Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/13**

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)

* 4 8 5 1 8 4 5 8 1 6 *

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.

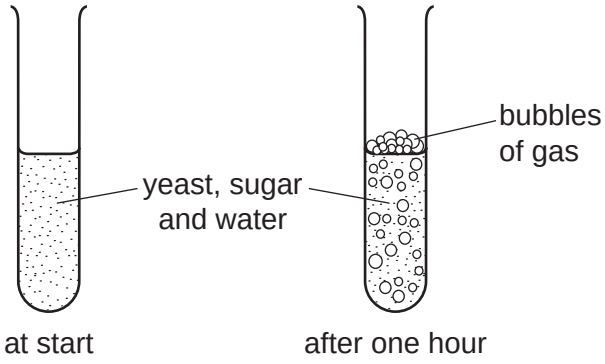
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

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 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 Phototropism demonstrates which two characteristics of living organisms?

A growth and nutrition

B growth and sensitivity

C movement and nutrition

D nutrition and sensitivity

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

scientific name	common name
Althea officinalis	marsh mallow
Hottonea palustris	water violet
Viola palustris	marsh violet
Viola tricolor	wild pansy

Which word in their names shows that two of the plants share the greatest number of features?

A marsh

B *palustris*

C *Viola*

D violet

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4 What is the correct order of increasing size of the following structures, from smallest to largest?

A chromosome → liver → white blood cell

B chromosome → white blood cell → liver

C liver → chromosome → white blood cell

D white blood cell → liver → chromosome

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

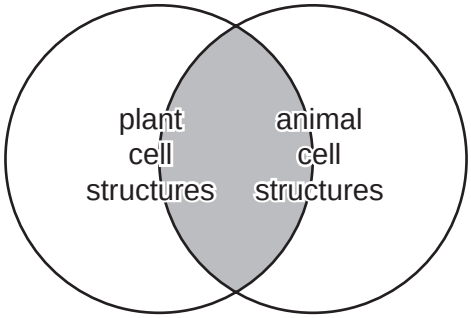
A a cell

B a tissue

C an organ

D an organ system

6 The shaded area of the diagram represents structures found in both plant and animal cells.



Which cell structure is from the shaded area?

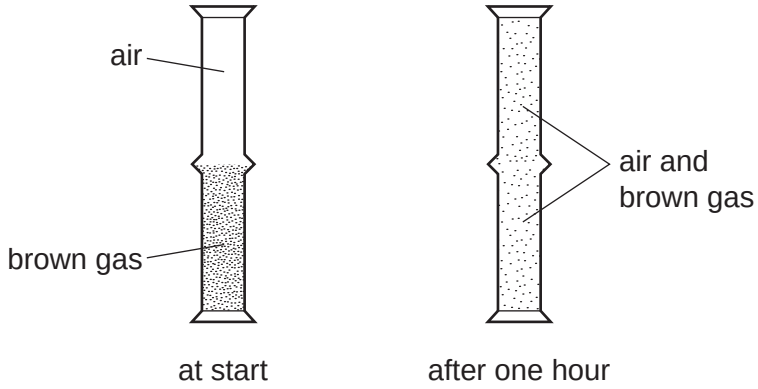
A cell membrane

B cell wall

C chloroplast

D large vacuole

7 A jar of air was placed upside down on top of a jar containing a brown gas as shown.



Which process has taken place?

A diffusion both upwards and downwards

B diffusion downwards only

C diffusion upwards only

D diffusion and osmosis

8 Which statement describes how young plants are supported?

A the pressure of water inside the cells pressing outwards on the cell membranes

B the pressure of water inside the cells pressing outwards on the cell walls

C the pressure of water passing from the roots through the phloem

D the pressure of water passing from the roots through the xylem

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.

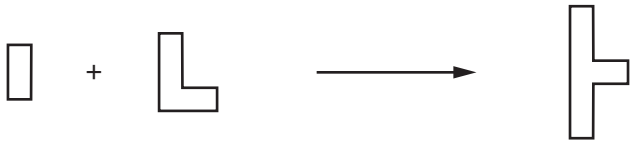
B Fatty acids are basic units of glycogen.

C Glycerol is a basic unit of oils.

D Simple sugar is a basic unit of protein.

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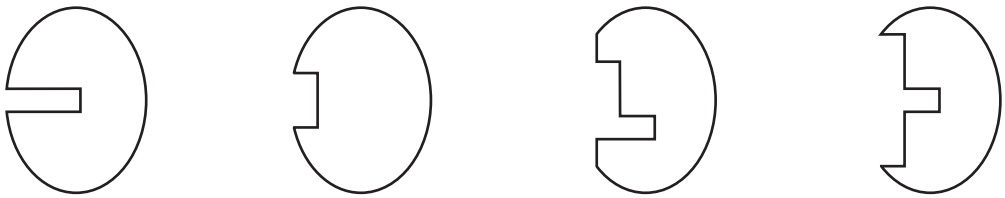
10 The diagram represents a chemical reaction.



reactants product

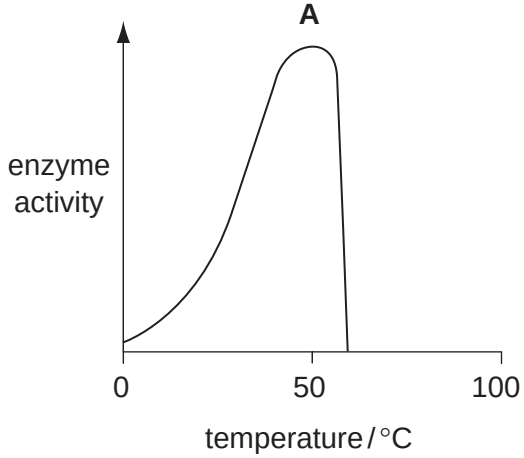
Which diagram represents the enzyme for this reaction?

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

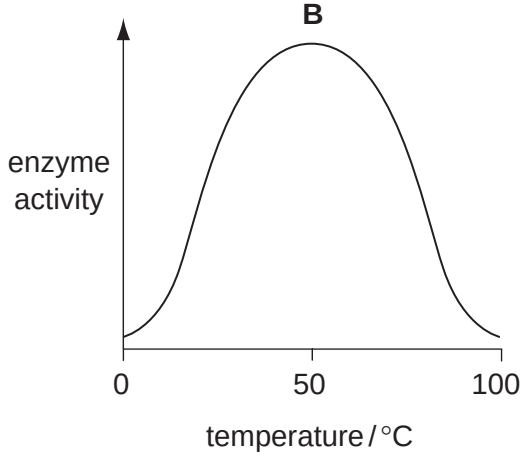


11 Which graph shows the effect of temperature on the activity of an enzyme?

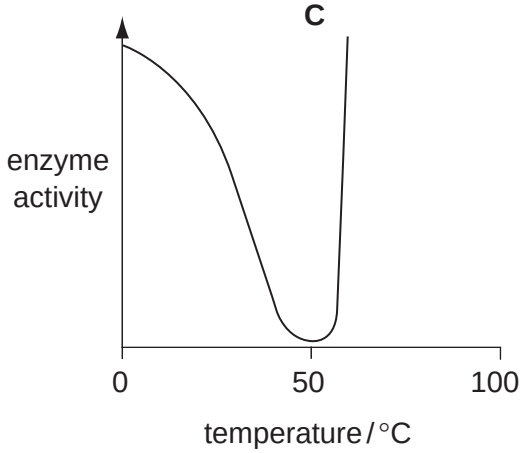
A



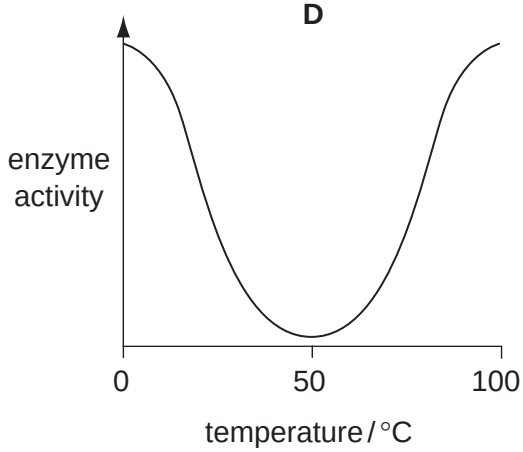
B



C

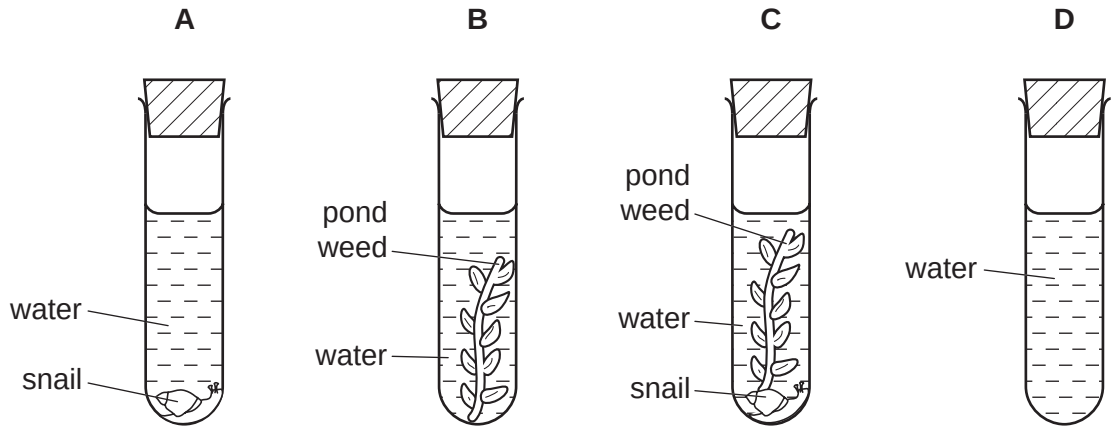


D



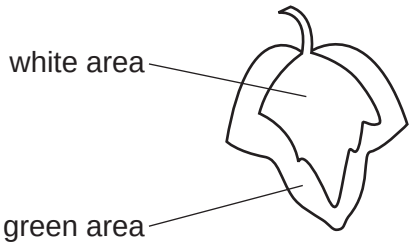
12 Four test-tubes are set up as shown in the diagram and left in full sunlight.

After several hours, which test-tube contains the most dissolved oxygen?

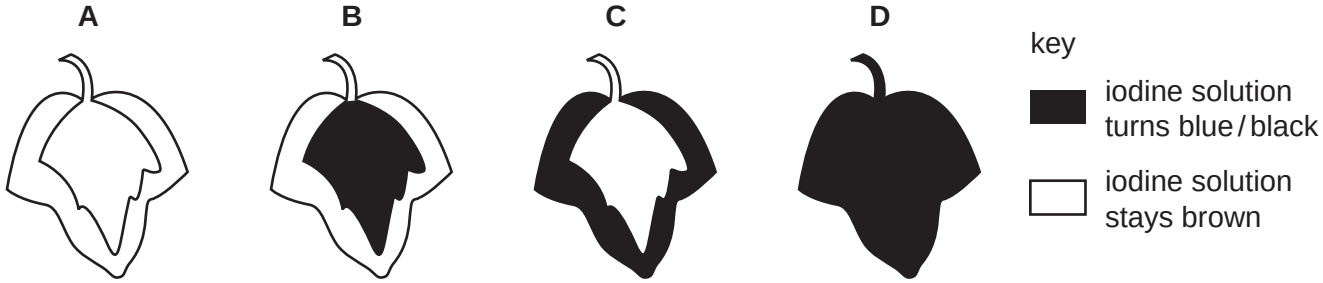


13 In a photosynthesis experiment, a plant is left in bright sunlight for several hours. A leaf is then removed from the plant and tested for starch, using iodine solution.

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



Which diagram shows the result of the experiment?



14 Which organ produces amylase?

A gall bladder

B liver

C oesophagus

D pancreas

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15 Which treatment is best for a person with persistent diarrhoea?

A drinking a solution of sugar and salt

B drinking pure water

C eating more fibre

D eating protein such as boiled eggs

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

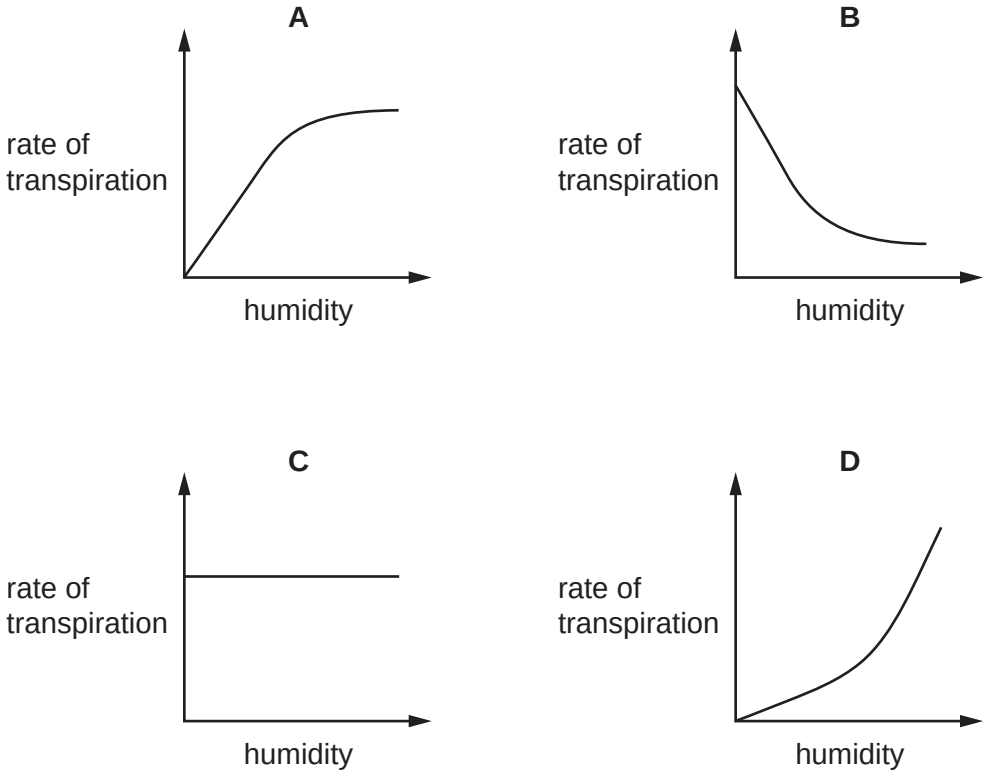
A carbohydrate

B fat

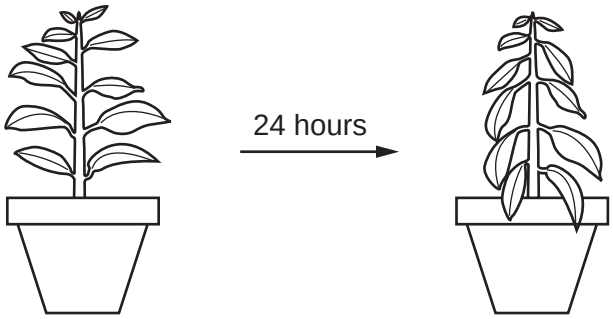
C protein

D water

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.

19 Which blood vessel has a high carbon dioxide concentration, a low oxygen concentration and a high blood pressure?

A aorta

B pulmonary artery

C pulmonary vein

D vena cava

20 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

21 What is the path of carbon dioxide as it leaves the lungs?

A alveolus → bronchiole → bronchus → trachea

B alveolus → bronchus → bronchiole → trachea

C trachea → bronchiole → bronchus → alveolus

D trachea → bronchus → bronchiole → alveolus

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22 In some amphibians, gas exchange occurs through the whole skin surface.

What are the most likely characteristics of the skin surface?

	surface area	type of skin
A	large	thick
B	large	thin
C	small	thick
D	small	thin

23 Which description of anaerobic respiration in yeast is correct?

	it produces alcohol	it releases more energy than aerobic respiration
A	no	no
B	no	yes
C	yes	no
D	yes	yes

24 What is an example of excretion in mammals?

A the release of hormones from glands

B the release of saliva into the mouth

C the removal of undigested food through the anus

D the removal of urea by the kidneys

25 A person has been sitting in a room at 35 °C for 30 minutes.

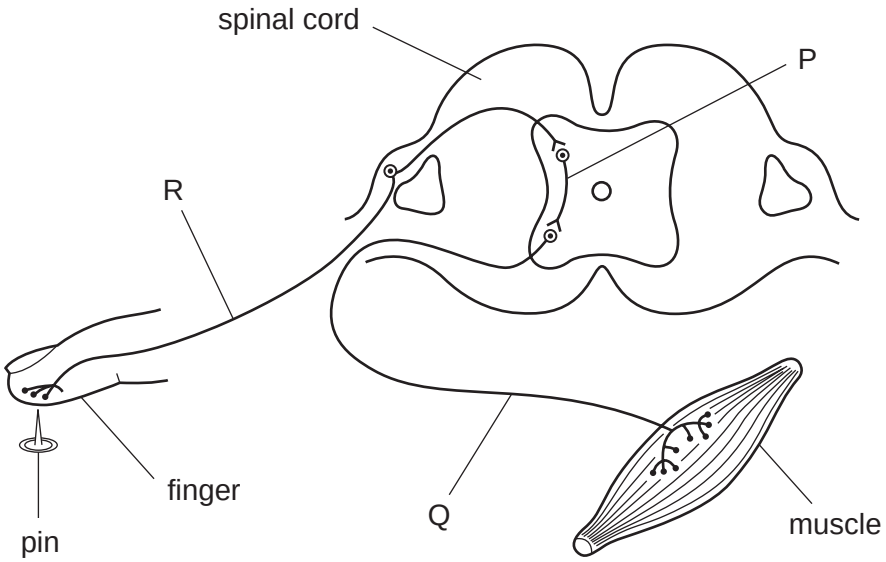
What would be the effect of then drinking several glasses of iced water?

	blood temperature	rate of sweating
A	falls	falls
B	falls	rises
C	rises	falls
D	rises	rises

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[Turn over

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

27 What is an example of gravitropism?

A a chemical messenger produced by a plant

B a painful sensation in response to a stimulus

C the growth of a plant root towards the centre of the Earth

D the growth of a plant shoot towards light

28 Which organ produces a hormone?

A heart

B lung

C ovary

D spinal cord

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29 What is a result of the excessive intake of alcohol?

A improved self-control

B liver damage

C reduced chance of HIV infection

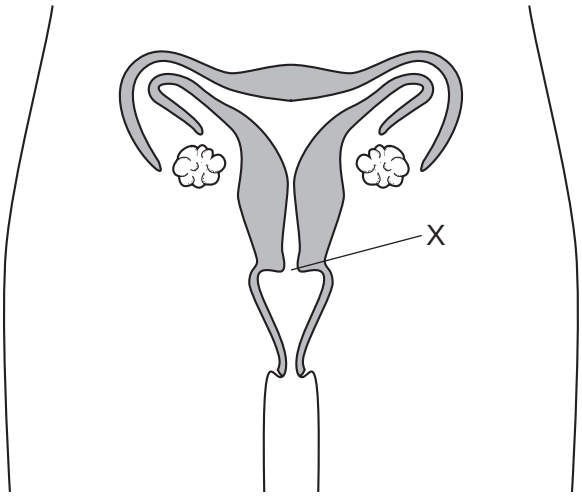
D shorter reaction time

30 The table shows the conditions provided for four sets of seeds.

Which of the seeds germinate?

	oxygen	water	carbon dioxide
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✗

31 The diagram shows a human female's reproductive organs.



What is the name of structure X?

A cervix

B ovary

C oviduct

D ovule

32 Owners of successful race horses hope that the horses' offspring will be like their parents.

How does a young race horse inherit its characteristics?

A equally from its mother and father

B mainly from its father

C mainly from its mother

D passed across the placenta

33 In pea plants the allele for tall, T, is dominant to the allele for dwarf, t.

Which cross would produce plants in the proportion of 1 tall : 1 dwarf?

A TT × Tt **B** Tt × Tt **C** Tt × tt **D** tt × tt

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

A alleles

B genes

C genotype

D phenotype

35 Which characteristic shows discontinuous variation in humans?

A height

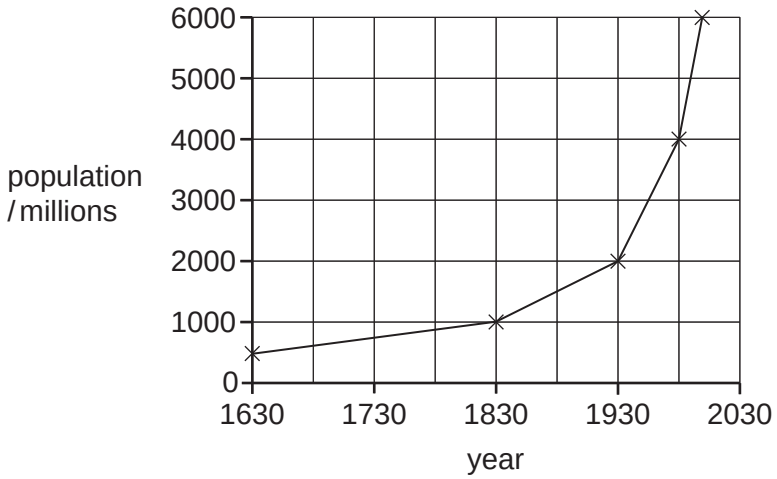
B length of foot

C tongue rolling

D weight

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36 The graph shows the increase in the human population of the world since 1630.



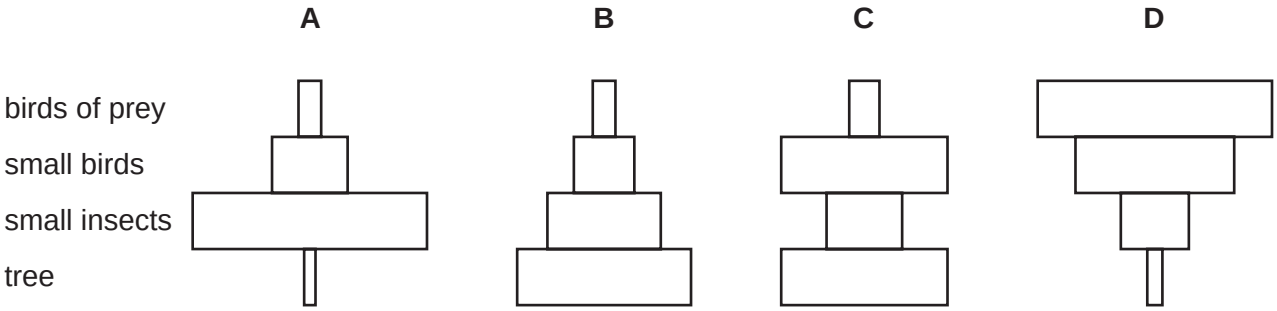
What was the longest time taken for the population to double?

A 100 years **B** 200 years **C** 300 years **D** 400 years

37 The diagram shows a food chain.

tree → small insects → small birds → birds of prey

What is the correct pyramid of numbers for this food chain?



38 Which process is **not** part of the water cycle?

A condensation

B fossilisation

C precipitation

D transpiration

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

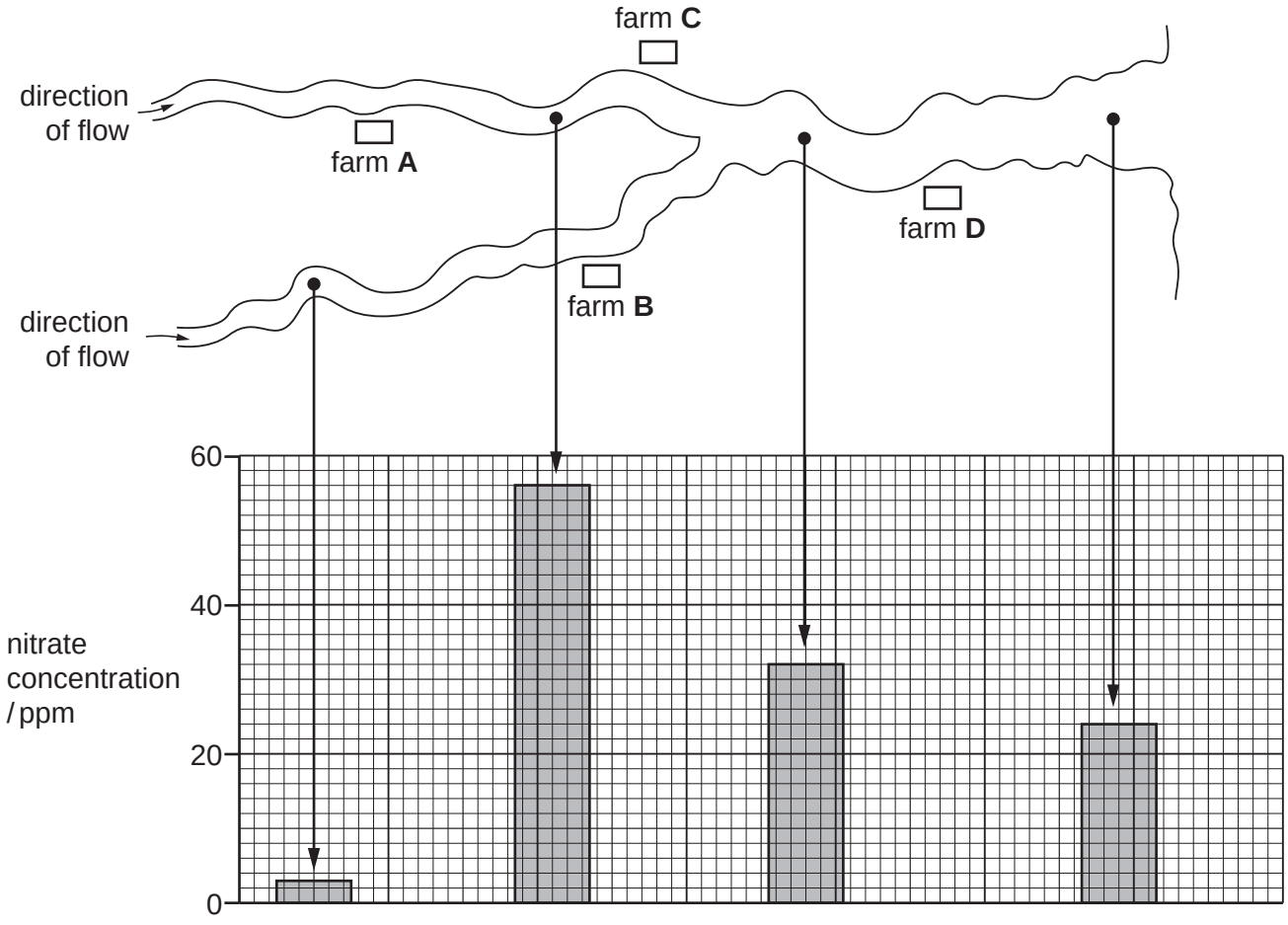
B genetic engineering

C heterozygous inheritance

D natural selection

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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