Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **October/November 2017**

45 minutes

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

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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 **14** printed pages and **2** blank pages.

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1 Which process do living organisms use to remove excess carbon dioxide from their bodies?

A excretion

B movement

C nutrition

D respiration

2 When a donkey is bred with a zebra, a zebronkey is produced. Zebronkeys are not fertile animals.

Which statement is correct?

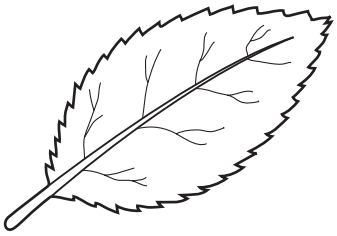
A Donkeys and zebras belong to different species because their offspring are not fertile.

B Donkeys and zebras belong to different species because they do not look exactly the same.

C Donkeys and zebras belong to the same species because they look alike.

D Donkeys and zebras belong to the same species because they produce offspring.

3 The diagram shows a leaf.



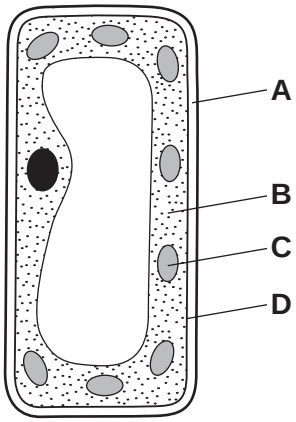
Use the key to identify the leaf.

1	leaf with several small leaflets	go to 2
	leaf with one large leaf blade	go to 3
2	leaflets are broad and flat	**A**
	leaflets are narrow and hair-like	**B**
3	leaf with a smooth edge	**C**
	leaf with a toothed edge	**D**

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4 The diagram shows a cell from the leaf of a plant.

Which part contains the highest amount of magnesium?



5 What is a leaf?

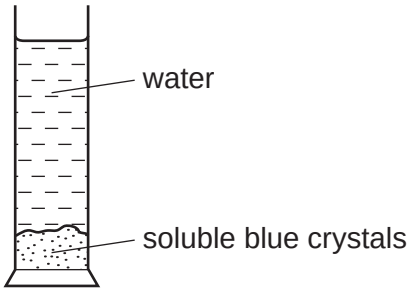
A a cell

B an organ

C an organ system

D a tissue

6 An experiment is set up as shown.



After several hours, the water turns blue.

Which process causes this colour change to take place?

A absorption

B active transport

C diffusion

D osmosis

7 A cell has an actual length of 0.2 mm. A student wants to make a drawing of this cell so that it appears two hundred times bigger.

How long should the student draw this cell?

A 4 mm **B** 0.04 cm **C** 40 mm **D** 40 cm

8 What are features of osmosis?

	diffusion is involved	requires cell walls	requires a partially permeable membrane
A	✓	✗	✓
B	✓	✗	✗
C	✗	✓	✓
D	✗	✓	✗

9 Which of these is digested by protease?

A ■

B ●

C ■—■—■—■

D ●—●—●—●

key

■ amino acid

● glucose

— chemical bond

10 Which chemical is used to test for the presence of protein in a food sample?

A Benedict's solution

B biuret solution

C DCPIP

D iodine solution

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11 Four test-tubes were set up as shown in the table.

In which test-tube would starch be broken down the fastest?

	2 cm^3 starch suspension added	1 cm^3 of amylase added	1 cm^3 of boiled amylase added	temperature / °C
A	✓	✓	✗	5
B	✓	✓	✗	35
C	✓	✗	✓	5
D	✓	✗	✓	35

key

✓ = present

✗ = absent

12 The average number of chloroplasts in four different types of cell taken from a plant is shown.

Which is a root hair cell?

A 0 **B** 47 **C** 370 **D** 920

13 What must be increased in the diet of a person suffering from constipation?

A fats

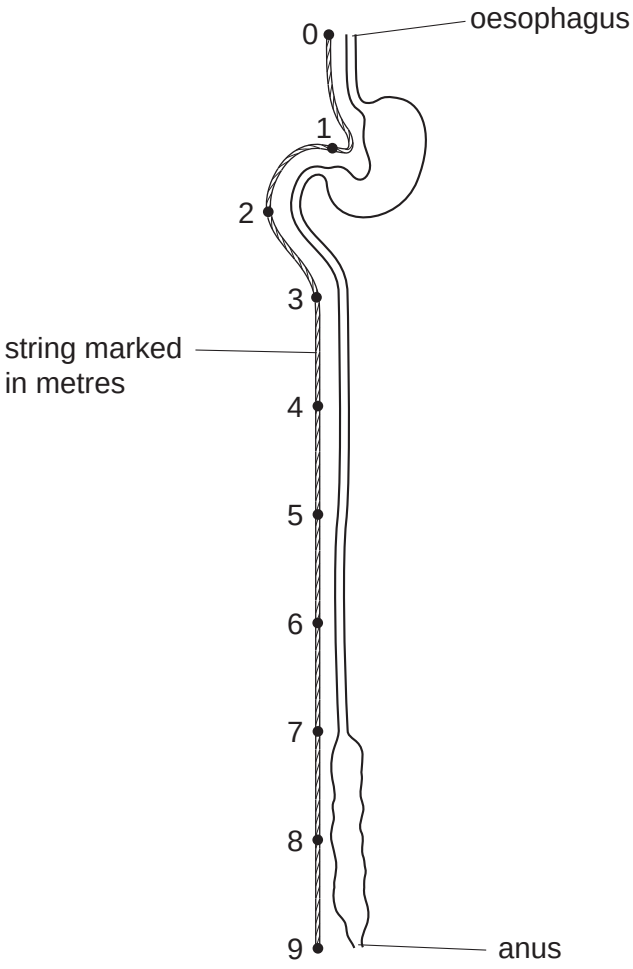
B fibre

C iron

D protein

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14 The diagram shows the human alimentary canal, with a string marked in metres beside it.



How long is the small intestine?

A 2 m **B** 6 m **C** 8 m **D** 9 m

15 What could lead to obesity?

A energy consumption exceeding energy expenditure

B increased consumption of dietary fibre

C reduced consumption of fat

D reduced consumption of sugar

16 Which stage of nutrition takes place when food molecules become part of a body cell?

A absorption

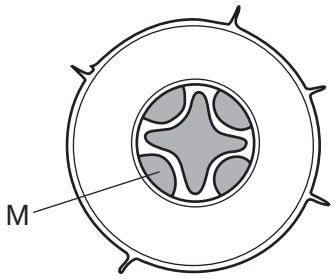
B assimilation

C digestion

D ingestion

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17 The diagram shows a transverse section through a plant organ.



What is M?

A phloem in a root

B phloem in a stem

C xylem in a root

D xylem in a stem

18 What is a description of transpiration?

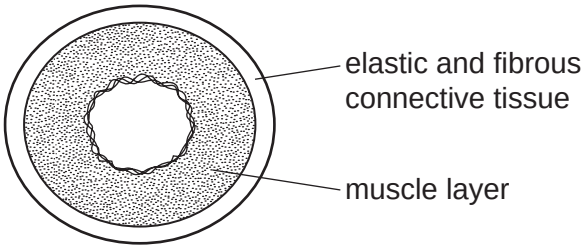
A exchange of gases between the leaf and the atmosphere

B loss of water vapour from the leaves and stems of a plant

C movement of water from the roots to the leaves

D movement of water through the cells of the leaf

19 The diagram shows a cross-section through a human blood vessel.



Which type of blood vessel does the diagram show?

A an artery

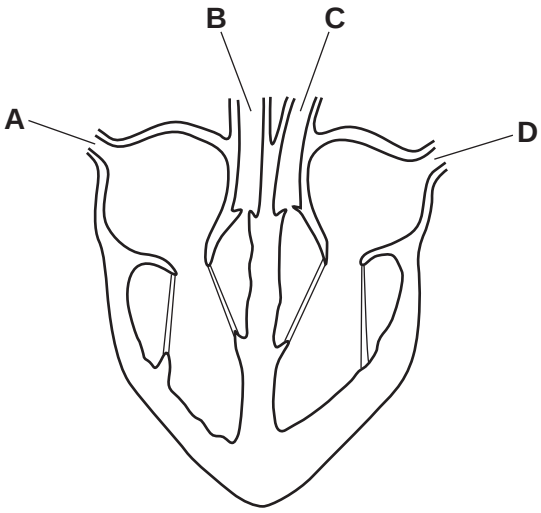
B a capillary

C a vein

D a ventricle

20 The diagram shows a section through a mammalian heart.

Which part carries blood directly from the lungs?



21 Which is a mechanical barrier to pathogens?

A acid in the stomach

B hairs in the nose

C mucus in the trachea

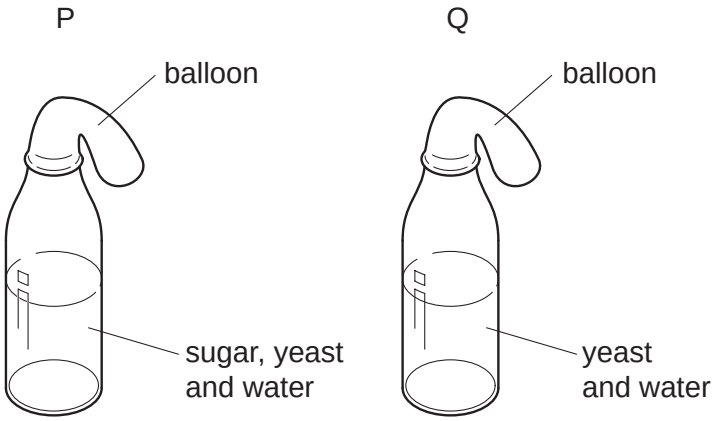
D phagocytosis in the blood

22 What is the approximate percentage of oxygen in exhaled air?

A 0.04 **B** 4.00 **C** 16.00 **D** 21.00

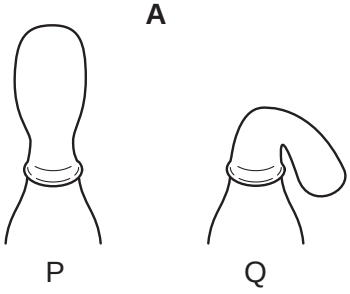
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23 In an experiment to investigate anaerobic respiration, two bottles are set up in a warm room, as shown.

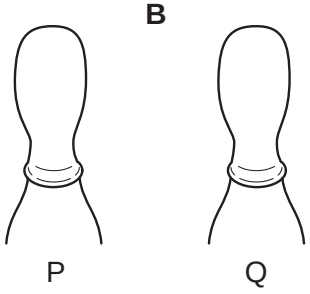


What would happen to each balloon after one day?

A



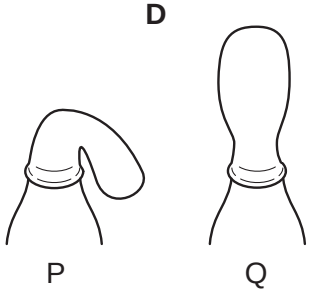
B



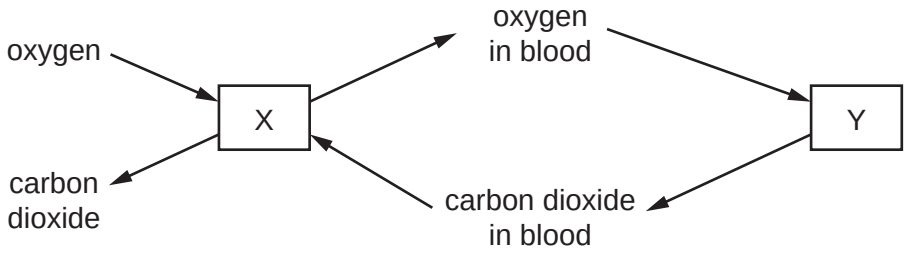
C



D



24 The diagram represents the exchange of gases during breathing and during respiration in the body.



What is represented by X and by Y?

	X	Y
A	lungs	air
B	lungs	body cells
C	body cells	air
D	body cells	lungs

25 What is the most important function of sweating?

A to remove excess heat from the body

B to remove excess salts from the body

C to remove excess urea from the body

D to remove excess water from the body

26 What shows the order in which these structures are involved in a reflex action?

A effector → motor neurone → relay neurone → sensory neurone → receptor

B effector → sensory neurone → motor neurone → relay neurone→ receptor

C receptor → sensory neurone → relay neurone → motor neurone → effector

D receptor → motor neurone → sensory neurone → relay neurone→ effector

27 Which acts as a sense organ?

A the gall bladder

B the kidney

C the skin

D the ureter

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28 The diagram shows a person sweating in hot weather.



What part is played by sweat glands during the process of sweating?

A effector

B receptor

C sense organ

D stimulus

29 Which disease is caused by bacteria?

A AIDS

B cholera

C obesity

D scurvy

30 Where does fertilisation occur in a flowering plant?

A in the ovary

B in the pollen grain

C in the style

D on the stigma

31 Which method of birth control works by preventing an egg from being released?

A condom

B contraceptive pill

C monitoring body temperature

D vasectomy

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[Turn over

32 Which environmental factor is **not** always a requirement for seed germination?

A light

B oxygen

C suitable temperature

D water

33 In some plants, H is the dominant allele for hairy stems and h is the recessive allele for smooth stems.

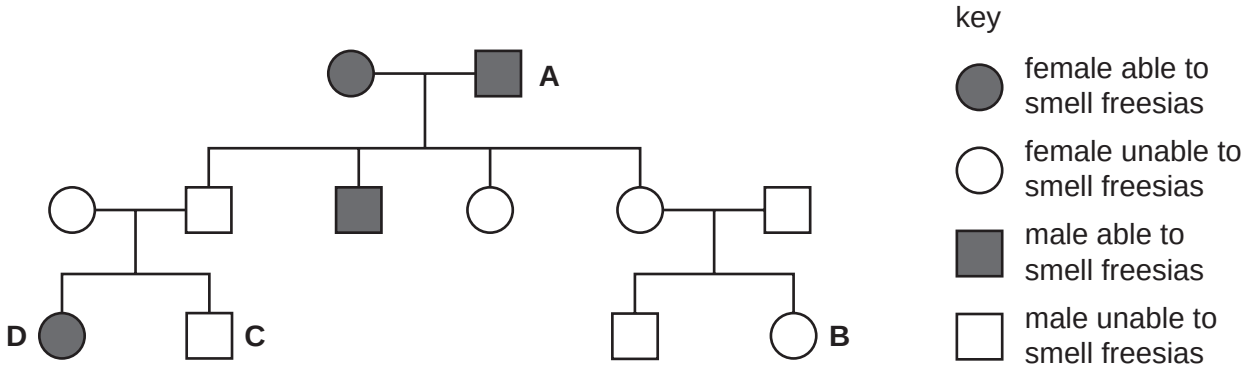
A pair of these plants produce 37 offspring, 18 with hairy stems and 19 with smooth stems.

What are the most likely genotypes of the parents?

A HH × HH **B** Hh × Hh **C** Hh × hh **D** hh × hh

34 The family tree shows the inheritance of the ability to smell flowers called freesias. The allele for the ability to smell freesias is dominant.

Which individual's symbol is **not** correct?



35 What is an example of continuous variation?

A blood group

B gender

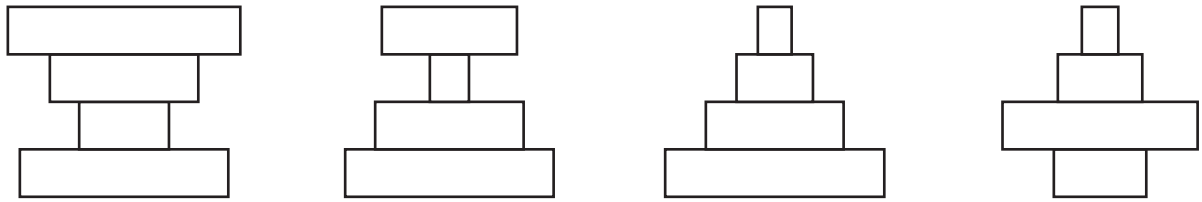
C height

D tongue rolling

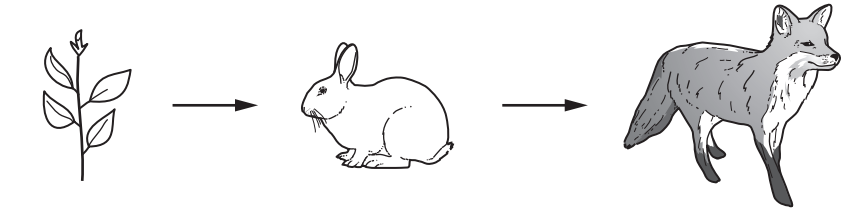
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36 Which pyramid of numbers has more herbivores than producers?

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



37 The diagram shows the flow of energy along a food chain.



green plant rabbit fox

Which process in the rabbit will allow energy to be passed on to the fox?

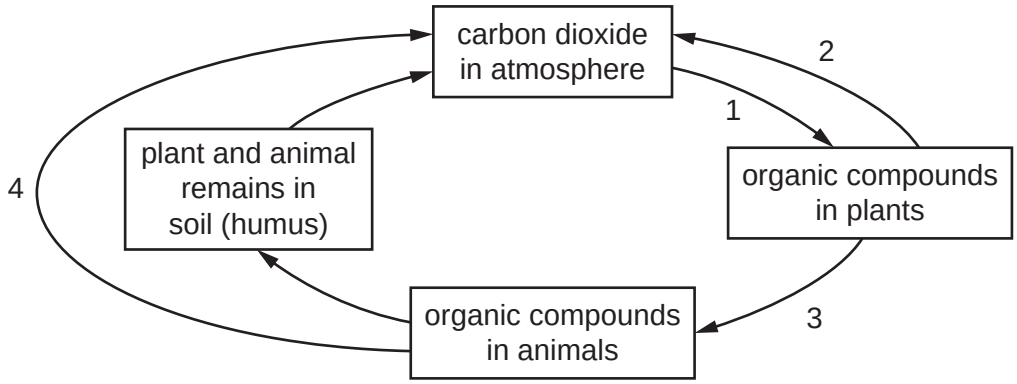
A excretion

B growth

C movement

D sensitivity

38 The diagram shows part of the carbon cycle.



Which two numbered arrows represent the process of respiration?

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

39 When making commercial apple juice, the fruit is crushed to separate cells and to release the cell contents. Chemical Q is found between the cells. It holds the cells together but it makes the extracted juice cloudy.

Which process is used to produce a clear juice?

A adding more water to dissolve chemical Q

B adding pectinase to digest chemical Q

C boiling the juice to destroy chemical Q

D crushing the apples to release chemical Q

40 The table shows the amount of carbon dioxide in the atmosphere in three different years.

year	1930	1980	1990
carbon dioxide / parts per million	300	330	370

What is the most likely cause of this change?

A destruction of rainforests

B increased use of fertilisers containing nitrogen

C pollution of air by sulfur dioxide

D rise in the sea level

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