Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **October/November 2021**

45 minutes

You must answer on the multiple choice answer sheet.

* 5 4 8 6 9 5 7 0 8 4 *

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- 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 multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.

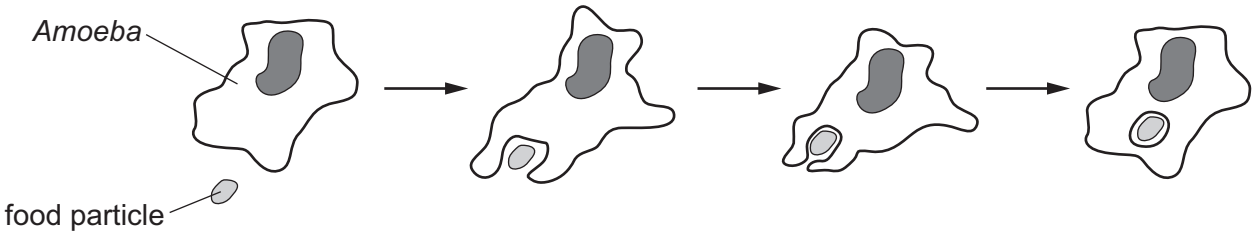
INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

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1 An *Amoeba* is a single-celled organism.

The diagram shows an *Amoeba* engulfing a food particle.



Which characteristics of living organisms are shown?

A excretion, movement and nutrition

B excretion, nutrition and sensitivity

C movement, nutrition and sensitivity

D movement, reproduction and sensitivity

2 The binomial names for five different species are listed.

1 *Calluna vulgaris*

2 *Garra rufa*

3 *Primula veris*

4 *Primula vulgaris*

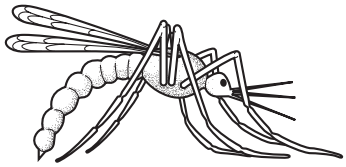
5 *Vespula rufa*

Which species belong to the same genus?

A 1 and 4 **B** 2 and 5 **C** 3 and 4 **D** 1 and 5

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3 The diagram shows an animal.



What is the animal?

1 animal with a vertebral column ..... vertebrate

animal with an exoskeleton ..... go to 2

2 no distinct head, thorax and abdomen ..... **A**

distinct head, thorax and abdomen ..... go to 3

3 eye occupies less than one third of the head ..... **B**

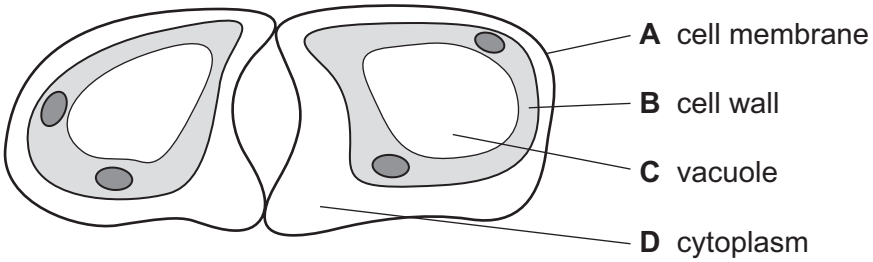
eye occupies more than one third of the head ..... go to 4

4 wings are wider than they are long ..... **C**

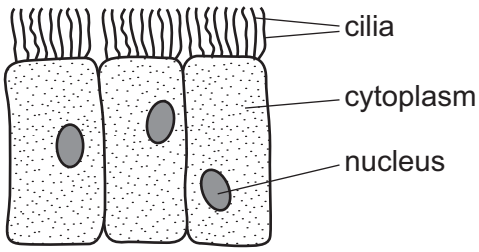
wings are longer than they are wide ..... **D**

4 The diagram shows two guard cells.

Which label is correct?



5 The diagram shows some cells.



Where are these cells found?

A alimentary canal

B blood

C bronchus

D plant roots

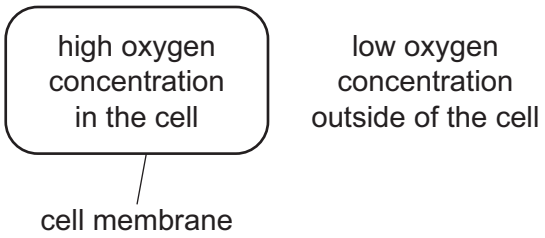
6 A student draws a root hair cell. The actual length of the cell is 0.8 mm and the drawing of the cell is 80 mm long.

What is the magnification of the student's drawing?

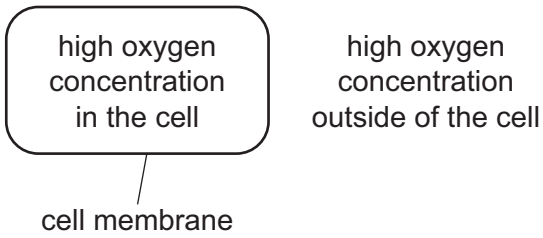
A ×0.001 **B** ×0.01 **C** ×10 **D** ×100

7 In which diagram would oxygen diffuse into the cell?

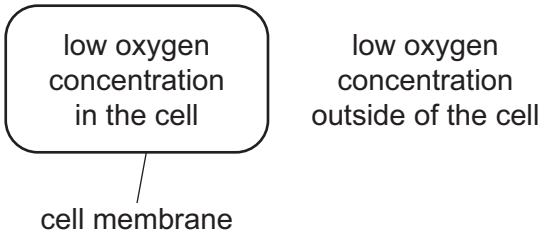
A



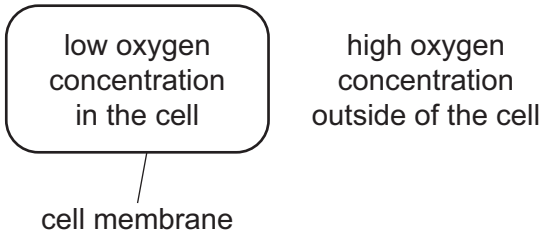
B



C



D



8 Which statement about the role of the pressure of water in supporting plants is correct?

A The pressure of water inside the cells presses inwards on the cell wall.

B The pressure of water outside the cells presses inwards on the cell wall.

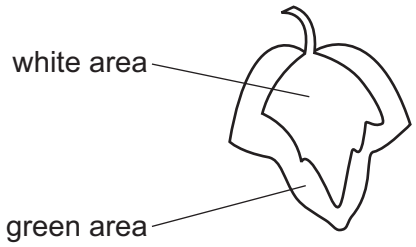
C The pressure of water inside the cells presses outwards on the cell wall.

D The pressure of water outside the cells presses outwards on the cell wall.

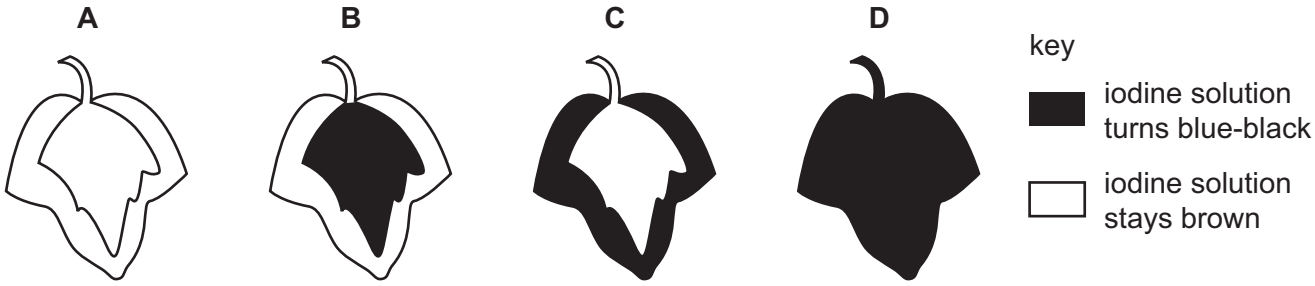
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9 In a photosynthesis experiment, a plant is left in bright sunlight for several hours. A leaf is then removed from the plant and tested for starch, using iodine solution.

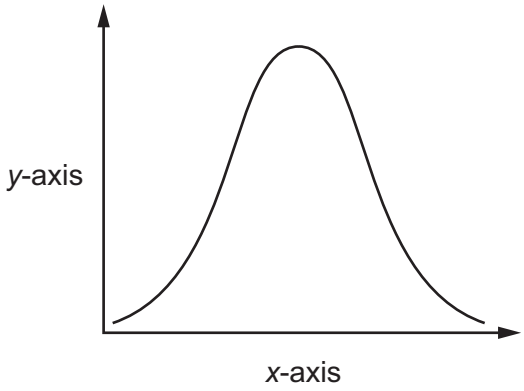
The diagram shows the leaf from the plant that was used in the experiment.



Which diagram shows the result of the experiment?



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

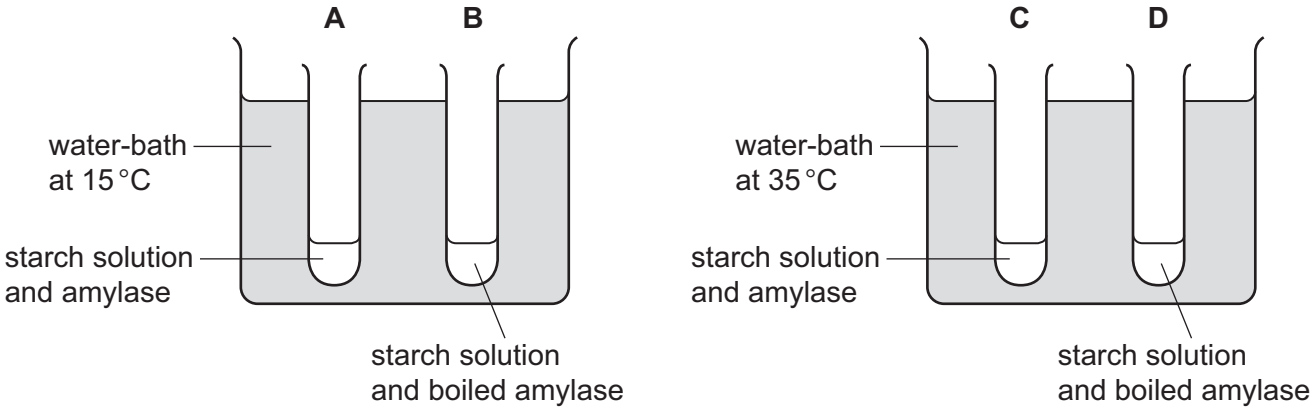


What are the labels for the *x*-axis and the *y*-axis?

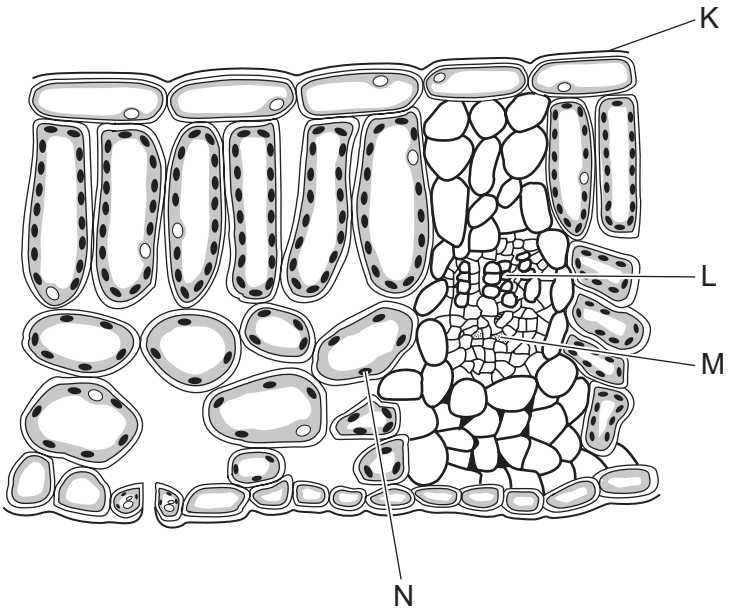
	x-axis	*y*-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

11 Four test-tubes were set up as shown in the diagram.

In which test-tube is the starch digested most quickly?



12 The diagram shows a section through a leaf.



What are structures K, L, M and N?

	K	L	M	N
A	cuticle	phloem	xylem	spongy mesophyll
B	cuticle	xylem	phloem	spongy mesophyll
C	xylem	phloem	spongy mesophyll	cuticle
D	xylem	spongy mesophyll	cuticle	phloem

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13 Which element is present in all amino acids?

A iron

B magnesium

C calcium

D nitrogen

14 A deficiency of which nutrient can cause scurvy?

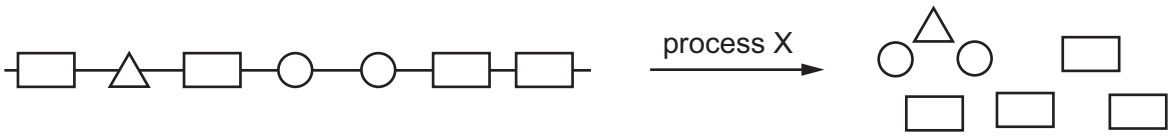
A calcium

B iron

C vitamin C

D vitamin D

15 The diagram shows a large food molecule changing into smaller molecules.



What is process X?

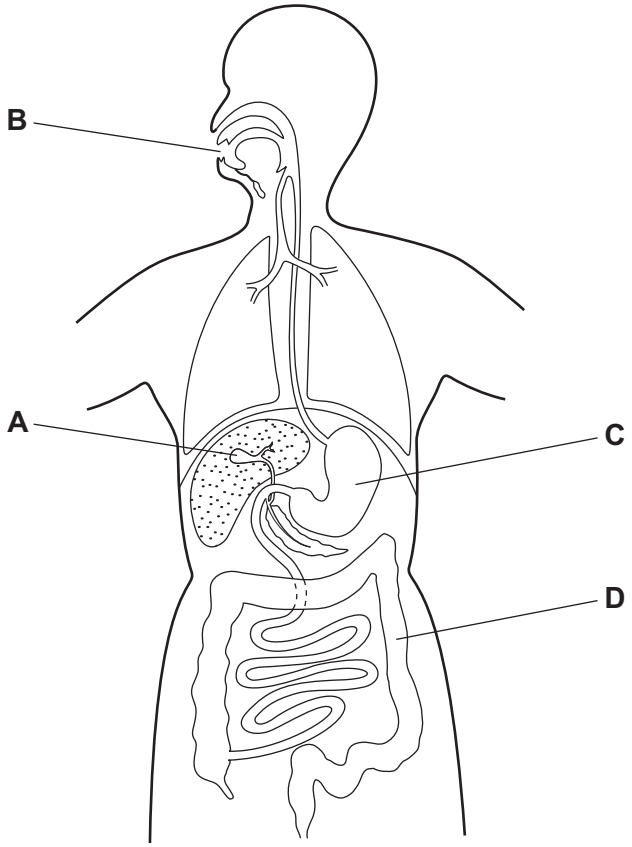
A absorption

B chewing

C digestion

D secretion

16 Which part of the alimentary canal produces an enzyme that digests proteins?



17 By which method is water absorbed by root hair cells?

A active transport

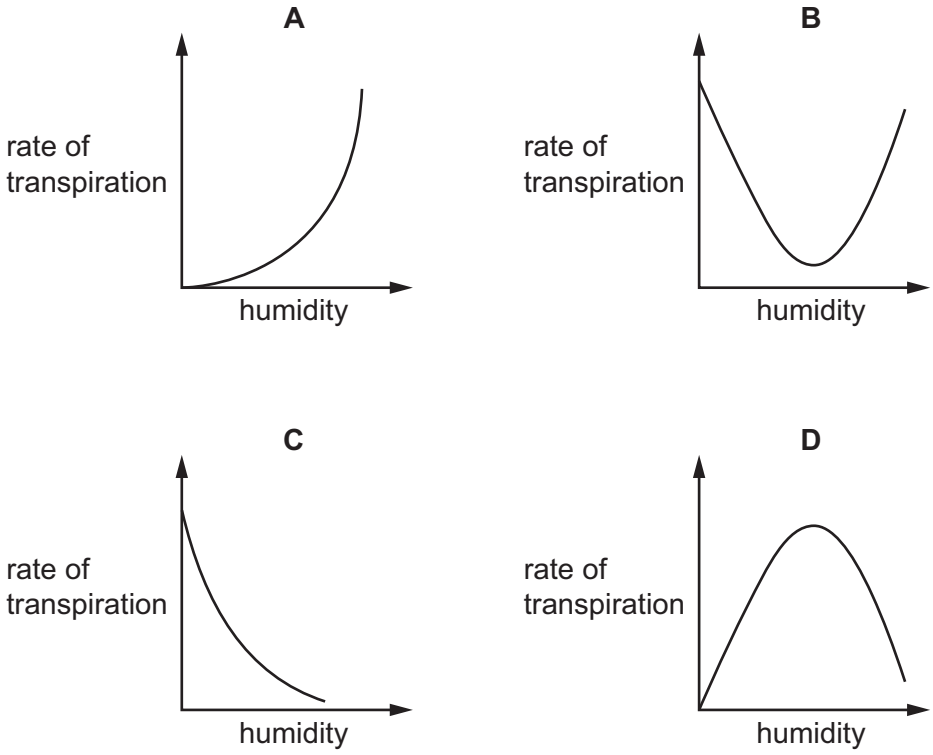
B evaporation

C osmosis

D transpiration

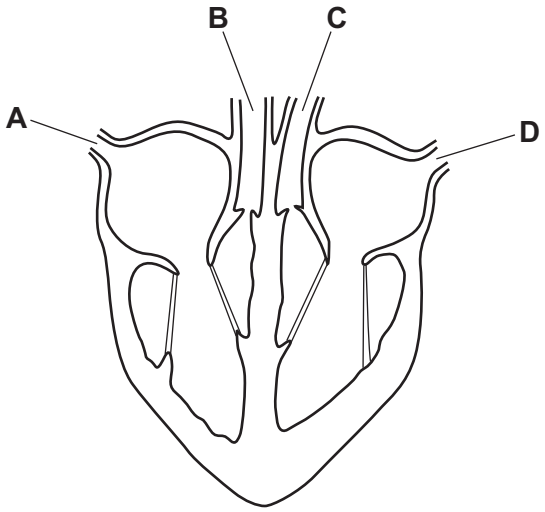
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18 Which graph shows the effect of increasing humidity on the rate of transpiration?



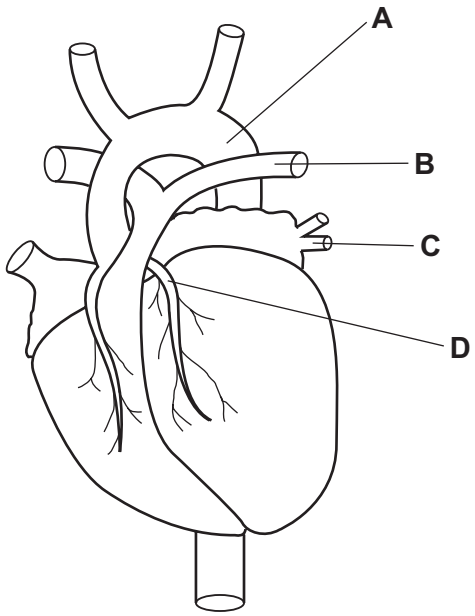
19 The diagram shows a section through a mammalian heart.

Which part carries blood directly from the lungs?



20 The diagram shows the external structure of the human heart.

Which label identifies a coronary artery?



21 Some features that help to defend the body against pathogens are listed.

1 mucus

2 skin

3 stomach acid

4 phagocytosis

Which features can prevent pathogens entering body tissues?

A 1, 2, 3 and 4

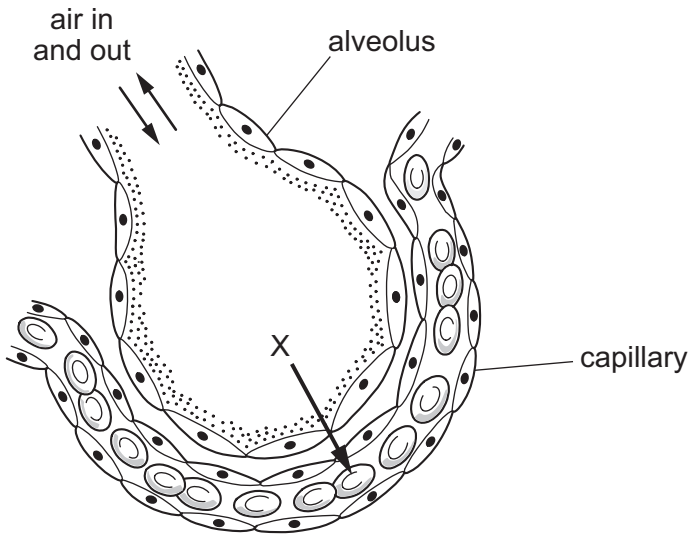
B 1, 2 and 3 only

C 2 and 3 only

D 4 only

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22 The diagram shows an alveolus.



Which gas is represented by the pathway shown by arrow X?

A air

B carbon dioxide

C oxygen

D water vapour

23 The table shows some facts about aerobic respiration.

Which row is correct?

	nutrient molecules	oxygen	energy
A	broken down	released	released
B	broken down	used	released
C	built up	released	required
D	built up	used	required

24 Which word equation represents anaerobic respiration in yeast cells?

A glucose → alcohol + carbon dioxide

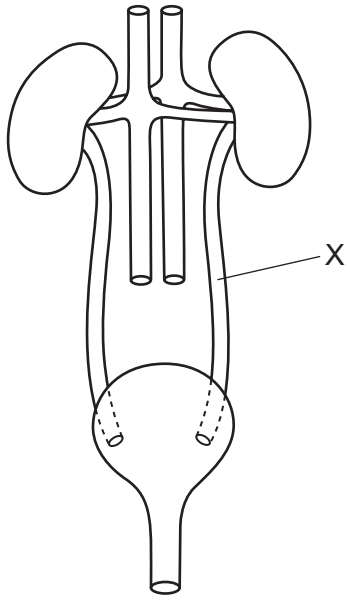
B glucose + oxygen → carbon dioxide + water

C glucose → lactic acid

D glucose → alcohol

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25 The diagram shows part of the excretory system of a female mammal.



What is tube X?

A ureter

B urethra

C uterus

D vein

26 Which part of the eye changes in size in response to changes in light intensity?

A cornea

B lens

C pupil

D retina

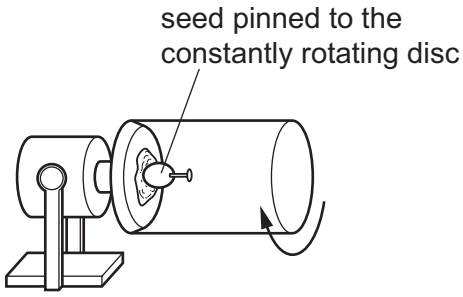
27 A scientist investigated how the human body reacts to temperature.

Which row shows the expected responses when the environmental temperatures are 0 °C and 40 °C?

	0 °C	40 °C
A	sweating	no response
B	sweating	shivering
C	no response	sweating
D	shivering	sweating

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28 A seed is placed and grown on a rotating disc, as shown.



Which diagram shows the appearance of the seedling shoot after seven days?

A



B



C



D



29 Which statement is the definition of the term drug?

A a substance produced in the body to stimulate hormonal reactions

B a substance produced by white blood cells to kill bacteria

C a substance taken into the body that modifies or affects chemical reactions

D a substance produced in the body which alters the activity of one or more specific target organs

30 Which statement describes a structural adaptation of wind-pollinated flowers?

A They have long filaments so that the anthers hang outside of the flower.

B They have round, sticky sepals to trap pollen grains.

C Their large petals protect the stigma.

D Their stamens are feathery so there is a large surface area.

31 What is the correct order of structures through which human sperm must pass in order to fertilise an egg cell?

A sperm duct → testes → cervix → vagina → urethra → uterus → oviduct

B sperm duct → testes → urethra → vagina → cervix → oviduct → uterus

C testes → sperm duct → urethra → vagina → cervix → uterus → oviduct

D testes → sperm duct → vagina → urethra → uterus → oviduct → cervix

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[Turn over

32 Which pair of birth control methods are chemical methods of preventing pregnancy?

A cervical mucus and diaphragm

B contraceptive pill and monitoring body temperature

C femidom and vasectomy

D IUD and IUS

33 Which process occurs in asexual reproduction?

A fertilisation

B meiosis

C mitosis

D pollination

34 A condition called polydactyly gives a person extra fingers or toes. One type of polydactyly is caused by a dominant allele.

A man who is homozygous recessive for the condition marries a woman who is heterozygous for the condition.

What is the probability that their first child will have polydactyly?

A 25% **B** 50% **C** 75% **D** 100%

35 A species of insect usually has pale-coloured wings. This helps to camouflage them on pale-coloured tree trunks. A few of the insects in this species have darker coloured wings.

After a number of years the tree trunks become darker in colour due to environmental changes. The insects with dark-coloured wings become more common than insects with pale-coloured wings in this species.

Which process causes this change in the proportion of insects with dark-coloured wings?

A biotechnology

B conservation

C natural selection

D selective breeding

36 What is the initial source of energy input into most biological systems?

A light

B water

C oxygen

D heat

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37 Which combination of factors would cause the greatest reduction in the population growth of an animal species?

	disease	food source	predators
A	decrease	decrease	decrease
B	increase	decrease	increase
C	decrease	increase	decrease
D	increase	increase	increase

38 Which process releases carbon dioxide into the atmosphere?

A decomposition

B fossilisation

C photosynthesis

D transpiration

39 Three statements about the bacteria that are used in biotechnology and genetic engineering are listed.

1 They can convert simple molecules into more complex ones.

2 They can only reproduce very slowly.

3 Their genetic material can be changed.

Which statements are correct?

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

40 What is meant by a sustainable resource?

A a resource that is produced by non-intensive farming and is rarely used

B a resource that is removed from a habitat without changing the environment

C a resource that does not pollute the environment

D a resource that is produced as rapidly as it is removed from the environment

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