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Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/11**

Paper 1 Multiple Choice (Core) **May/June 2016**

45 minutes

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

* 9 9 6 9 8 8 5 8 8 7 *

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.

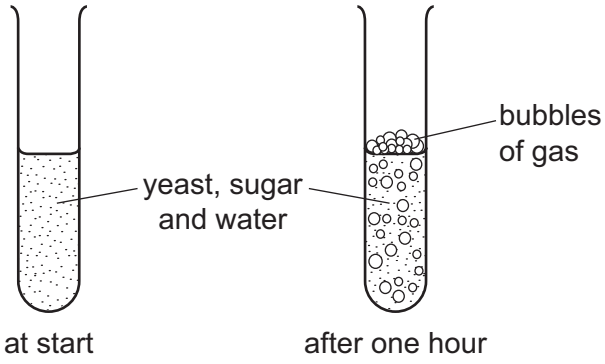
The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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

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1 Some yeast, sugar and water are mixed in a test-tube. The diagrams show the test-tube at the start and after one hour.



Which process causes this change?

A growth

B reproduction

C respiration

D sensitivity

2 Which name is given to a group of individuals that can reproduce to produce fertile offspring?

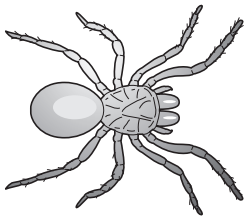
A a genus

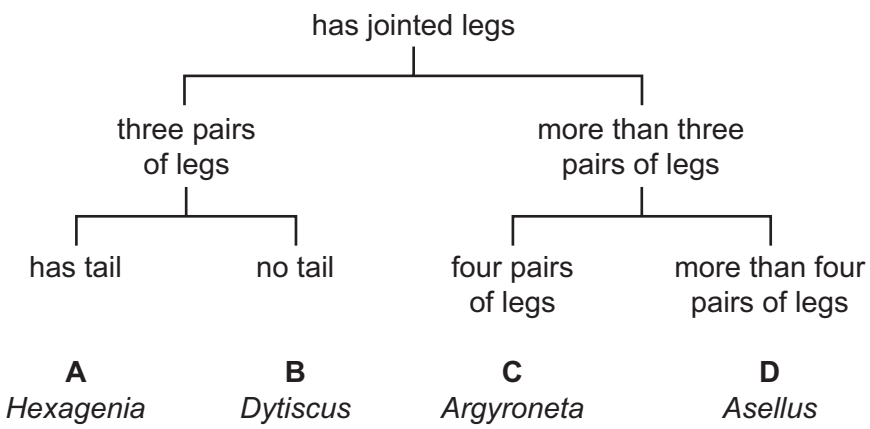
B a kingdom

C a species

D an organ system

3 Use the key to identify the animal shown in the diagram.





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4 Which row matches the cell membrane and cell wall of a palisade cell to their functions?

	cell membrane	cell wall
A	active transport	active transport
B	active transport	support
C	support	active transport
D	support	support

5 In a plant, what is formed by a group of xylem vessels?

A a cell

B a tissue

C an organ

D an organ system

6 What are the functions of xylem vessels?

	absorption	conduction	photosynthesis	support
A	✓	✓	✓	✗
B	✓	✓	✗	✗
C	✗	✓	✗	✓
D	✗	✗	✓	✓

7 Active transport is the movement of

A molecules from a region of their higher concentration to a region of their lower concentration.

B particles from a region of lower concentration to a region of higher concentration using energy from respiration.

C urine by relaxation of a sphincter muscle in the bladder.

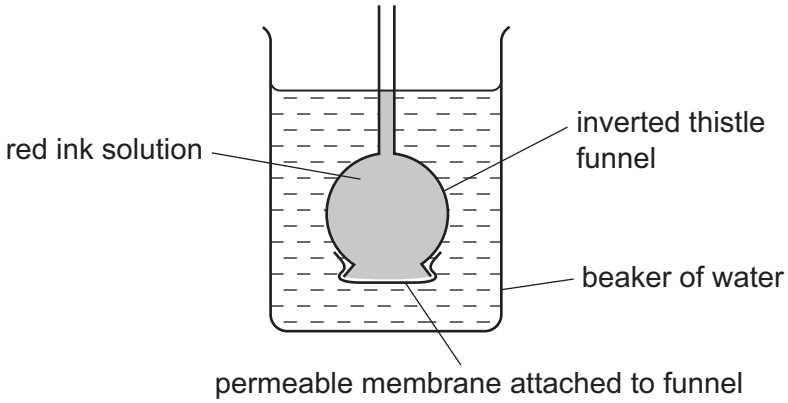
D water through a partially permeable membrane from a more dilute to a more concentrated solution.

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8 The diagram shows an experiment to demonstrate the movement of molecules.



After one hour, the water in the beaker turned red.

What is the most likely reason for this colour change?

A Molecules of red ink move through the membrane by diffusion.

B Molecules of red ink move through the membrane by osmosis.

C Molecules of water move through the membrane by diffusion.

D Molecules of water move through the membrane by osmosis.

9 Small molecules are used as the basic units in the synthesis of large food molecules.

Which statement is correct?

A Amino acids are basic units of carbohydrates.

B Fatty acids are basic units of glycogen.

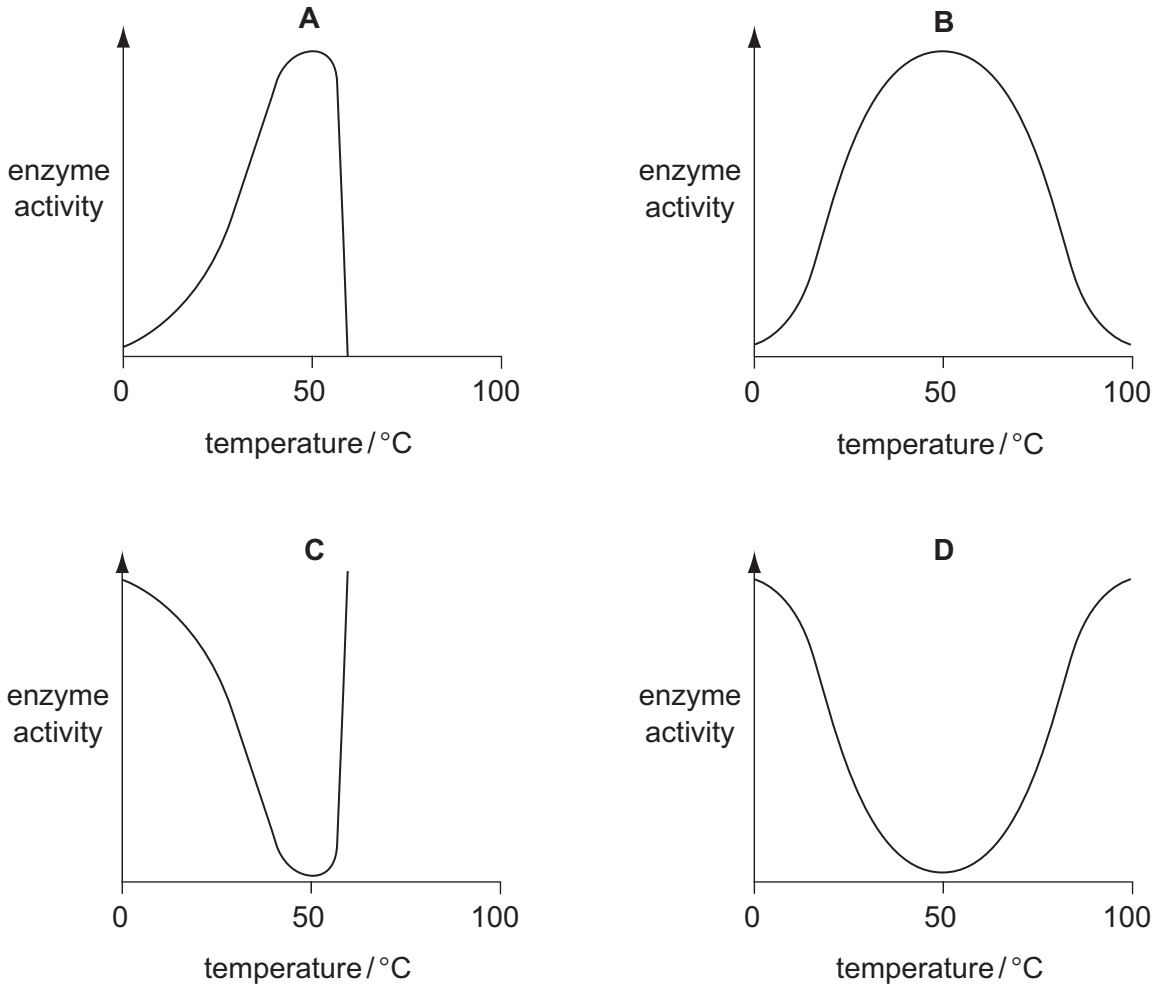
C Glycerol is a basic unit of oils.

D Simple sugar is a basic unit of protein.

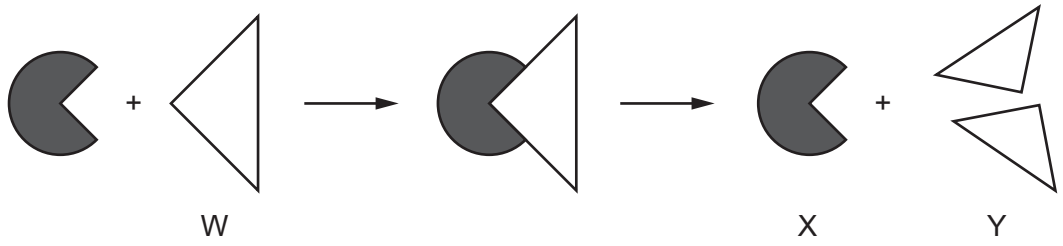
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10 Which graph shows the effect of temperature on the activity of an enzyme?



11 The diagram represents enzyme action.



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

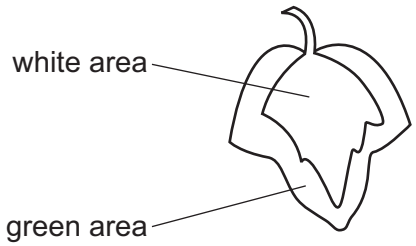
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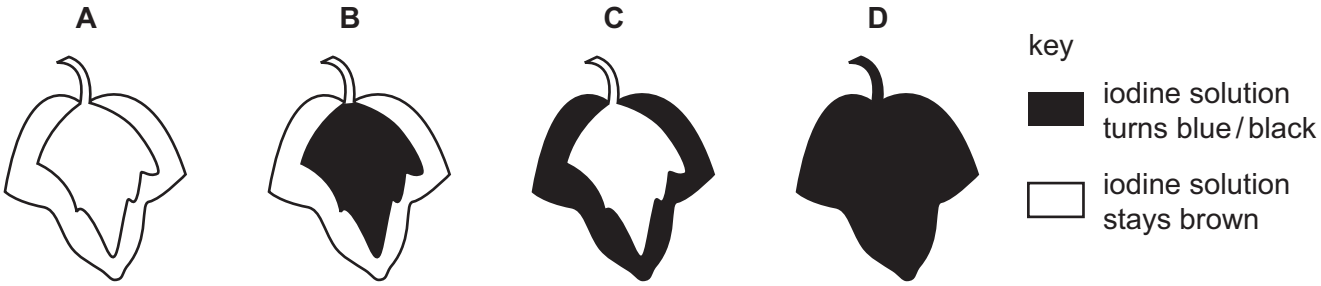
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12 In a photosynthesis experiment, a plant is left in bright sunlight for several hours. A leaf is then removed from the plant and tested for starch, using iodine solution.

The diagram shows the leaf from the plant that was used in the experiment.



Which diagram shows the result of the experiment?



13 Which substance, needed for protein synthesis, is carried into a leaf from the stem?

A carbon dioxide

B nitrate

C oxygen

D starch

14 Which type of food is **not** digested before being absorbed by the body?

A carbohydrate

B fat

C protein

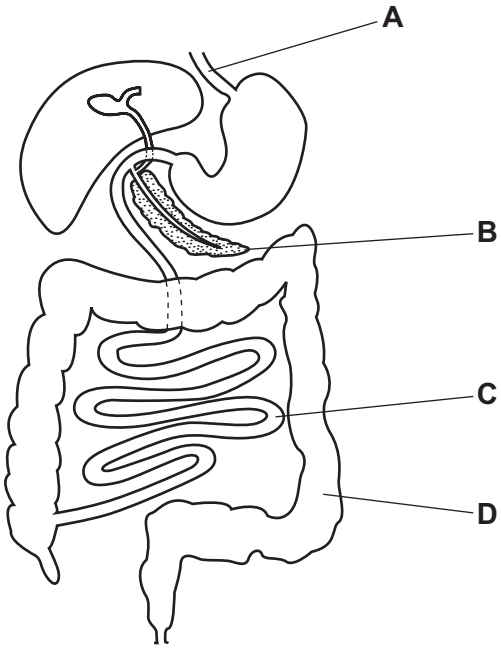
D water

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15 The diagram shows the human alimentary canal.

In which structure is most glucose absorbed into the blood?



16 Which dietary component is **unlikely** to be deficient in a meat-free diet?

A fat

B fibre

C protein

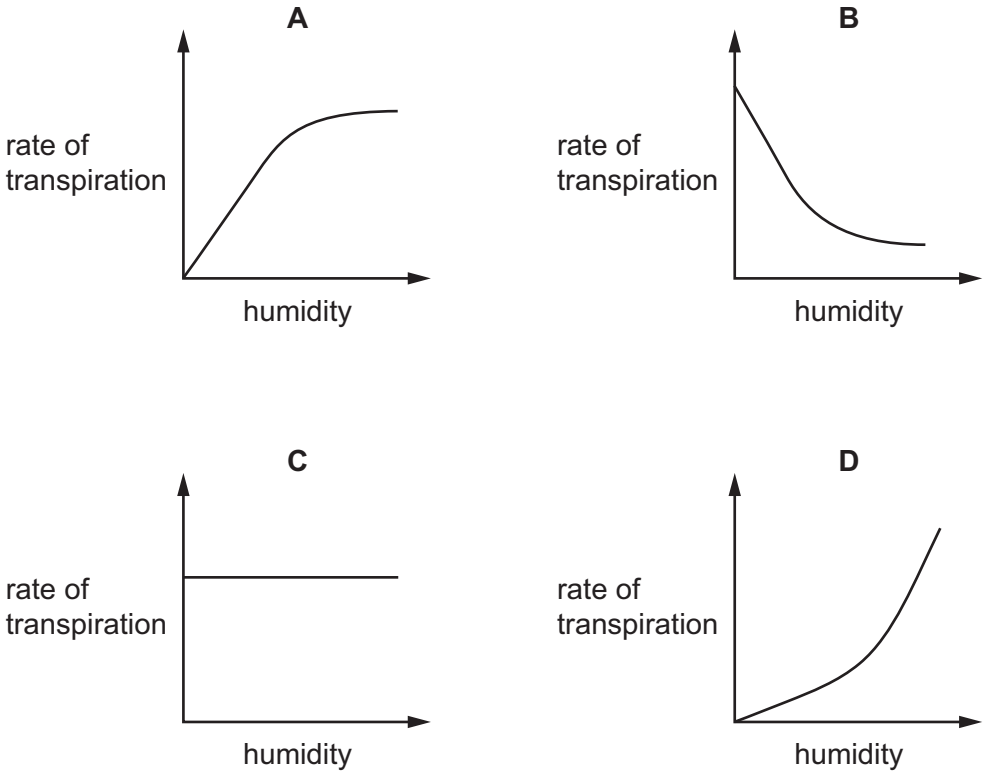
D vitamin D

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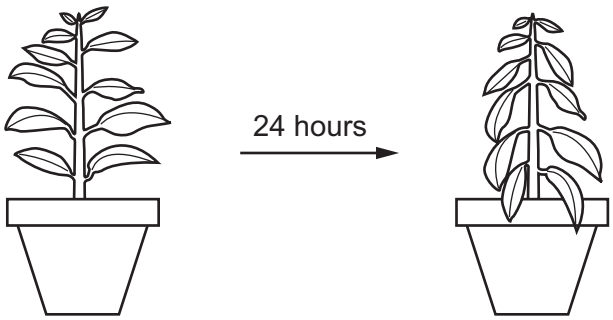
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17 Which graph shows most clearly what will happen to the rate of transpiration as humidity increases?



18 The diagram shows a potted plant and the same plant 24 hours later.



What causes the change in the appearance of the plant?

A Water loss is greater than water uptake.

B Water moves from the leaves to the stem.

C Water uptake is equal to water loss.

D Water uptake is greater than water loss.

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19 Which substances are dissolved in human blood plasma?

A carbon dioxide, haemoglobin and glucose

B carbon dioxide, oxygen and haemoglobin

C glucose, hormones and urea

D oxygen, urea and starch

20 Which chamber of the heart has the thickest muscle wall?

A left atrium

B left ventricle

C right atrium

D right ventricle

21 What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

22 Compared with atmospheric air, air breathed out by a human contains

A less water vapour, less carbon dioxide.

B less water vapour, more carbon dioxide.

C more water vapour, less carbon dioxide.

D more water vapour, more carbon dioxide.

23 What is produced by anaerobic respiration in yeast?

	lactic acid	carbon dioxide
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

24 What is the word equation for aerobic respiration in plants?

A carbon dioxide + water → glucose + oxygen

B glucose + carbon dioxide → water + oxygen

C glucose + oxygen → carbon dioxide + water

D glucose + water → carbon dioxide + oxygen

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25 Where is urea made?

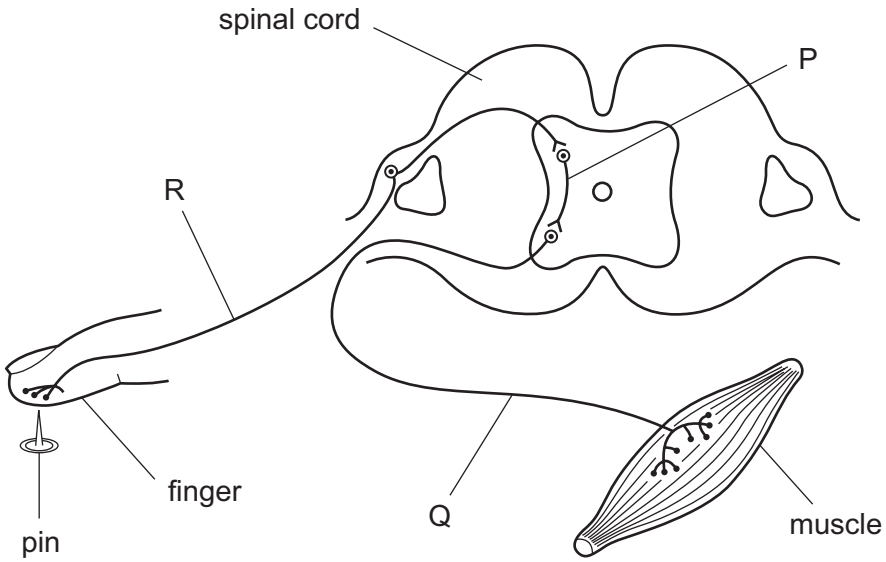
A bladder

B kidney

C liver

D urethra

26 The diagram represents a simple reflex arc.



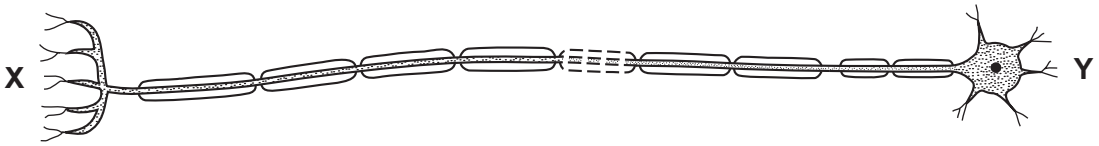
What is the sequence of nerve cells through which an impulse passes during a reflex action?

	first →		last
A	P	Q	R
B	Q	R	P
C	Q	P	R
D	R	P	Q

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27 The diagram shows a neurone.



Which structures could be found at **X** and **Y**?

	X	Y
A	brain	intestine
B	brain	leg
C	eye	hand
D	gland	spinal cord

28 What will be the effect of strenuous exercise on the volume of water lost through the skin and the kidneys?

	volume of water lost through the skin	volume of water lost through the kidneys
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

29 Which organ is most often damaged by regularly drinking too much alcohol?

A heart

B liver

C pancreas

D stomach

30 When a baby is born, these processes occur.

1 breaking of the amniotic sac

2 contraction of muscles in the uterus wall

3 cutting of the umbilical cord

In which order do these processes usually occur?

A $2 \rightarrow 1 \rightarrow 3$ **B** $2 \rightarrow 3 \rightarrow 1$ **C** $3 \rightarrow 1 \rightarrow 2$ **D** $3 \rightarrow 2 \rightarrow 1$

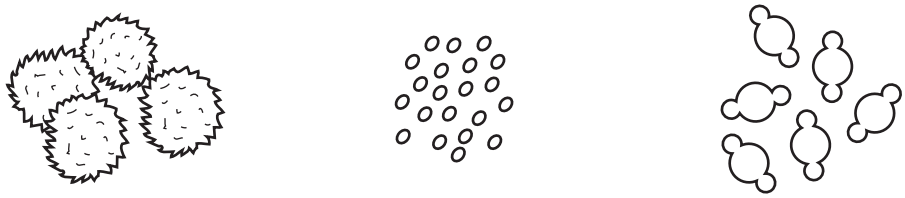
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31 The diagrams show pollen grains from three different species of plant as they appear under the microscope. The diagrams are all to the same scale.

1 2 3

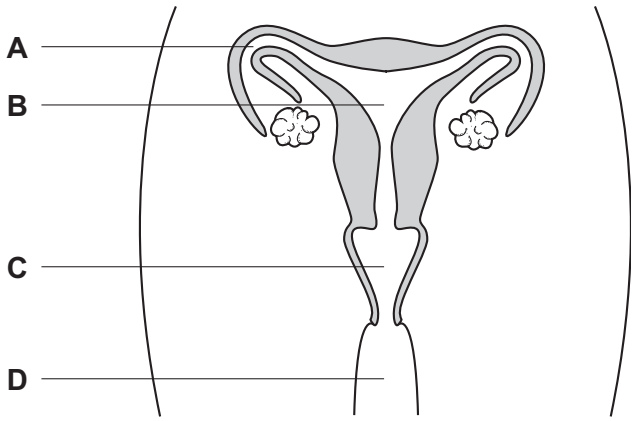


Which pollen grains are involved in insect-pollination?

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

32 The diagram shows the human female reproductive system.

If a woman uses a femidom as a contraceptive, where would it be placed?



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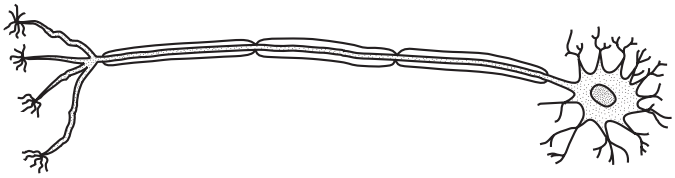
33 Cells are formed by the division of existing cells. Four different cells are shown.

Which cell is produced by meiosis?

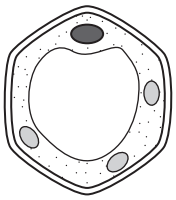
A



B



C



D



34 Albinism is an inherited condition in which pigment does not develop in the skin, hair and eyes.

The allele for albinism is recessive.

What are the chances of albino parents having an albino child?

A 0% **B** 25% **C** 75% **D** 100%

35 Which name is given to the observable features of an organism?

A alleles

B genes

C genotype

D phenotype

36 What is **not** a feature of natural selection?

A competition for resources

B production of many offspring

C selection by humans

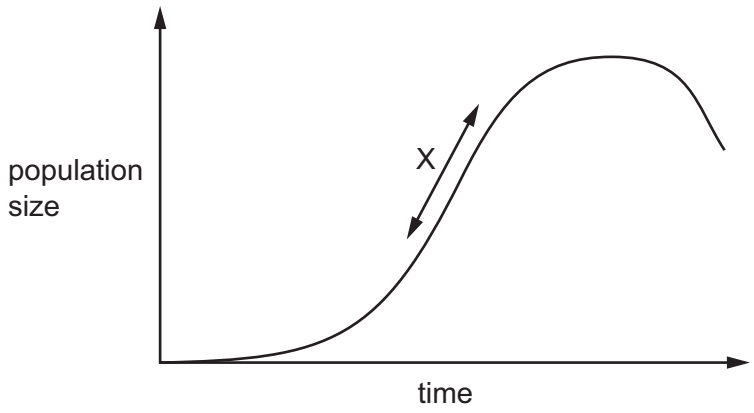
D variation within the population

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37 The graph shows a population growth curve.



Which factors would cause region X on the graph to become steeper?

A decrease in predation, decrease in food supply

B increase in food supply, decrease in disease

C increase in food supply, increase in predation

D increase in predation, decrease in disease

38 The diagram shows a simple food chain.

green plant → herbivore → carnivore

If a disease causes the number of herbivores to decrease, what will be the effect on the numbers of green plants and carnivores?

	green plants	carnivores
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

39 A gene for insulin is taken from a human cell and placed in a bacterium.

The bacterium can then make human insulin.

What is this process called?

A artificial selection

B genetic engineering

C heterozygous inheritance

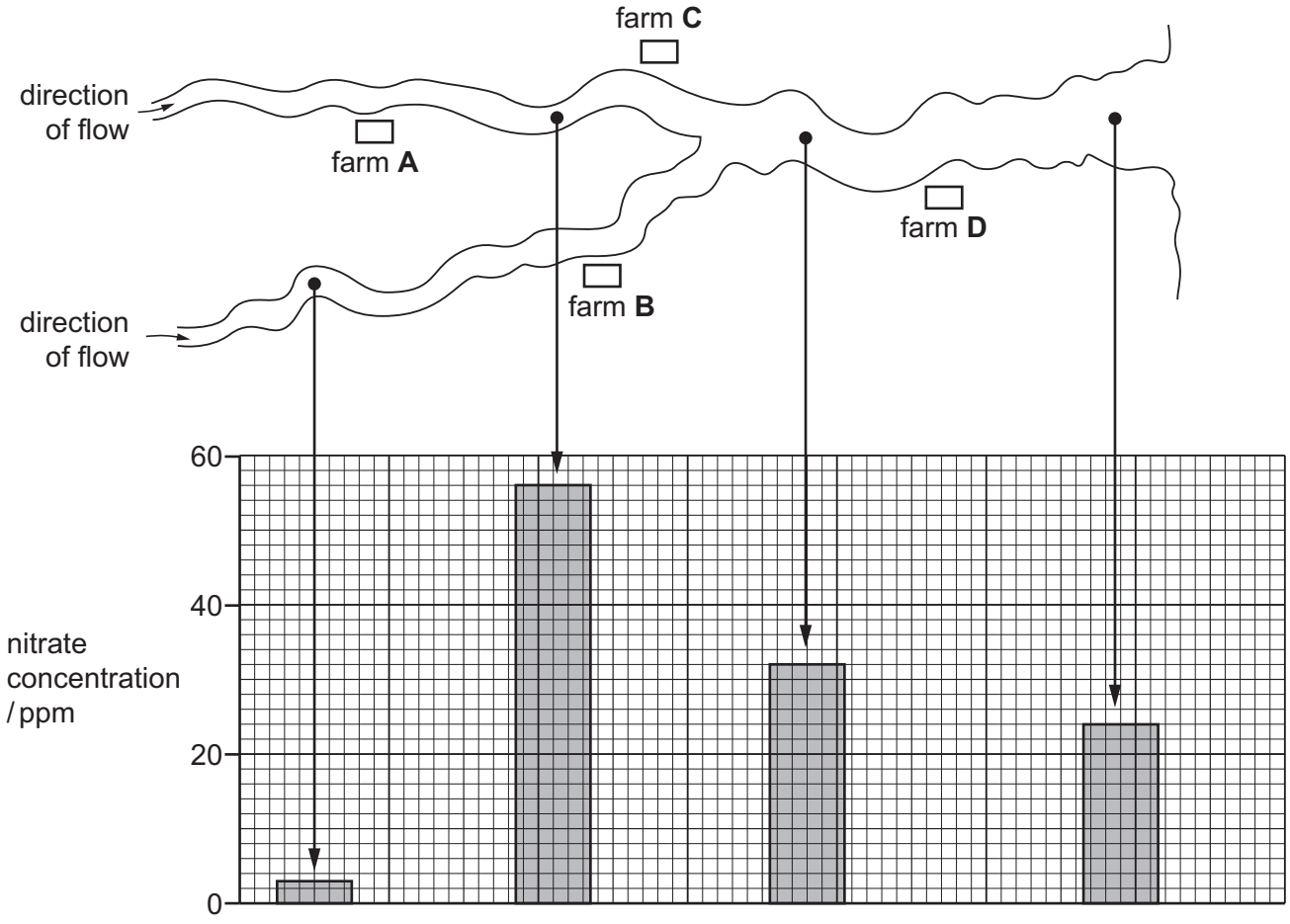
D natural selection

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40 The diagram shows the positions of four farms and the concentrations of nitrate at different points in a river.

Which farm is likely to have been using too much fertiliser on its land?



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