Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **October/November 2018**

45 minutes

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

* 2 9 5 4 4 2 6 8 7 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.

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

This document consists of **17** printed pages and **3** blank pages.

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1 All living organisms release energy from nutrient molecules within their cells.

What is the name of this characteristic?

A growth

B nutrition

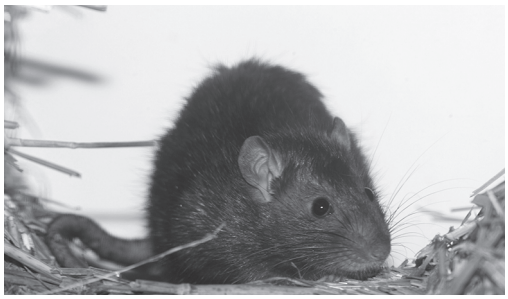
C respiration

D sensitivity

2 The photographs show two different rats.



Rattus norvegicus



Rattus rattus

Which statement about the rats is correct?

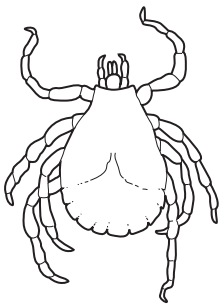
A The rats are the same genus.

B The rats are the same species.

C The rats can breed together to produce fertile offspring.

D The rats do not share any of the same features.

3 The diagram shows an arthropod.



Which group of arthropods does it belong to?

A arachnids

B crustaceans

C insects

D myriapods

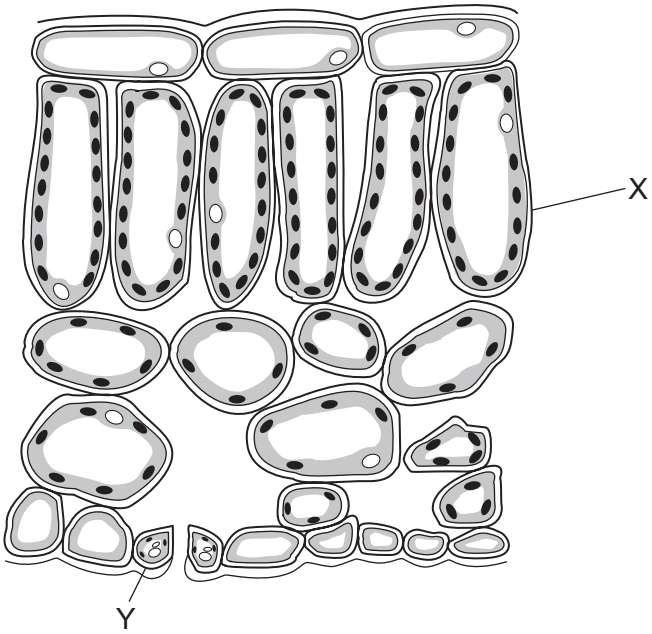
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4 Two types of cell, one animal and one plant, were examined using a light microscope.

Which row shows the correct combination of cellular features that would be observed in the cells?

	cell structure observed			
	animal cell		plant cell	
A	chloroplast	membrane	vacuole	cytoplasm
B	cytoplasm	nucleus	chloroplast	membrane
C	membrane	cell wall	cytoplasm	nucleus
D	nucleus	chloroplast	cell wall	membrane

5 The diagram shows part of a leaf in cross-section.



Structures X and Y are both part of the same

A cell.

B organ.

C tissue.

D vessel.

6 A photograph shows a plant cell nucleus measuring 2 mm across.

If the magnification of the cell is ×500, what is the actual size of the nucleus?

A 0.00002 mm **B** 0.004 mm **C** 0.04 mm **D** 250 mm

7 How do carbon dioxide and oxygen move into and out of a mesophyll cell?

A active transport

B diffusion

C respiration

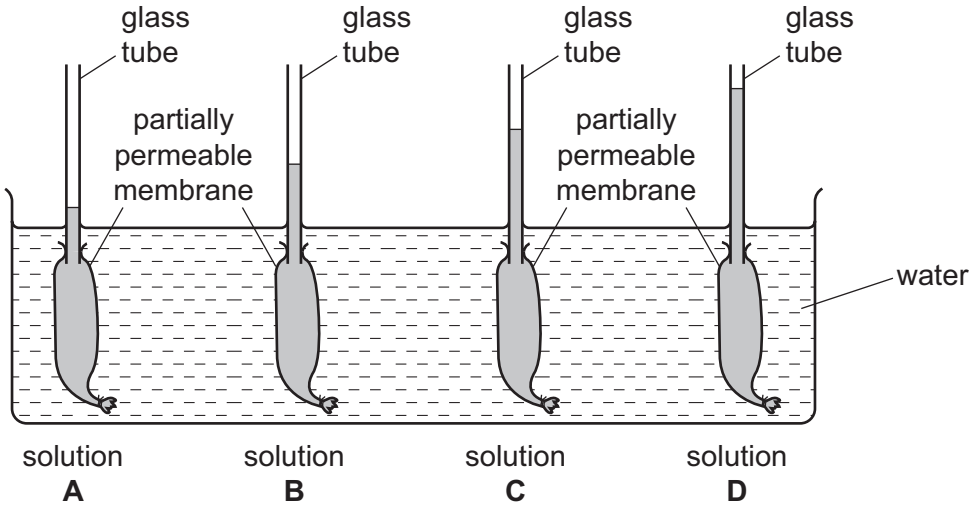
D transpiration

8 The diagram shows apparatus used to investigate osmosis.

The volumes of solutions A, B, C and D were the same at the start of the investigation.

After one hour, the solutions had moved up the glass tubes.

Which solution was the most concentrated at the start of the investigation?



9 The data show the concentrations of sugar and starch in an onion.

total sugar including reducing sugar / g per 100g	starch / g per 100g
3.7	0.0

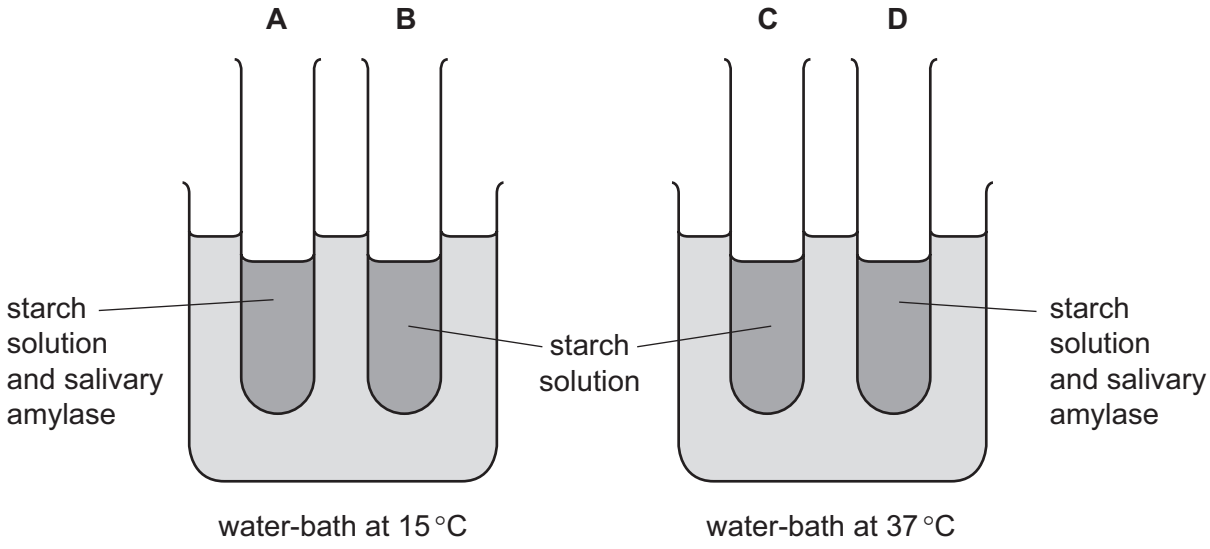
The onion is tested with Benedict's solution and iodine solution.

Which set of results is correct?

	Benedict's solution	iodine solution
A	blue	blue-black
B	blue	brown
C	brick red	blue-black
D	brick red	brown

10 The apparatus shown is used for an experiment on starch digestion.

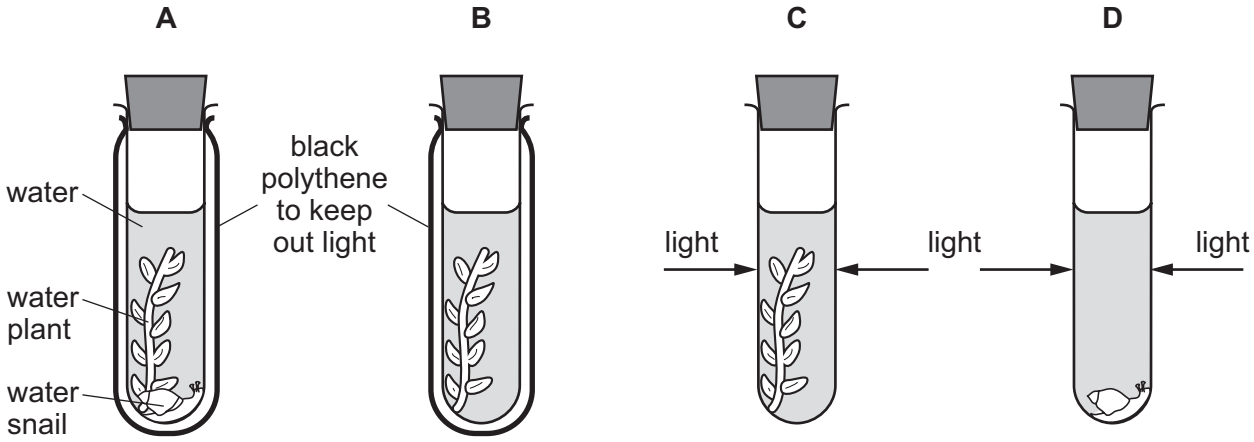
Which test-tube contains the most sugar after 20 minutes?



11 An experiment was carried out using the apparatus shown.

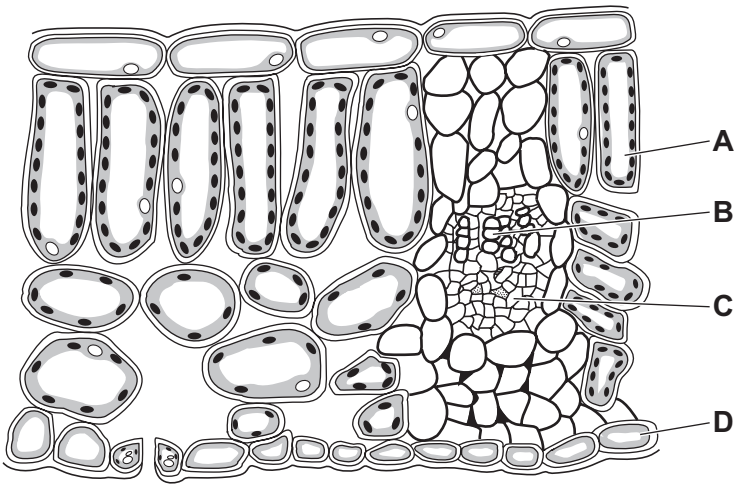
The carbon dioxide content of the water in each test-tube was measured at the start and again three hours later.

In which test-tube would there be a decrease in carbon dioxide content?



12 The diagram shows a cross-section of a leaf.

Which is the xylem?



13 What is the result of a diet lacking iron?

A bleeding gums

B poor wound healing

C reduced number of red blood cells

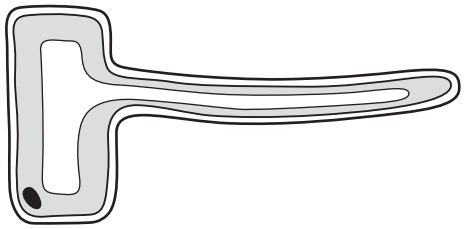
D weak bones and teeth

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14 Which row shows an enzyme with the correct site of production and products?

	enzyme	enzyme produced by	product(s) of digestion
A	amylase	salivary glands	amino acids
B	amylase	stomach	sugar
C	protease	salivary glands	sugar
D	protease	stomach	amino acids

15 The diagram shows a plant cell.



What type of plant cell is this?

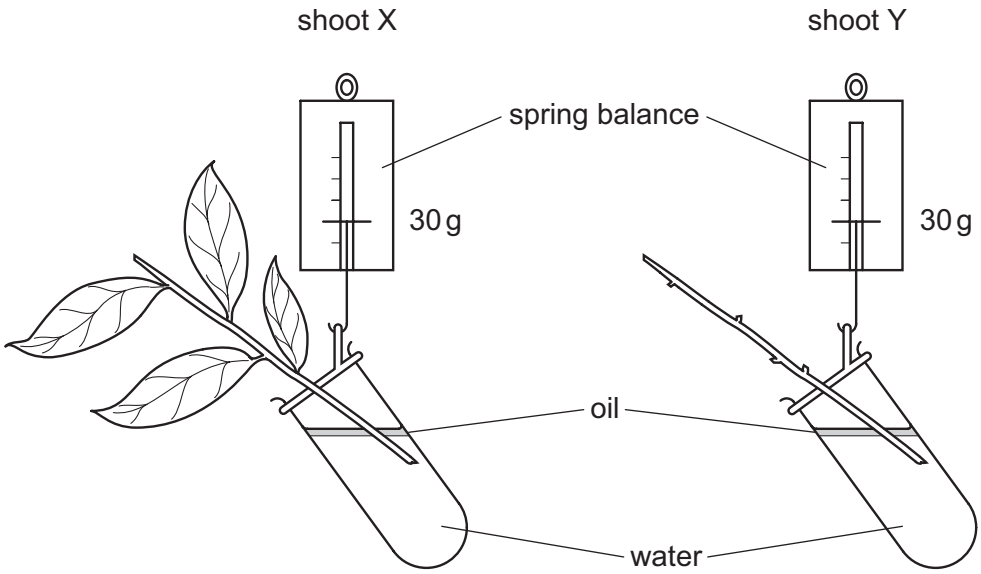
A guard cell

B mesophyll cell

C root cortex cell

D root hair cell

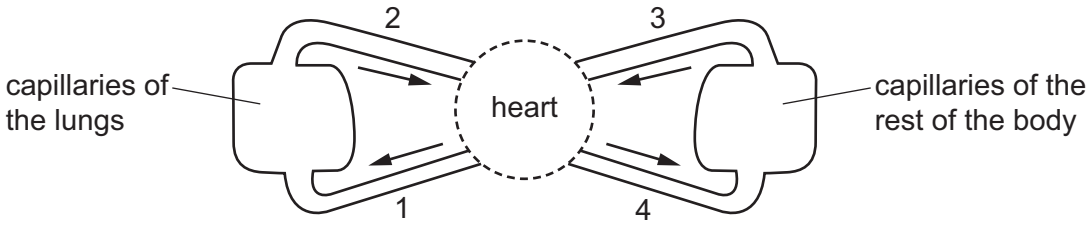
16 The diagram shows two shoots at the start of an experiment on transpiration.



What are the likely readings on the spring balances after three days?

	shoot X / g	shoot Y / g
A	25	25
B	25	30
C	30	25
D	30	30

17 The diagram shows a circulatory system.



Which vessels carry oxygenated blood?

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

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18 Some organisms cause transmissible diseases.

What is defined as a disease-causing organism?

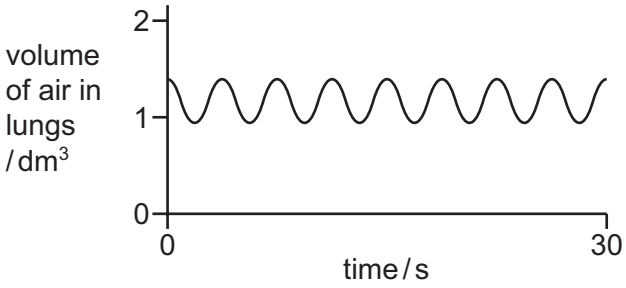
A bacterium

B pathogen

C phagocyte

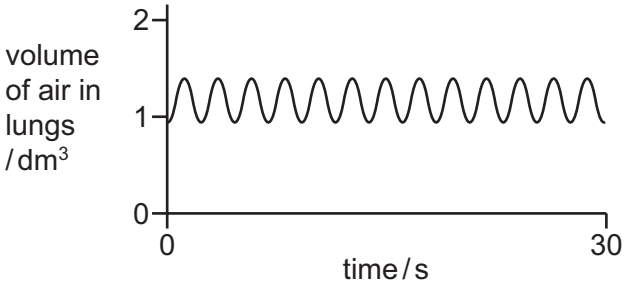
D virus

19 The graph shows changes in the volume of air in the lungs of a person at rest, over a period of 30 seconds.

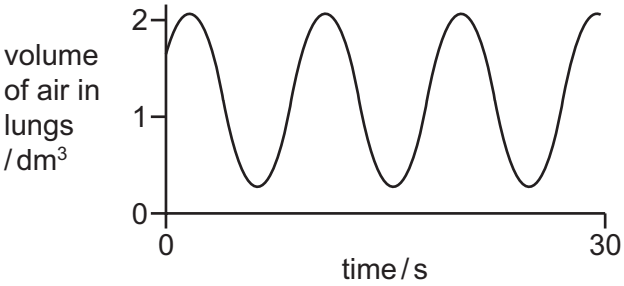


Which graph shows changes in the volume of air in the lungs of the same person immediately after they have done five minutes of vigorous exercise?

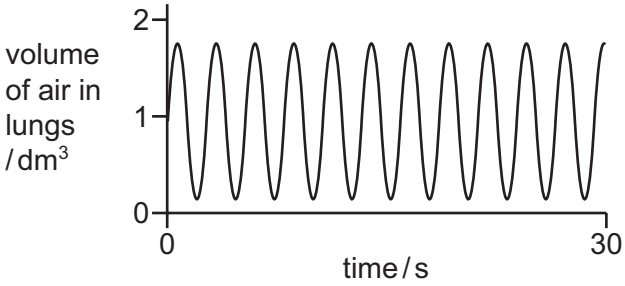
A



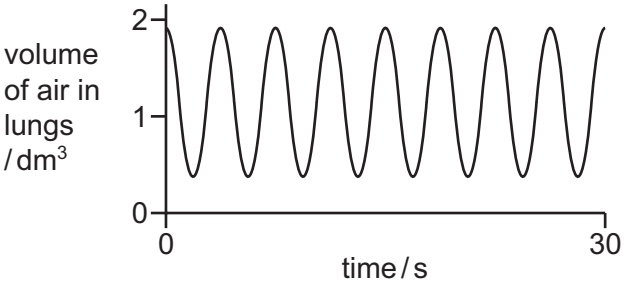
B



C



D



20 As we breathe out, ...1..... is .....2..... through the lungs.

Which words correctly complete gaps 1 and 2?

	1	2
A	carbon dioxide	excreted
B	carbon dioxide	respired
C	oxygen	excreted
D	oxygen	respired

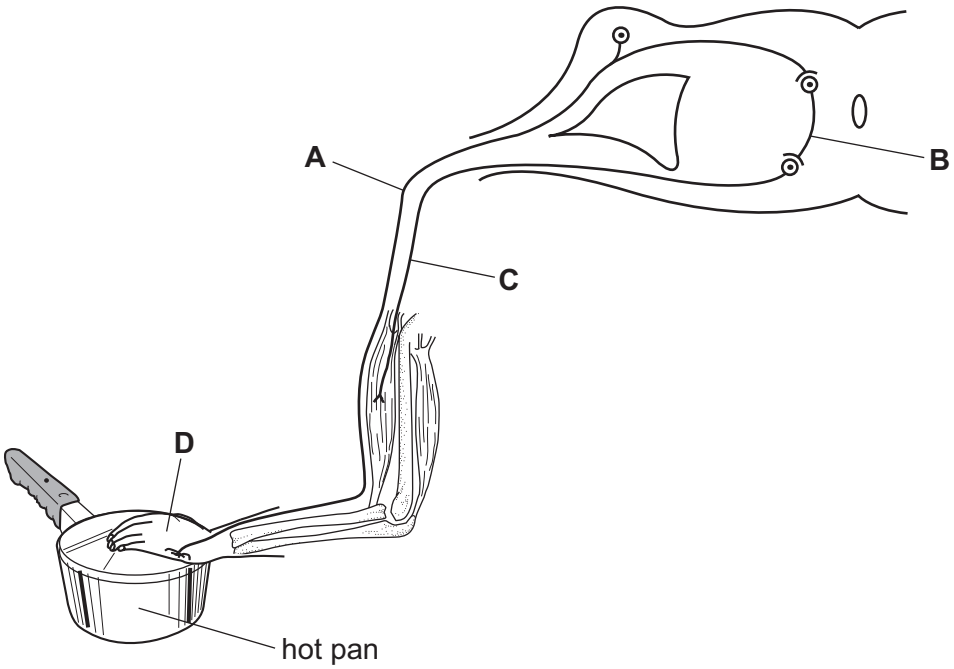
21 A person carries out vigorous exercise without drinking any water.

What would happen to the concentration and volume of the person's urine immediately after exercise?

	urine concentration	urine volume
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

22 The diagram shows a reflex arc.

Which label points to the sensory neurone?



23 What does the central nervous system consist of?

A brain, spinal cord and peripheral nerves

B brain and spinal cord only

C brain only

D spinal cord and peripheral nerves only

24 Where is alcohol broken down in the body?

A bladder

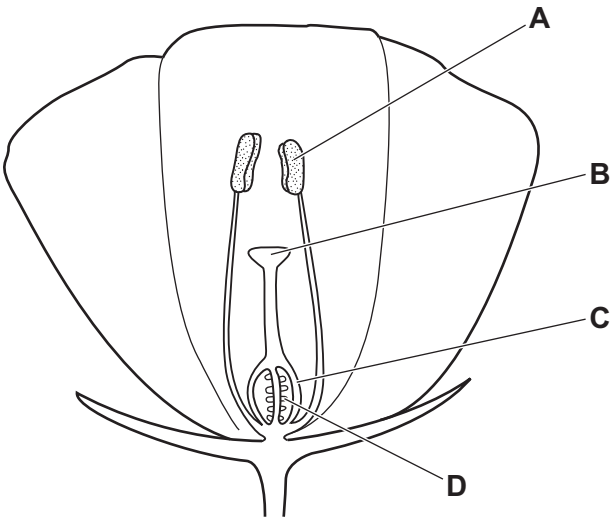
B kidneys

C liver

D stomach

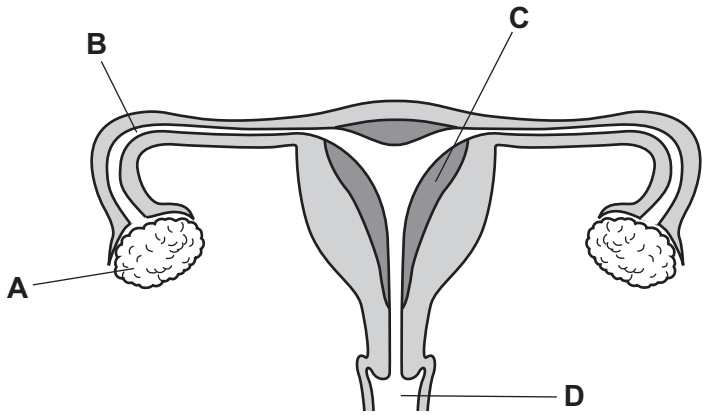
25 The diagram shows parts of a flower.

Which structure represents the site of fertilisation?



26 The diagram shows the female reproductive system.

Where does implantation normally occur?



27 Which precautions could help to prevent the spread of AIDS?

1 avoiding the mixing of blood

2 using a femidom

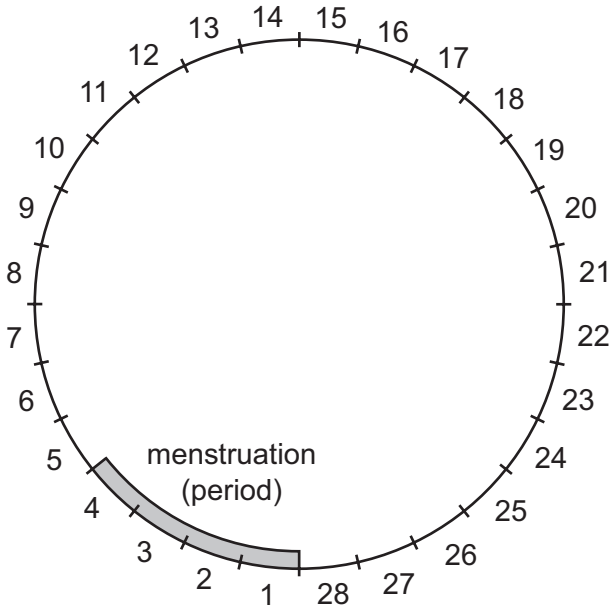
3 using the contraceptive pill

4 using a condom

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

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28 The diagram shows a timeline of a woman's menstrual cycle, which lasts for 28 days.



On which days of the menstrual cycle is a woman most likely to become pregnant?

A days 1–4

B days 7–10

C days 13–16

D days 20–23

29 What is the transmission of genetic information from generation to generation known as?

A cell division

B inheritance

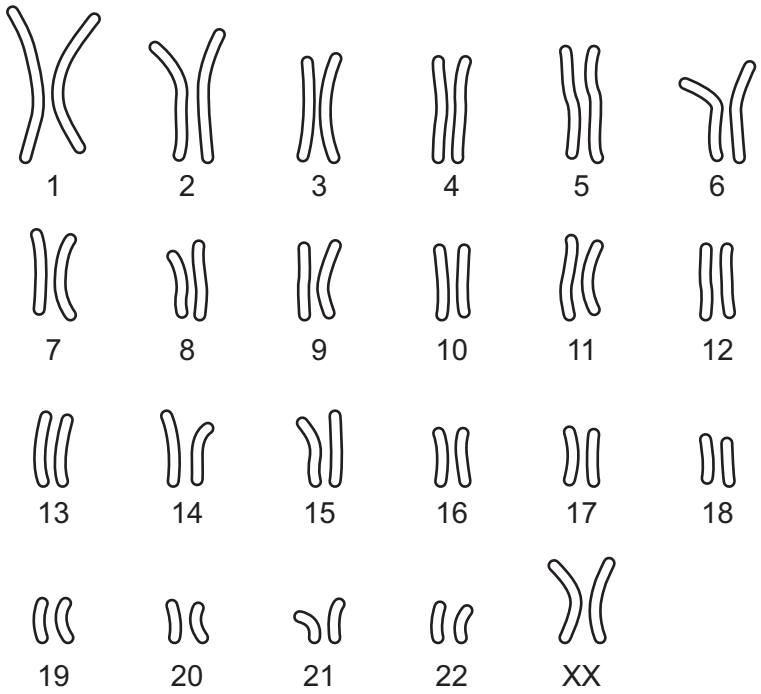
C meiosis

D mitosis

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[Turn over

30 The diagram shows the chromosomes in one human cell.



What can be concluded from the chromosomes in this cell?

A The cell is from a man.

B The cell is from a woman.

C There are only 23 chromosomes per cell.

D There are only 46 pairs of chromosomes per cell.

31 The allele for detached earlobes is dominant to the allele for attached earlobes.

Two parents are heterozygous for detached earlobes.

What is the probability of their first child having attached earlobes?

A 0% **B** 25% **C** 50% **D** 75%

32 Which is an example of discontinuous variation?

A height

B skin colour

C tongue rolling

D weight

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33 Farmers have bred Holstein-Friesian cattle to produce more milk than older breeds of cattle.

Which process was used to produce these cattle?

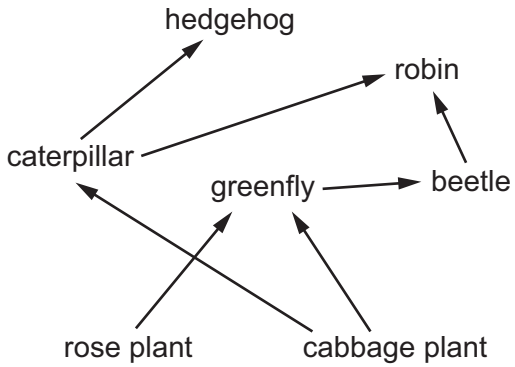
A adaptation

B genetic engineering

C natural selection

D selective breeding

34 The diagram shows a food web.

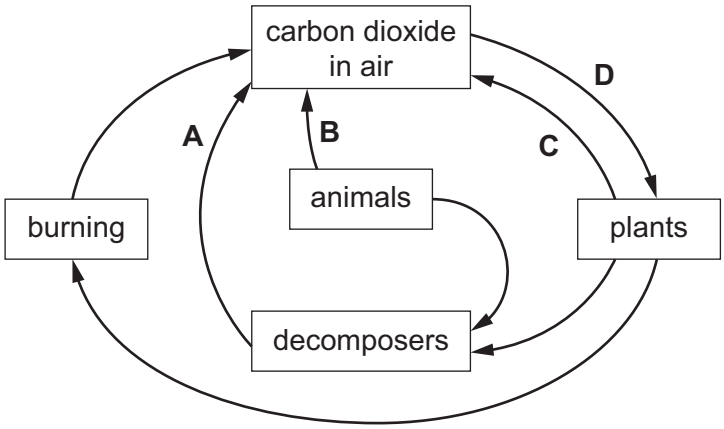


Which row shows a food chain in this food web?

	producer	primary consumer	secondary consumer
A	hedgehog	caterpillar	robin
B	cabbage plant	greenfly	beetle
C	cabbage plant	beetle	robin
D	rose plant	hedgehog	greenfly

35 The diagram shows part of the carbon cycle.

Which arrow represents photosynthesis?



36 The population of rabbits in a woodland halves over a ten year period. Rabbits are herbivores.

What could have caused this change?

A an increased food supply

B an increased light intensity

C an increased number of predators

D an increased water supply

37 The production of ethanol for biofuels involves two stages.

Firstly, starch is converted to glucose by .....1..... . Secondly, glucose is converted to ethanol by .....2..... during .....3..... .

Which row correctly completes gaps 1, 2 and 3?

	1	2	3
A	enzymes	bacteria	aerobic respiration
B	enzymes	yeast	anaerobic respiration
C	pectinase	bacteria	aerobic respiration
D	pectinase	yeast	anaerobic respiration

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38 Scientists have produced yellow rice called Golden Rice. Golden Rice has been produced by the insertion of genes into rice plants.

What is involved in the production of Golden Rice?

A genetic engineering

B mutation

C natural selection

D selective breeding

39 What is a negative impact on the environment caused by deforestation?

A decrease in land for livestock production

B decreased levels of carbon dioxide in the air

C increase in flooding

D increased levels of soil

40 Which is a greenhouse gas?

A herbicides

B insecticides

C methane

D oxygen

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