannot pass to the roots.

16 Which changes in atmospheric conditions can cause a plant to wilt?

View solution

	humidity	temperature
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

17 Which substance is moved by translocation in a flowering plant?

View solution

A amino acid

B cellulose

C fat

D starch

18 What is a double circulation?

View solution

A Blood circulates through arteries and veins.

B Blood circulates through two hearts.

C Blood flows through the heart twice for each circulation.

D Blood flows twice around the body before going to the lungs.

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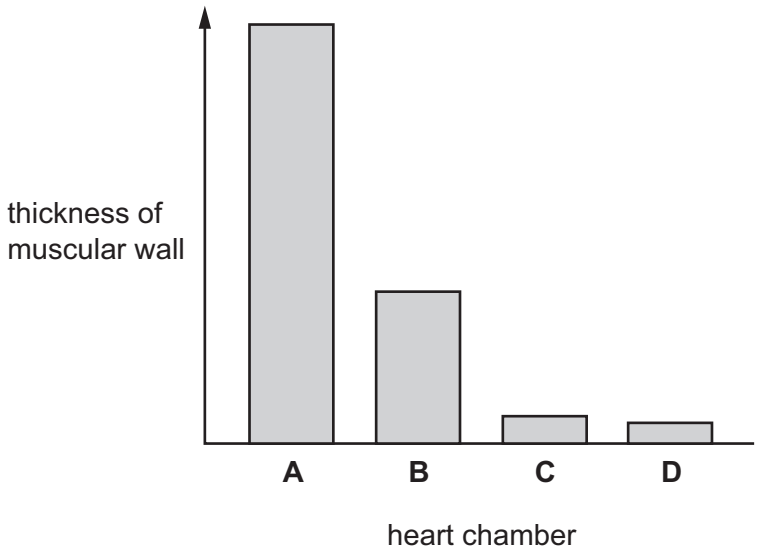
19 The graph shows the thickness of the muscular wall in each of the four chambers of the heart.

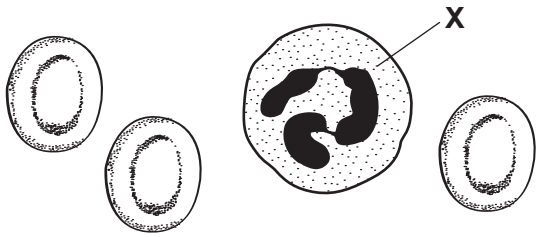
View solution

Which chamber is the right ventricle?



20 The diagram shows human blood cells, as seen under a microscope.

View solution



What is the function of cell **X**?

A to carry glucose

B to carry oxygen

C to defend against disease

D to make the blood clot

21 What are disease-causing organisms?

View solution

A antibodies

B pathogens

C phagocytes

D vaccines

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22 Which row describes active immunity?

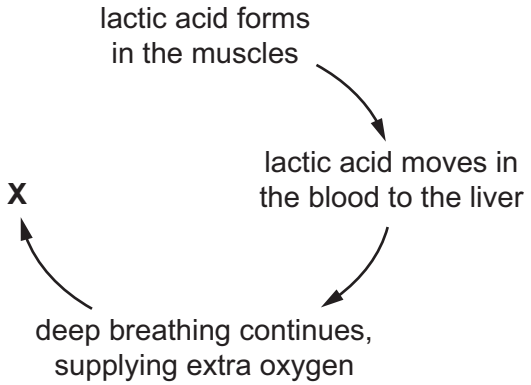
View solution

	depends on phagocytes	memory cells are produced
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

23 After a race, athletes experience oxygen debt.

View solution

The diagram shows how the oxygen debt is removed.



What happens at **X**?

A aerobic respiration of glucose

B aerobic respiration of lactic acid

C anaerobic respiration of glucose

D anaerobic respiration of lactic acid

24 What is the equation for aerobic respiration in plants?

View solution

A $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

B $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$

C $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

D $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

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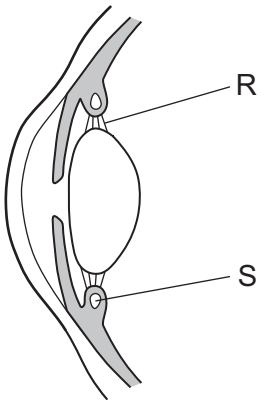
25 The diagram shows a vertical section through the front part of an eye when viewing a near object.

View solution



What describes structures R and S?

	R under tension	S contracted
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

26 When the blood glucose concentration is low, which hormone is released and which organ releases it?

View solution

	hormone	organ
A	glucagon	liver
B	glucagon	pancreas
C	insulin	liver
D	insulin	pancreas

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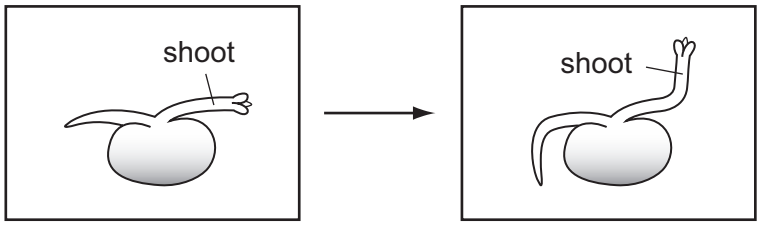
27 The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.

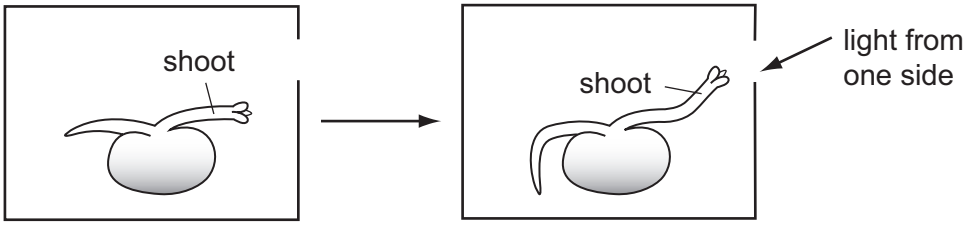
View solution

Experiment 1 — to show the effect of gravity



start of experiment in the dark — 3 days later

Experiment 2 — to show the effect of light



start of experiment — 3 days later

How have the seedlings responded?

	to gravity	to light
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = tropic response shown

✗ = no tropic response shown

View solution

28 When does fertilisation occur in humans?

A when an egg is released

B when implantation occurs

C when sperm and egg nuclei fuse

D when sperm are released

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29 The diagram shows the structure of a sperm cell.

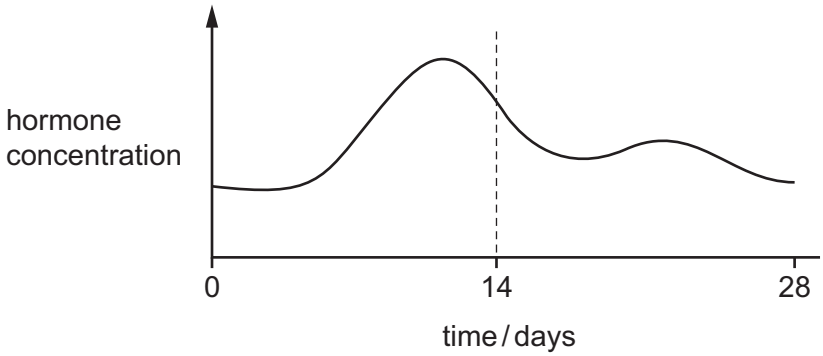
View solution

Which part is the flagellum?



30 The graph shows a hormone that is involved in controlling the menstrual cycle.

View solution



What is the hormone?

A FSH

B LH

C oestrogen

D progesterone

31 What happens in mitosis?

View solution

	genetically identical cells produced	chromosome number is halved
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

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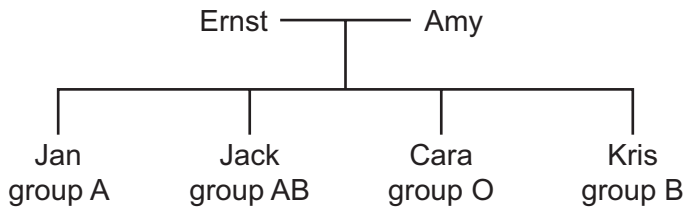
32 Ernst and Amy have four children of different blood groups, as shown.

View solution



What are the genotypes of Ernst and Amy?

A I^AI^A and I^BI^o

B I^AI^B and I^oI^o

C I^AI^o and I^BI^B

D I^AI^o and I^BI^o

33 What is an adaptive feature of xerophytes?

View solution

A do not have root hair cells

B leaves have large surface area

C stomata are in pits

D thin cuticles

34 What are possible positions in a food chain of a carnivore and a herbivore?

View solution

	carnivore	herbivore
A	primary consumer	producer
B	secondary consumer	primary consumer
C	secondary consumer	tertiary consumer
D	tertiary consumer	secondary consumer

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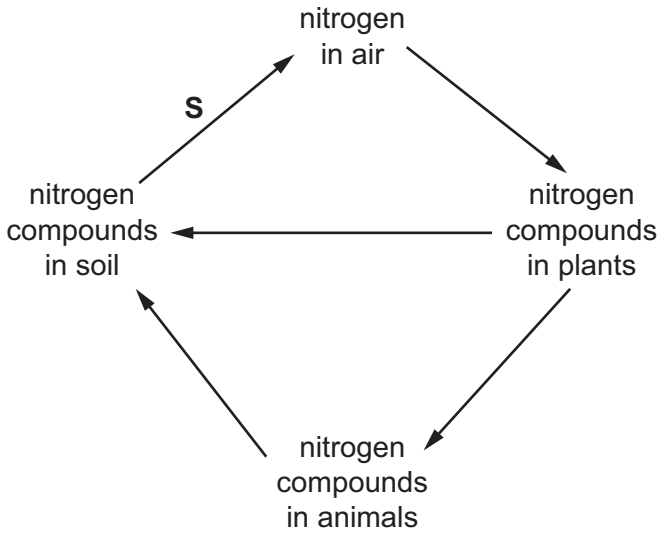
35 The diagram shows part of the nitrogen cycle.

View solution



What is process **S**?

A denitrification

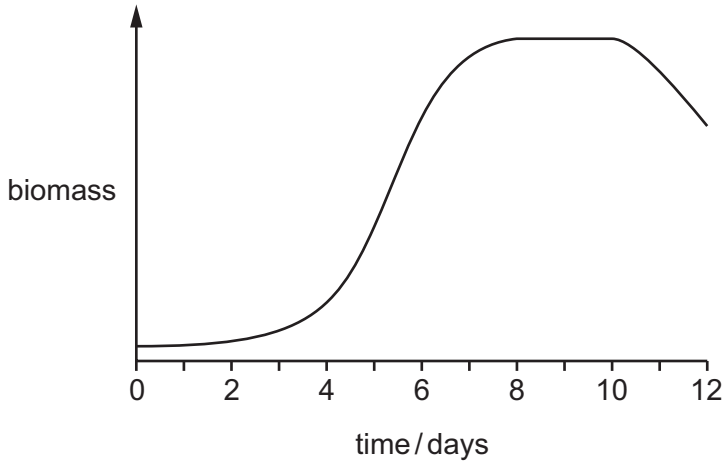
B nitrification

C nitrogen fixation

D nutrition

36 The graph shows the growth of a yeast population.

View solution



When was the rate at which cells were dying equal to the rate at which new cells were being formed?

A day 3 **B** day 5 **C** day 9 **D** day 11

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37 Which structures, found in bacteria, make them useful in genetic engineering?

View solution

A cell walls

B membranes

C plasmids

D mitochondria

38 Why is yeast used in bread-making?

View solution

A Aerobic respiration produces alcohol.

B Aerobic respiration produces lactic acid.

C Anaerobic respiration produces alcohol.

D Anaerobic respiration produces carbon dioxide.

39 An advantage of some genetically modified crop plants is that they will **not**

View solution

A be affected by herbicides.

B need carbon dioxide.

C need magnesium ions.

D need water.

40 Fertiliser leaks into a river resulting in eutrophication.

View solution

What is the correct order of events leading to the death of animals in the river?

A increased aerobic respiration by decomposers → reduction in dissolved oxygen → increased growth of plants → increased decomposition of dead plants

B increased decomposition of dead plants → increased growth of plants → reduction in dissolved oxygen → increased aerobic respiration by decomposers

C increased growth of plants → increased decomposition of dead plants → increased aerobic respiration by decomposers → reduction in dissolved oxygen

D reduction in dissolved oxygen → increased growth of plants → increased aerobic respiration by decomposers → increased decomposition of dead plants

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