**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)

**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.



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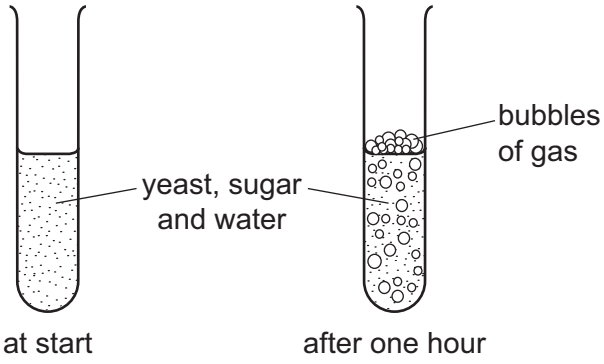
CAMBRIDGE International Examinations

**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.

View solution




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?

View solution

**A** a genus

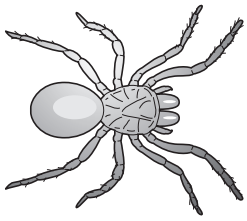
**B** a kingdom

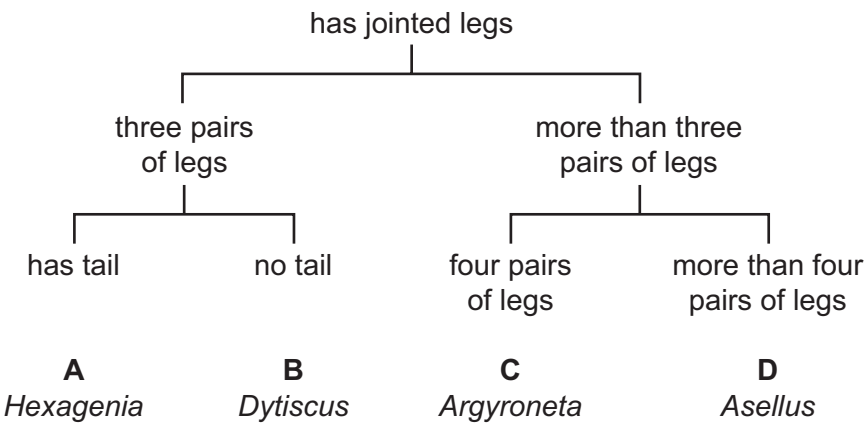
**C** a species

**D** an organ system

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

View solution





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

View solution

| | 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?

View solution

**A** a cell

**B** a tissue

**C** an organ

**D** an organ system

**6** What are the functions of xylem vessels?

View solution

| | absorption | conduction | photosynthesis | support |
|---|---|---|---|---|
| **A** | ✓ | ✓ | ✓ | ✗ |
| **B** | ✓ | ✓ | ✗ | ✗ |
| **C** | ✗ | ✓ | ✗ | ✓ |
| **D** | ✗ | ✗ | ✓ | ✓ |

**7** Active transport is the movement of

View solution

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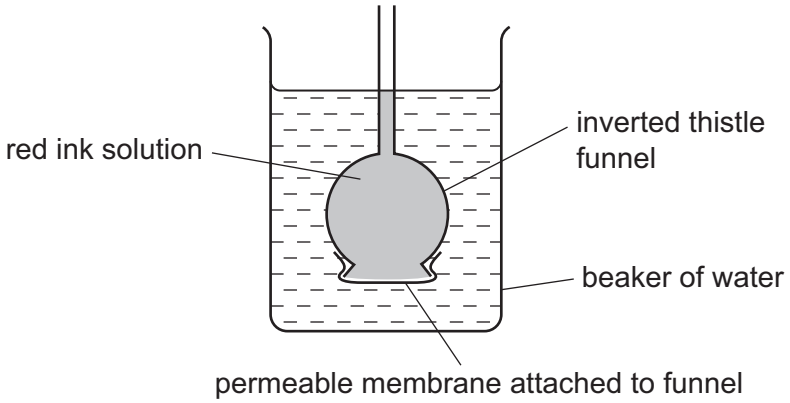
**8** The diagram shows an experiment to demonstrate the movement of molecules.

View solution




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.

View solution

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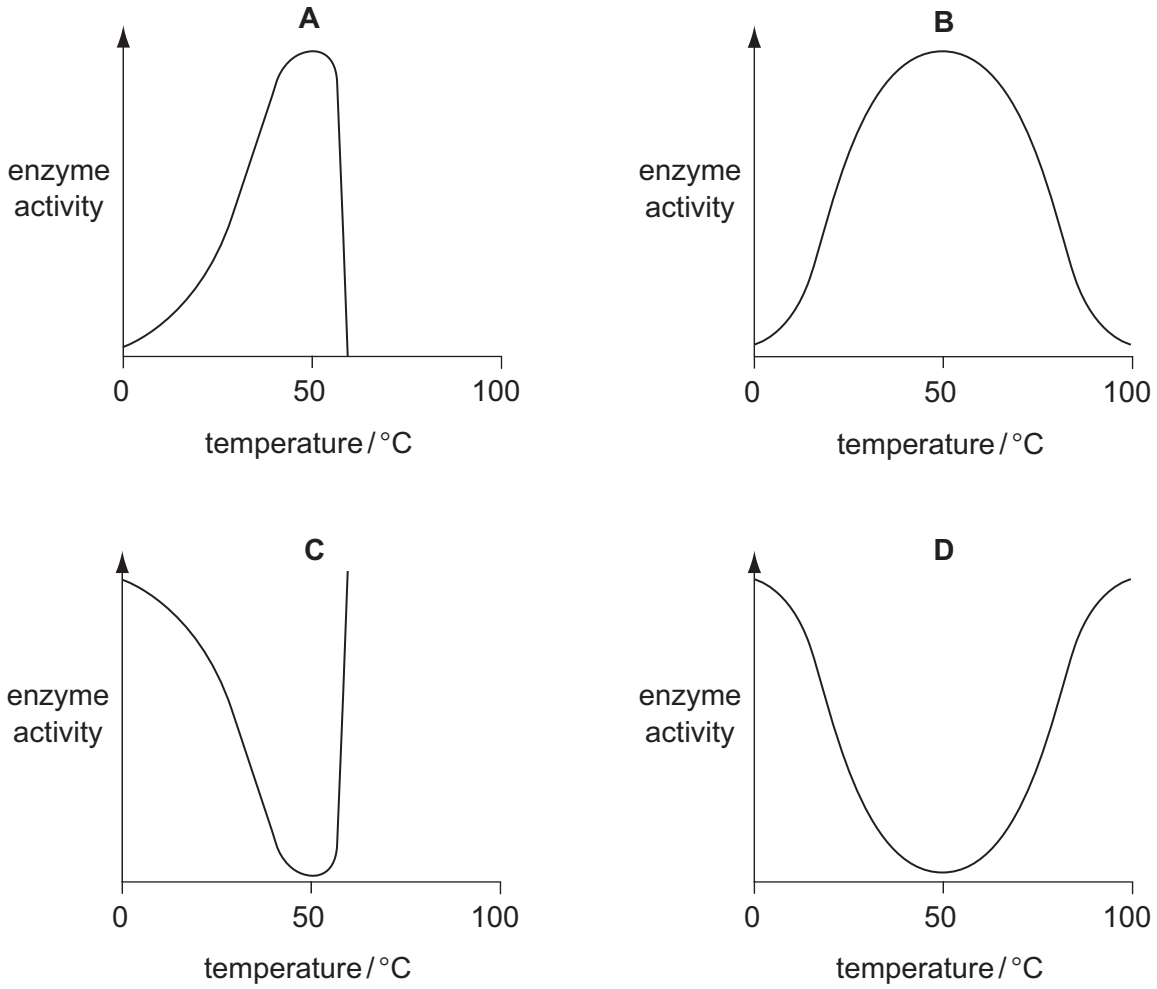
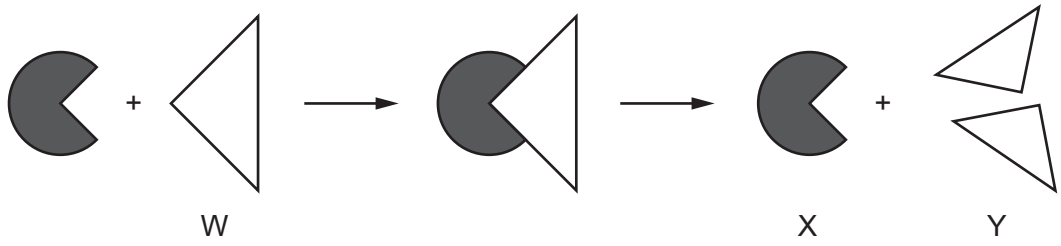
**10** Which graph shows the effect of temperature on the activity of an enzyme?

View solution




**11** The diagram represents enzyme action.

View solution



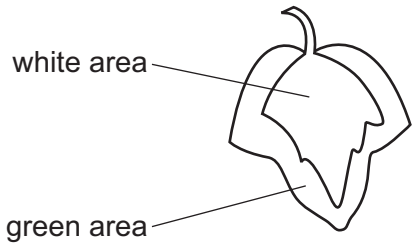

What are parts W, X and Y in this chemical reaction?

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

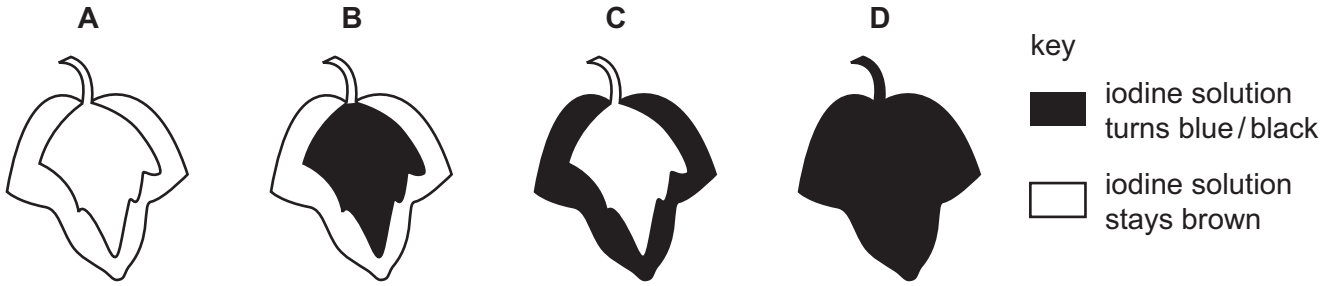
**12** In a photosynthesis experiment, a plant is left in bright sunlight for several hours. A leaf is then removed from the plant and tested for starch, using iodine solution.

View 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?

View solution

**A** carbon dioxide

**B** nitrate

**C** oxygen

**D** starch

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

View solution

**A** carbohydrate

**B** fat

**C** protein

**D** water

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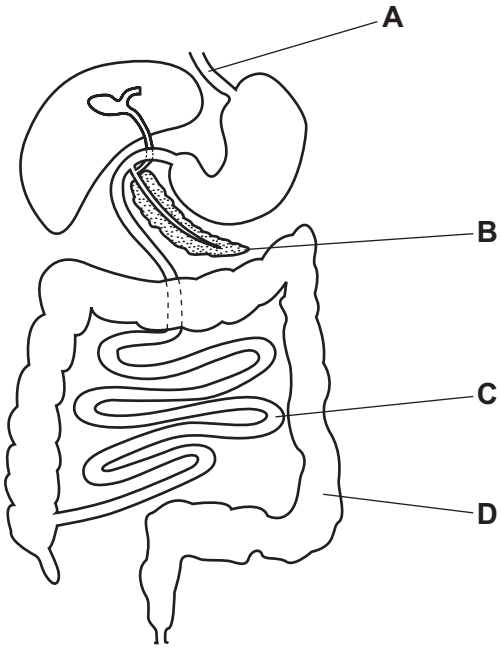
**15** The diagram shows the human alimentary canal.

In which structure is most glucose absorbed into the blood?

View solution




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

View solution

**A** fat

**B** fibre

**C** protein

**D** vitamin D

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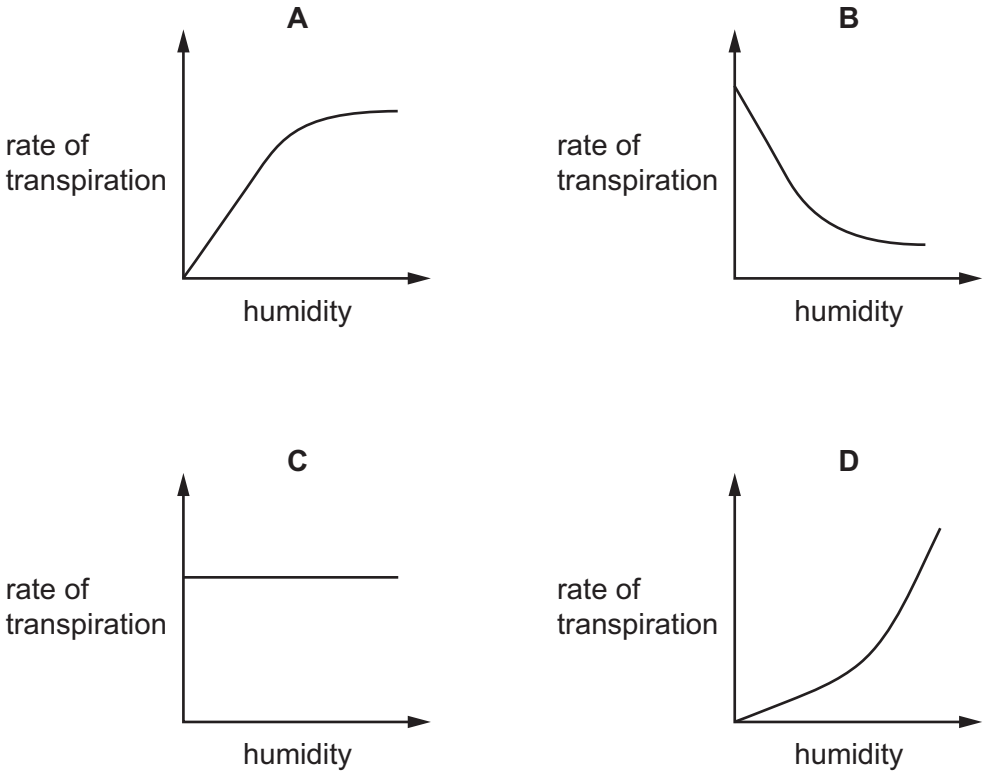
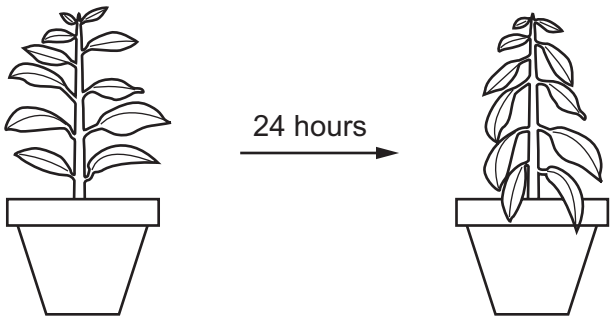
**17** Which graph shows most clearly what will happen to the rate of transpiration as humidity increases?

View solution




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

View solution




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?

View solution

**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?

View solution

**A** left atrium

**B** left ventricle

**C** right atrium

**D** right ventricle

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

View solution

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

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

View solution

**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?

View solution

| | lactic acid | carbon dioxide |
|---|---|---|
| **A** | ✓ | ✓ |
| **B** | ✓ | ✗ |
| **C** | ✗ | ✓ |
| **D** | ✗ | ✗ |

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

View solution

**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?

View solution

**A** bladder

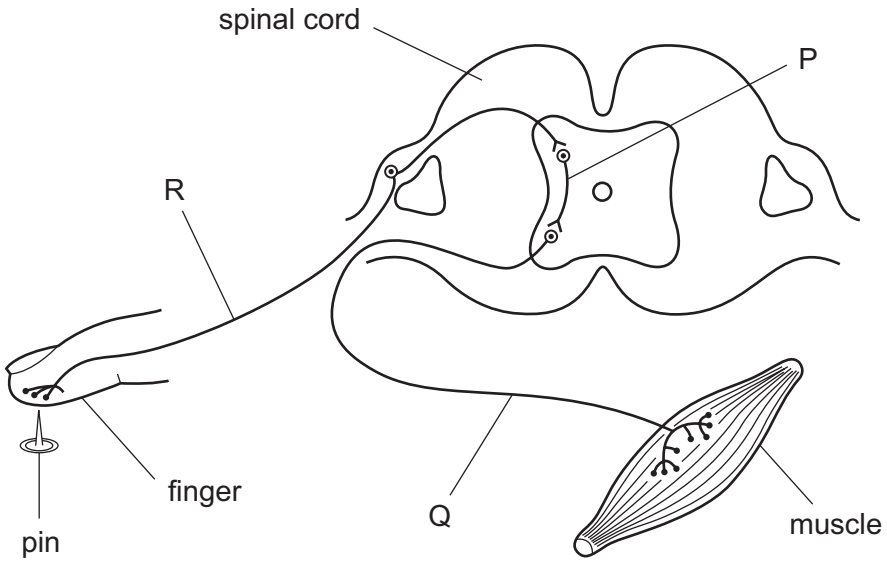
**B** kidney

**C** liver

**D** urethra

**26** The diagram represents a simple reflex arc.

View solution




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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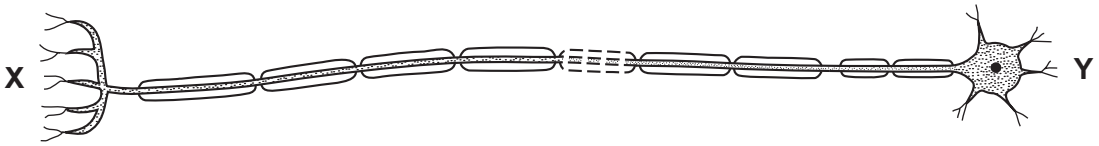
**27** The diagram shows a neurone.

View solution




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?

View solution

| | 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?

View solution

**A** heart

**B** liver

**C** pancreas

**D** stomach

**30** When a baby is born, these processes occur.

View solution

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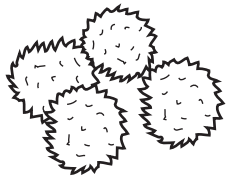
**31** The diagrams show pollen grains from three different species of plant as they appear under the microscope. The diagrams are all to the same scale.

View solution

1



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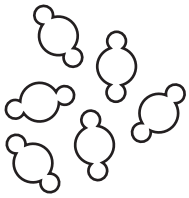


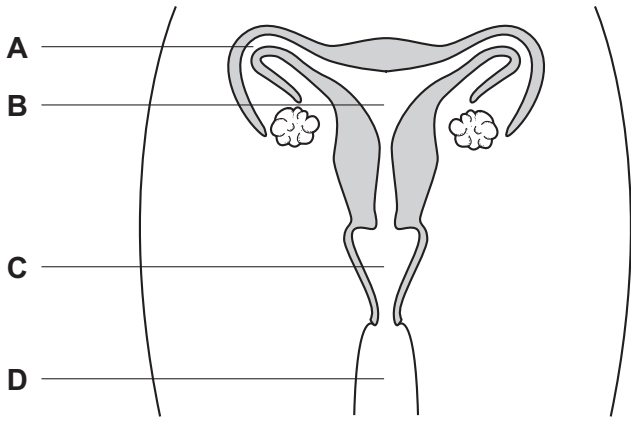
Which pollen grains are involved in insect-pollination?

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

**32** The diagram shows the human female reproductive system.

View solution

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



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

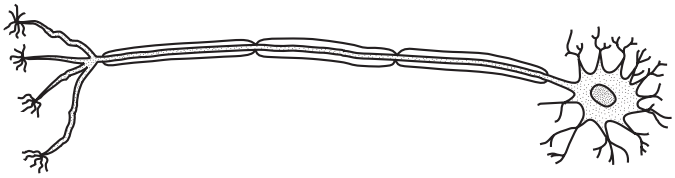
View solution

Which cell is produced by meiosis?

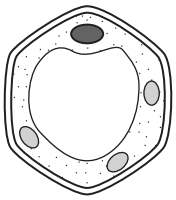
**A**



**B**



**C**



**D**



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

View solution

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?

View solution

**A** alleles

**B** genes

**C** genotype

**D** phenotype

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

View solution

**A** competition for resources

**B** production of many offspring

**C** selection by humans

**D** variation within the population

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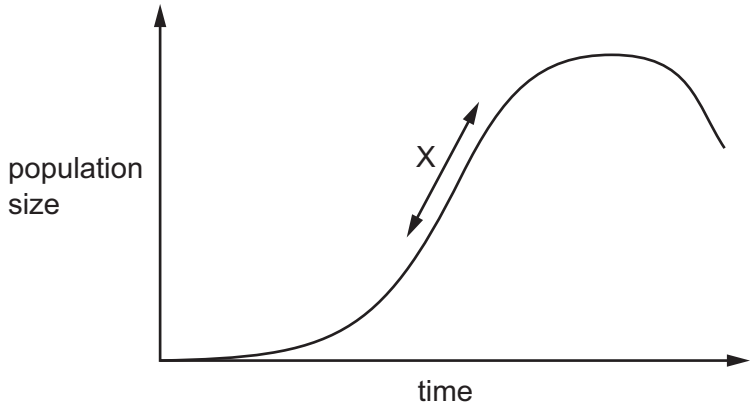
**37** The graph shows a population growth curve.

View solution




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.

View solution

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.

View solution

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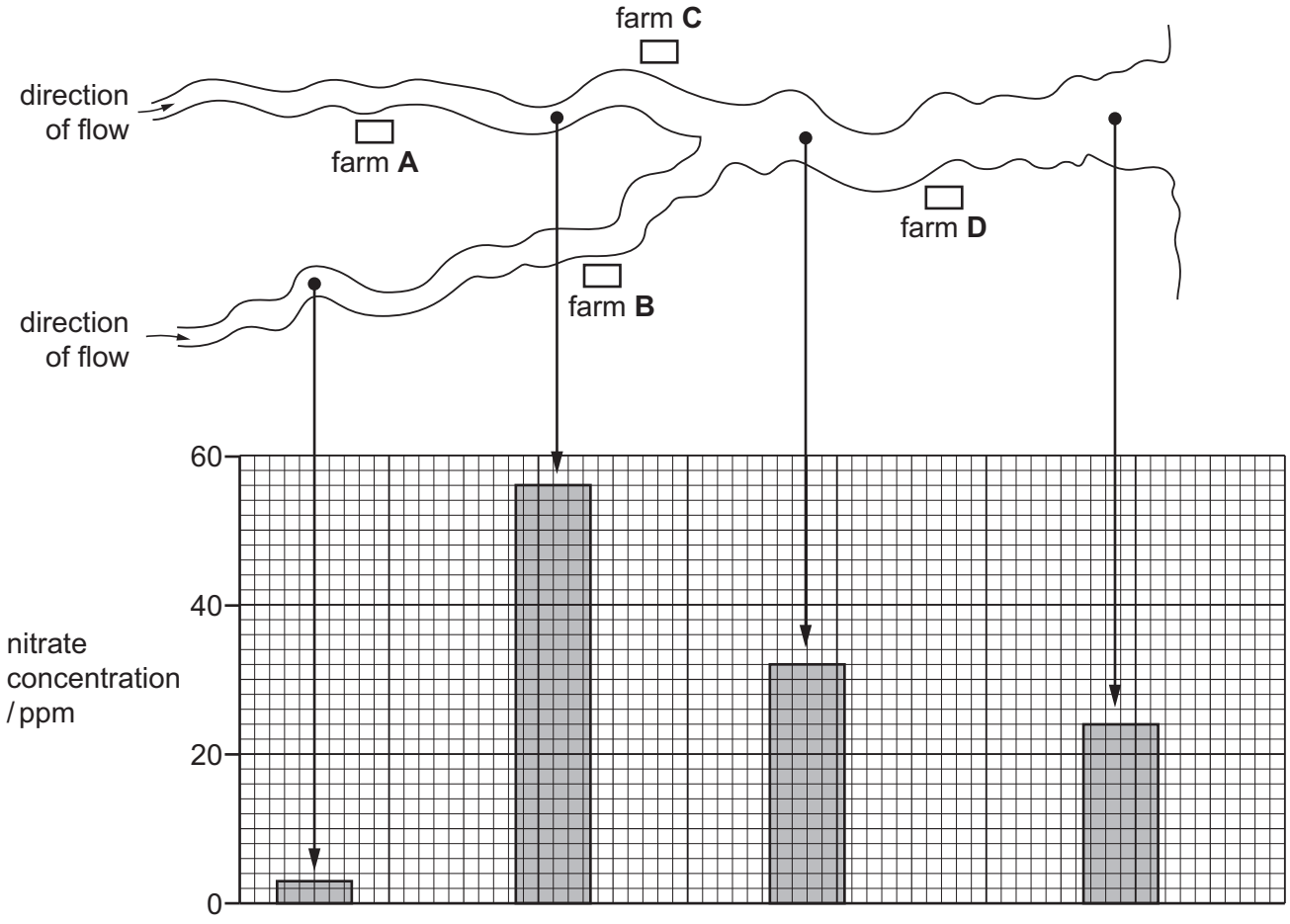
**40** The diagram shows the positions of four farms and the concentrations of nitrate at different points in a river.

View solution

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



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