Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/23**

Paper 2 Multiple Choice (Extended) **May/June 2018**

45 minutes

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

* 7 5 3 9 9 7 8 9 5 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.

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 **15** printed pages and **1** blank page.

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1 Which organisms carry out respiration, growth, movement and excretion?

A all animals and all plants

B animals only

C arthropods and flowering plants only

D plants only

2 The diagram shows an animal whose scientific name is *Falco peregrinus*.



To which species does it belong?

A bird

B *F. peregrinus*

C *Falco*

D vertebrate

3 What kind of skin do amphibians have?

A dry without scales

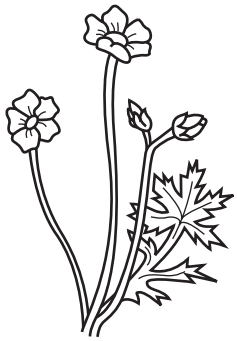
B dry with scales

C moist without scales

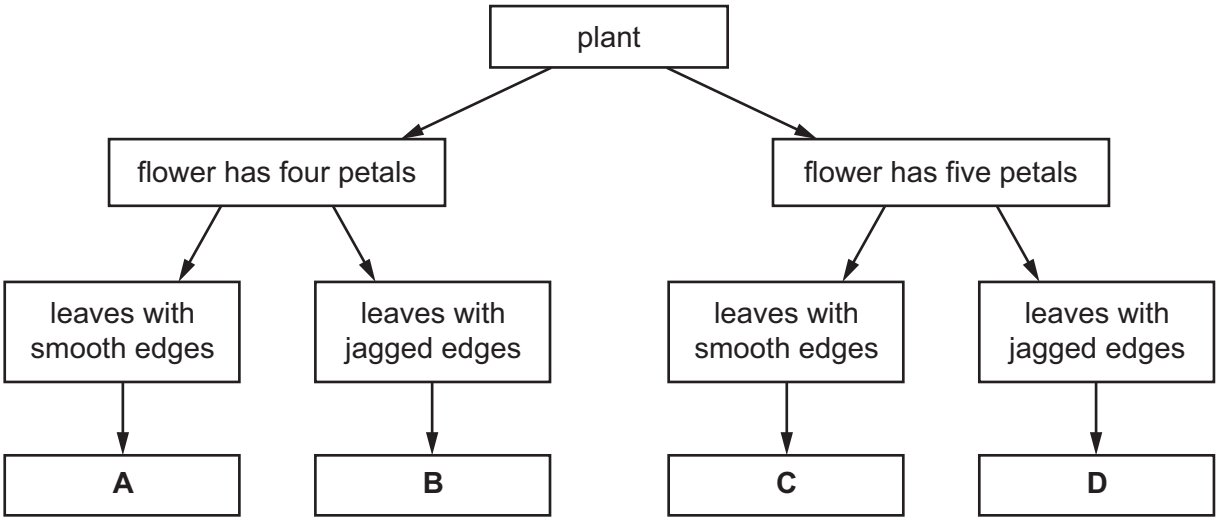
D moist with scales

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4 The diagram shows a flowering plant.



Use the key to identify the plant.



5 In which part of the cell does aerobic respiration occur?

A cytoplasm

B mitochondrion

C ribosome

D vesicle

6 Why do some root cells have root hairs?

A for the maintenance of the temperature of the cell sap

B to increase the surface area of the cells

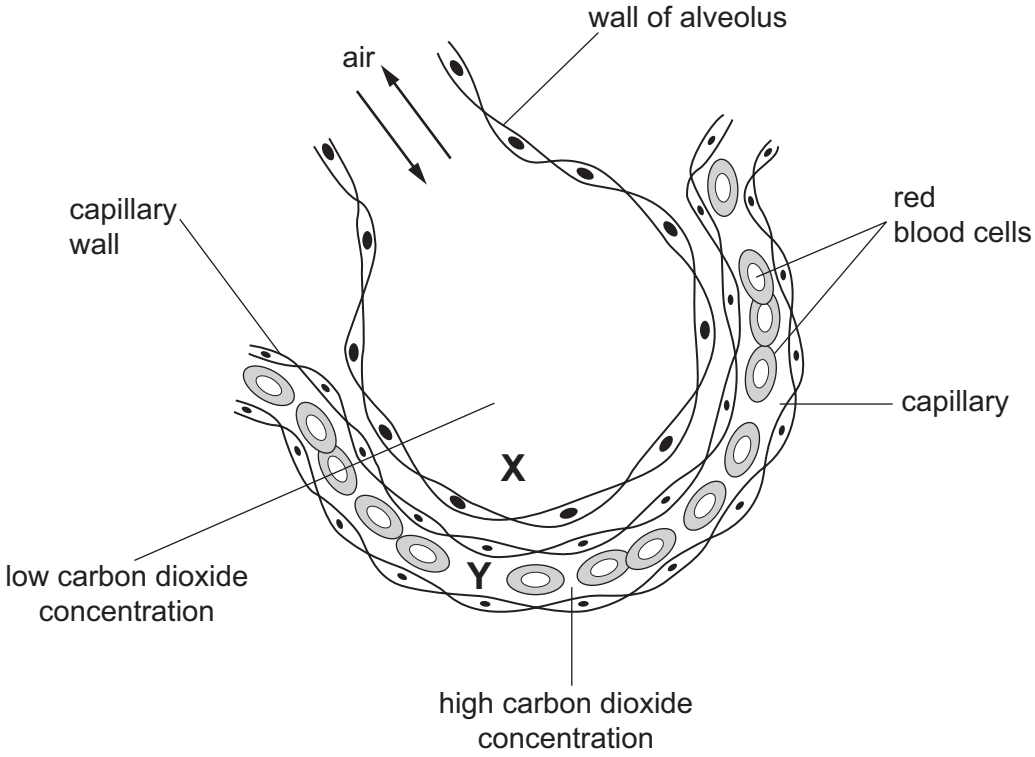
C to increase the volume of the cell sap

D to provide a place for cell nuclei

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[Turn over

7 The diagram shows a section through an alveolus and through a capillary.



How does carbon dioxide move from **Y** to **X**?

A by diffusion

B by osmosis

C by translocation

D by transpiration

8 Which part of a plant root hair is partially permeable?

A the cell sap

B the cell surface membrane

C the cell vacuole

D the cell wall

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9 The table shows the results of food tests carried out on a fruit.

test	Benedict's	biuret	ethanol	iodine
result	positive	positive	negative	negative

What did the fruit contain?

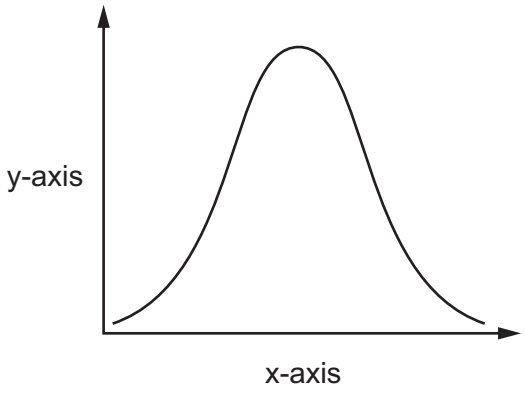
A fat and reducing sugar

B fat and starch

C protein and reducing sugar

D protein and starch

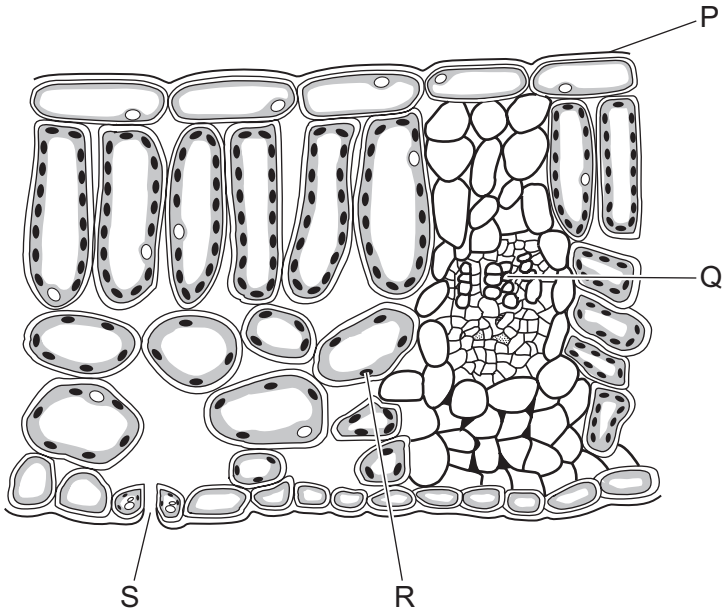
10 An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.



What are the labels for the x-axis and the y-axis?

	x-axis	y-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

11 The diagram shows a section through a leaf.



What are structures P, Q, R and S?

	P	Q	R	S
A	chloroplast	phloem	palisade tissue	xylem
B	cuticle	xylem	chloroplast	stoma
C	phloem	palisade tissue	cuticle	stoma
D	xylem	chloroplast	phloem	cuticle

12 A lack of which dietary component can result in constipation?

A fat

B fibre (roughage)

C carbohydrate

D protein

13 A woman requires more calcium in her diet when she is pregnant.

Which statement explains why?

A bone growth in the fetus

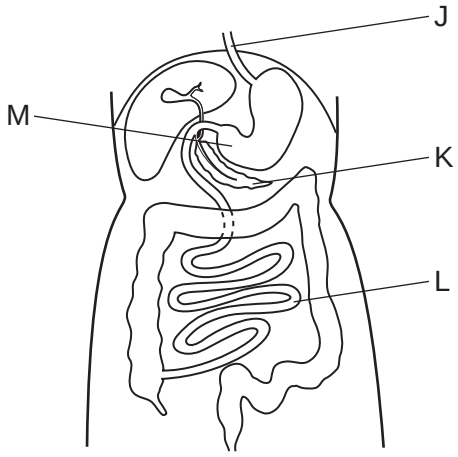
B muscle growth in the fetus

C production of haemoglobin in the fetus

D to provide energy for the fetus

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14 The diagram shows part of the alimentary canal.



Which row correctly identifies the structures labelled J to M?

	J	K	L	M
A	oesophagus	pancreas	small intestine	stomach
B	pancreas	small intestine	stomach	oesophagus
C	small intestine	stomach	oesophagus	pancreas
D	stomach	oesophagus	pancreas	small intestine

15 The diagram shows the pathway of water from the soil through a plant.

soil → X → Y → Z → mesophyll cells

Which cells are represented by X, Y and Z?

	X	Y	Z
A	root hair cells	root cortex cells	xylem
B	root hair cells	xylem	root cortex cells
C	xylem	root cortex cells	root hair cells
D	xylem	root hair cells	root cortex cells

16 What will **not** affect the rate of transpiration?

A humidity of the atmosphere

B number of open stomata

C rate of respiration

D temperature

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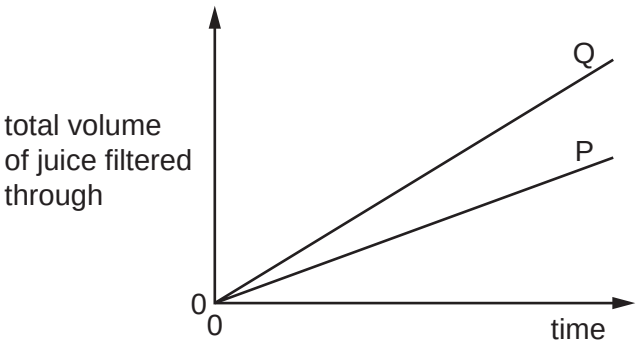
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17 A student places two samples of crushed apple into two beakers, P and Q. The samples are of equal size. She adds 5 cm^3 of pectinase solution to beaker P and 5 cm^3 of water to beaker Q.

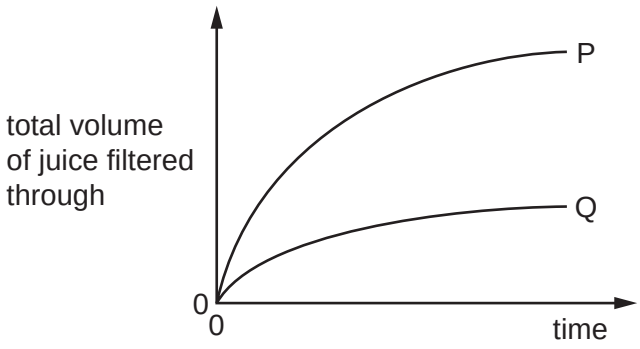
After five minutes, she places the samples of crushed apple into two different filter funnels, and measures the volume of juice filtering through from each sample over a period of 10 minutes.

Which graph shows her results?

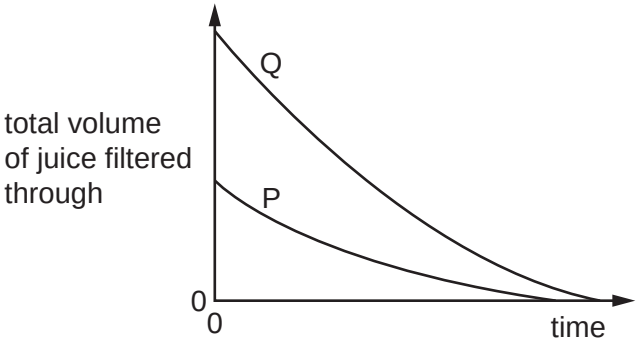
A



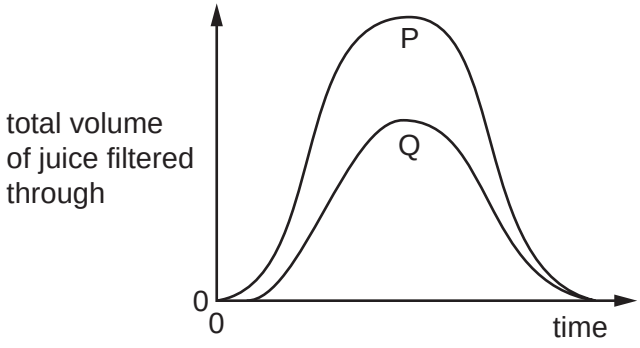
B



C



D



18 During the process of blood clotting, damage to blood vessels stimulates L, and M is converted to N.

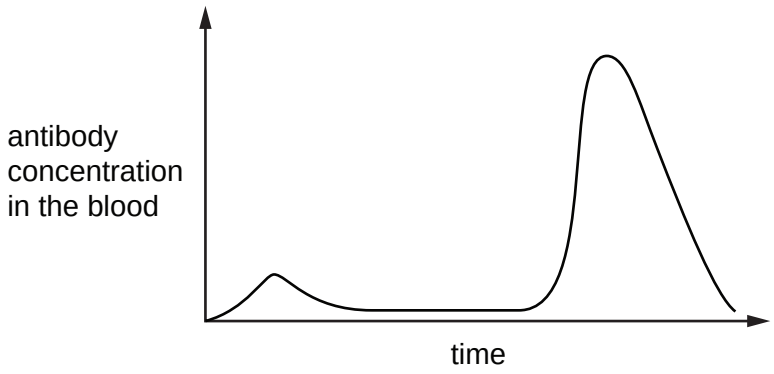
What are L, M and N?

	L	M	N
A	fibrin	platelets	fibrinogen
B	fibrinogen	platelets	fibrin
C	platelets	fibrin	fibrinogen
D	platelets	fibrinogen	fibrin

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19 A child is vaccinated against measles. After a period of time the child is infected with the measles virus.

The graph shows the concentration of measles antibodies in the child's bloodstream during this time.



Which statement is consistent with the information in the graph?

A After the vaccination, the child produced memory cells.

B The child had passive immunity against measles.

C The measles virus contains antibodies.

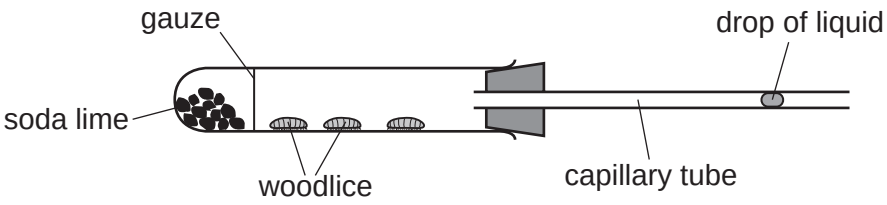
D The vaccination failed to protect the child against measles.

20 Muscles are responsible for the ventilation of the lungs during breathing.

Which row describes their action during the inspiration of air?

	diaphragm muscles	external intercostal muscles	internal intercostal muscles
A	contract	contract	relax
B	contract	relax	contract
C	relax	contract	relax
D	relax	relax	contract

21 A student investigated aerobic respiration.



Soda lime absorbs carbon dioxide.

If the woodlice are respiring aerobically, what will happen to the drop of liquid?

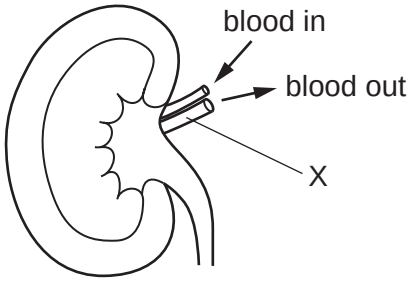
A It will move towards the woodlice as oxygen is used up and carbon dioxide is released.

B It will move away from the woodlice as oxygen is used up and carbon dioxide is released.

C It will not move as carbon dioxide is used up and oxygen is released.

D It will not move as oxygen is used up and carbon dioxide is released.

22 The diagram shows a kidney and associated structures.



What is the name of structure X?

A pulmonary artery

B pulmonary vein

C renal artery

D renal vein

23 What is the correct sequence in a reflex action?

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

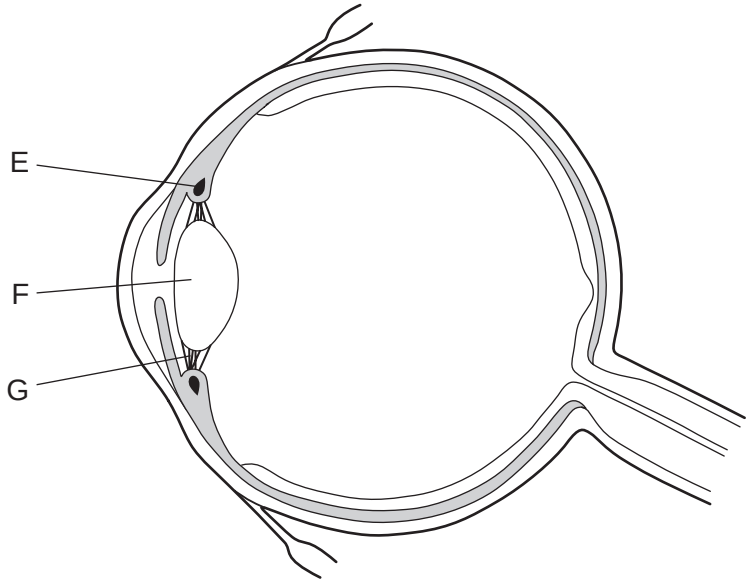
B receptor → stimulus → sensory neurone → relay neurone → motor neurone → effector

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

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

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24 The diagram shows the cross-section of an eye.



Which statement is true when a person views a near object?

A E contracts; G is pulled less; F bulges less; more refraction of light takes place

B E contracts; G is pulled less; F bulges more; more refraction of light takes place

C E relaxes; G is pulled less; F bulges less; less refraction of light takes place

D E relaxes; G is pulled more; F bulges more; less refraction of light takes place

25 Compared to the hormonal system, the responses of the nervous system are

A faster and of longer-duration.

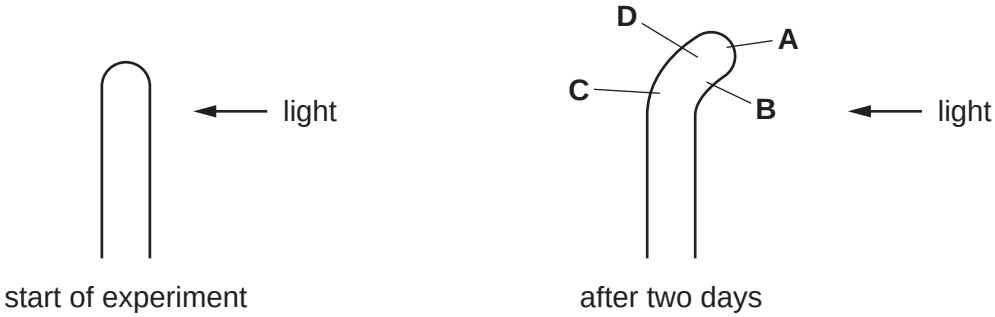
B faster and of shorter-duration.

C slower and of longer-duration.

D slower and of shorter-duration.

26 In an experiment to investigate phototropism, a plant shoot is grown with light coming from one side only.

After two days, in which region has the greatest rate of growth occurred?



27 Crop plants produced by asexual reproduction are identical. This can be a disadvantage.

Which statements describe disadvantages?

1 Crop plants are produced rapidly.

2 A disease could kill all of the plants.

3 Only one parent is needed.

4 The plants cannot adapt to environmental changes.

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

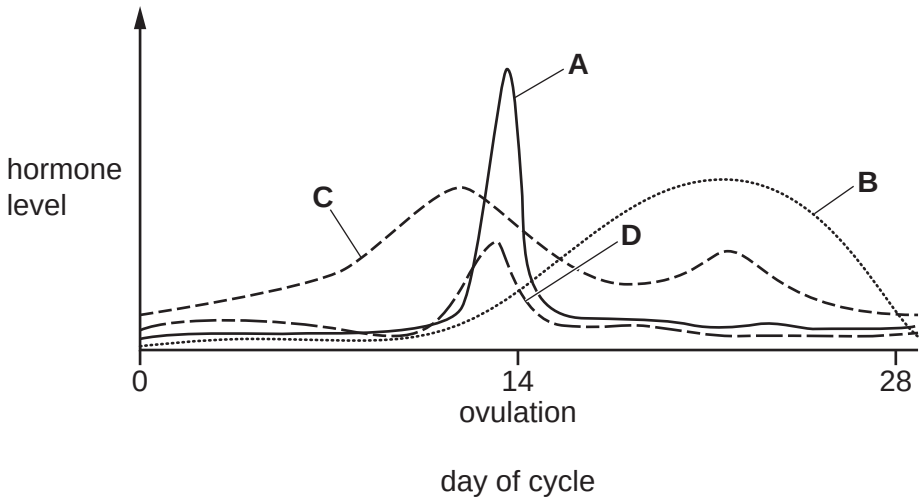
28 The table shows some features of artificial insemination and in-vitro fertilisation.

Which row shows the features that are correct for **both** artificial insemination and in-vitro fertilisation?

	fertilisation happens outside the female reproductive system	implantation happens outside the female reproductive system	involves sexual intercourse	pregnancy develops naturally after implantation
A	✓	✓	✗	✗
B	✓	✗	✗	✓
C	✗	✗	✓	✗
D	✗	✗	✗	✓

29 The graph shows the concentration of four hormones during the menstrual cycle.

Which line represents progesterone?



30 Cystic fibrosis is an inherited disease. The allele for cystic fibrosis is recessive.

A woman is heterozygous and her partner is homozygous dominant.

What is true of any children they produce?

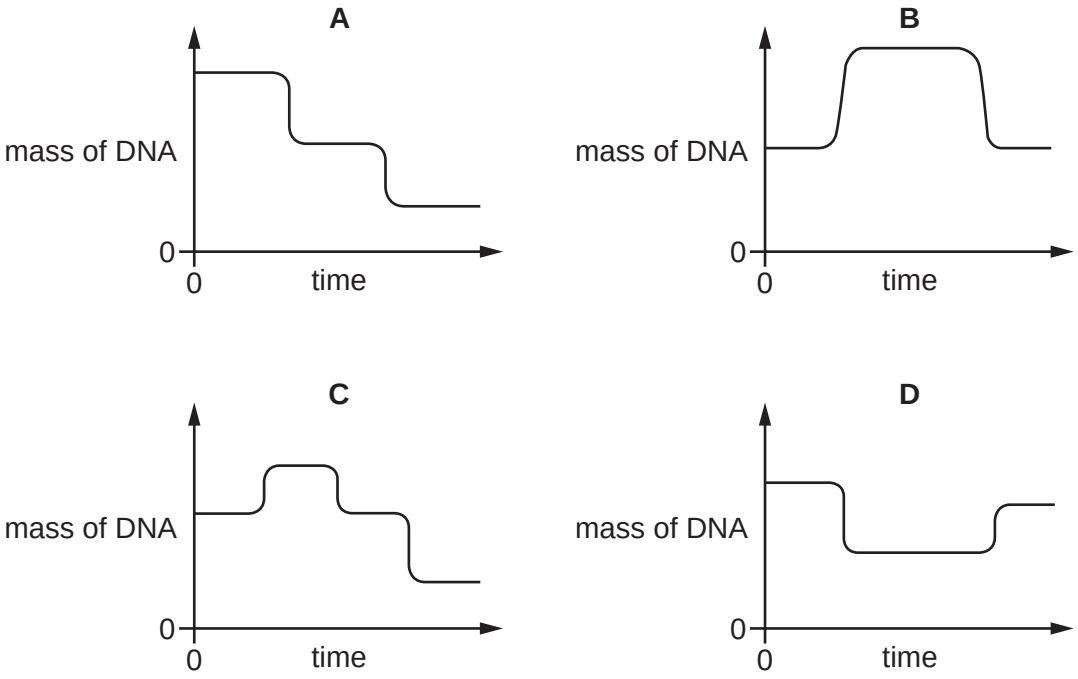
A All of their children will have cystic fibrosis.

B There is a one in two chance of being heterozygous.

C There is a one in four chance of being heterozygous.

D There is no chance of having the cystic fibrosis allele.

31 Which graph shows the correct change in mass of DNA in one cell during cell division by mitosis?



32 Cell X contains 16 chromosomes. It divides by meiosis.

How many chromosomes do each of the new cells contain?

A 4 **B** 8 **C** 16 **D** 32

33 Which statement about blood groups in humans is correct?

A They are determined by genes and the environment.

B They are determined only by the environment.

C They are determined only by genes.

D They show continuous variation.

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34 Plants are adapted to survive in different environments.

Which are features of xerophytes?

	cuticle	number of stomata
A	thick	few
B	thick	many
C	thin	few
D	thin	many

35 In which form is nitrogen taken up by the roots of plants?

A as amino acids

B as nitrate ions

C as protein

D as urea

36 What is a community?

A a unit containing all the organisms in a given area, and their environment, interacting together

B a unit in which energy is transferred from one organism to the next

C all of the populations of different species in an ecosystem

D all the organisms of one species in a given area

37 Which feature of bacteria makes it possible for them to be used to produce human insulin?

A Bacteria possess plasmids.

B Bacteria possess exactly the same DNA base sequences as humans.

C Bacteria possess the same genes for insulin.

D Bacteria possess the same number of chromosomes as humans.

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38 In some areas, farmers who grow genetically modified (GM) corn have to make sure there is a gap between GM and non-GM crops.

What is the reason for leaving a gap between the crops?

A so they can get large machinery into the fields

B to prevent cross-pollination between GM and non-GM crops

C to prevent disease spreading between crops

D to prevent pests attacking crops

39 How does eutrophication lead to the death of aquatic organisms?

A algae not releasing enough oxygen

B algae respiring instead of photosynthesising

C decomposer bacteria lowering oxygen concentration in the water

D poisoning due to carbon dioxide accumulation in the water

40 What is an example of sustainable development?

A burning more fossil fuels to provide more energy

B catching more fish to feed a growing population

C clearing tropical forest to plant large areas of oil palm plants

D selective felling of forest trees for timber and replanting cleared areas

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