



Cambridge IGCSE™

BIOLOGY

0610/13

Paper 1 Multiple Choice (Core)

May/June 2021

45 minutes

You must answer on the multiple choice answer sheet.

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.

This document has **16** pages. Any blank pages are indicated.

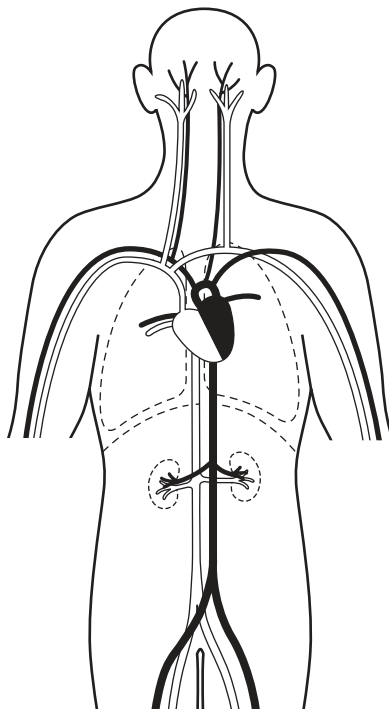


2

- 1** What is a characteristic of all living organisms?
- A** breathing
 - B** circulation
 - C** egestion
 - D** sensitivity
- 2** Which statement about the binomial naming system is correct?
- A** It is used for naming animal species but not plant species.
 - B** It is an internationally agreed scientific naming system.
 - C** The name of a species is different in different countries.
 - D** The name consists of one or two words.
- 3** Scientists discover a new species of animal.
- It has a segmented body with two pairs of legs on each segment.
- To which group of animals does this new species belong?
- A** arachnids
 - B** crustaceans
 - C** insects
 - D** myriapods
- 4** In which part of a cell does photosynthesis take place?
- A** vacuole
 - B** nucleus
 - C** chloroplast
 - D** cytoplasm

3

- 5** The diagram shows some of the blood vessels and other structures in the human body.



The blood vessels shown are all parts of the same

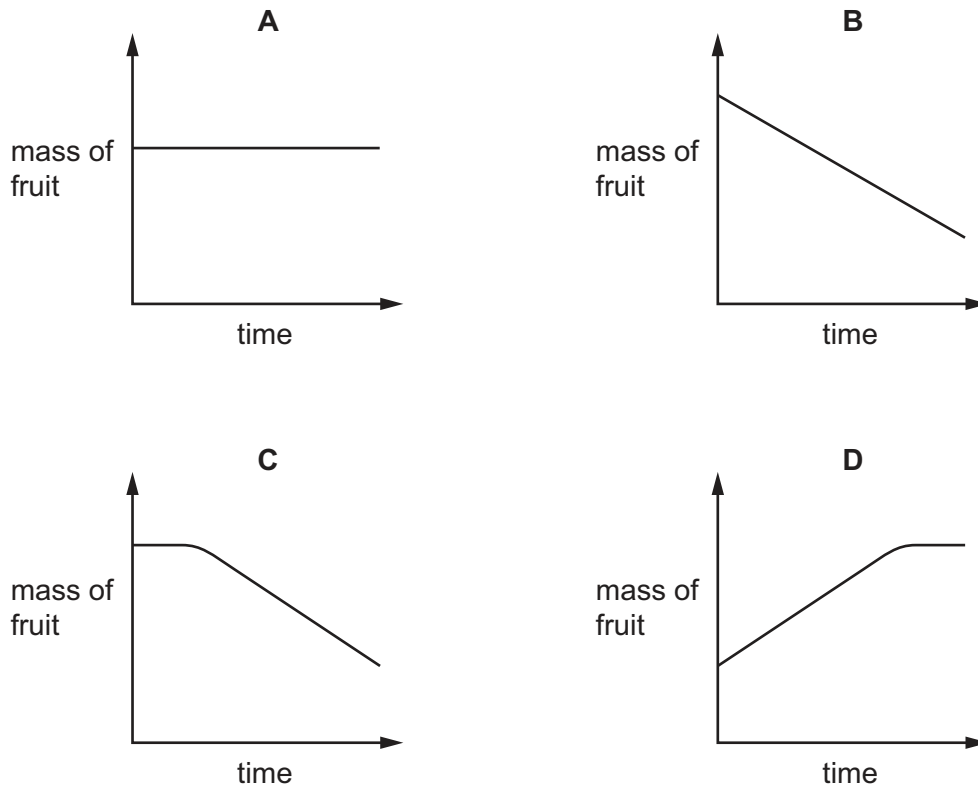
- A** cell.
 - B** organ.
 - C** organ system.
 - D** tissue.
- 6** A photograph shows a plant cell nucleus measuring 2 mm across.
- If the magnification of the cell is $\times 500$, what is the actual size of the nucleus?
- A** 0.00002 mm **B** 0.004 mm **C** 0.04 mm **D** 250 mm
- 7** By which process do oxygen and carbon dioxide move between cells and capillaries?
- A** breathing
 - B** diffusion
 - C** excretion
 - D** respiration

4

8 Some students investigated osmosis.

They placed some dried fruit into a beaker of distilled water. The mass of the fruit was measured at regular intervals during a 24-hour period.

Which graph shows the results?



9 Which element is found in proteins but **not** carbohydrates?

- A carbon
- B hydrogen
- C nitrogen
- D oxygen

10 Starch is digested by amylase in the mouth, but it is not digested in the stomach.

What is the reason for this?

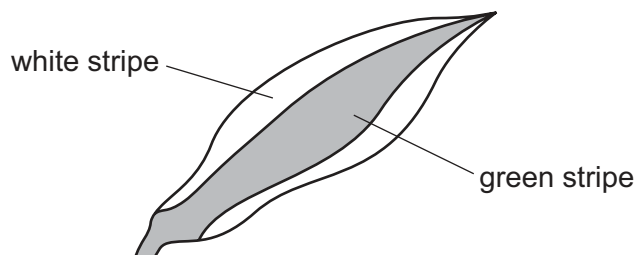
- A All starch digestion is completed in the mouth.
- B The pH in the stomach is not suitable for the amylase to work.
- C The starch does not stay in the stomach long enough to be digested.
- D The temperature in the stomach is not suitable for the amylase to work.

5

11 Which type of molecule are enzymes made of?

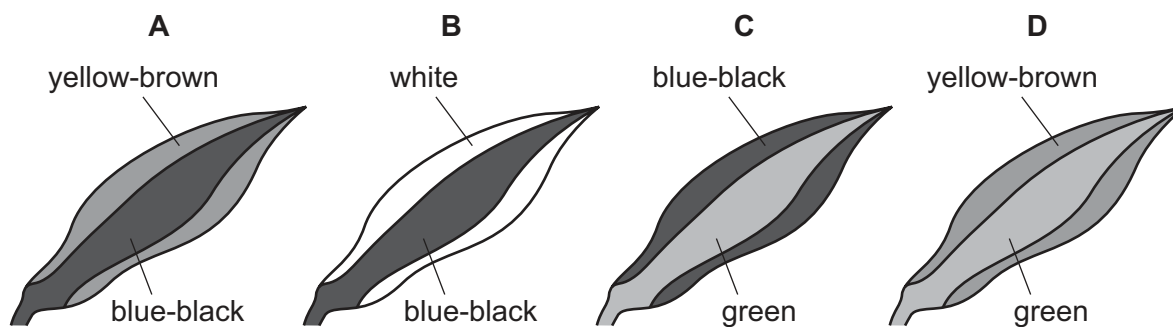
- A** carbohydrate
- B** fat
- C** protein
- D** vitamin

12 A plant with striped leaves was kept in bright light for six hours.



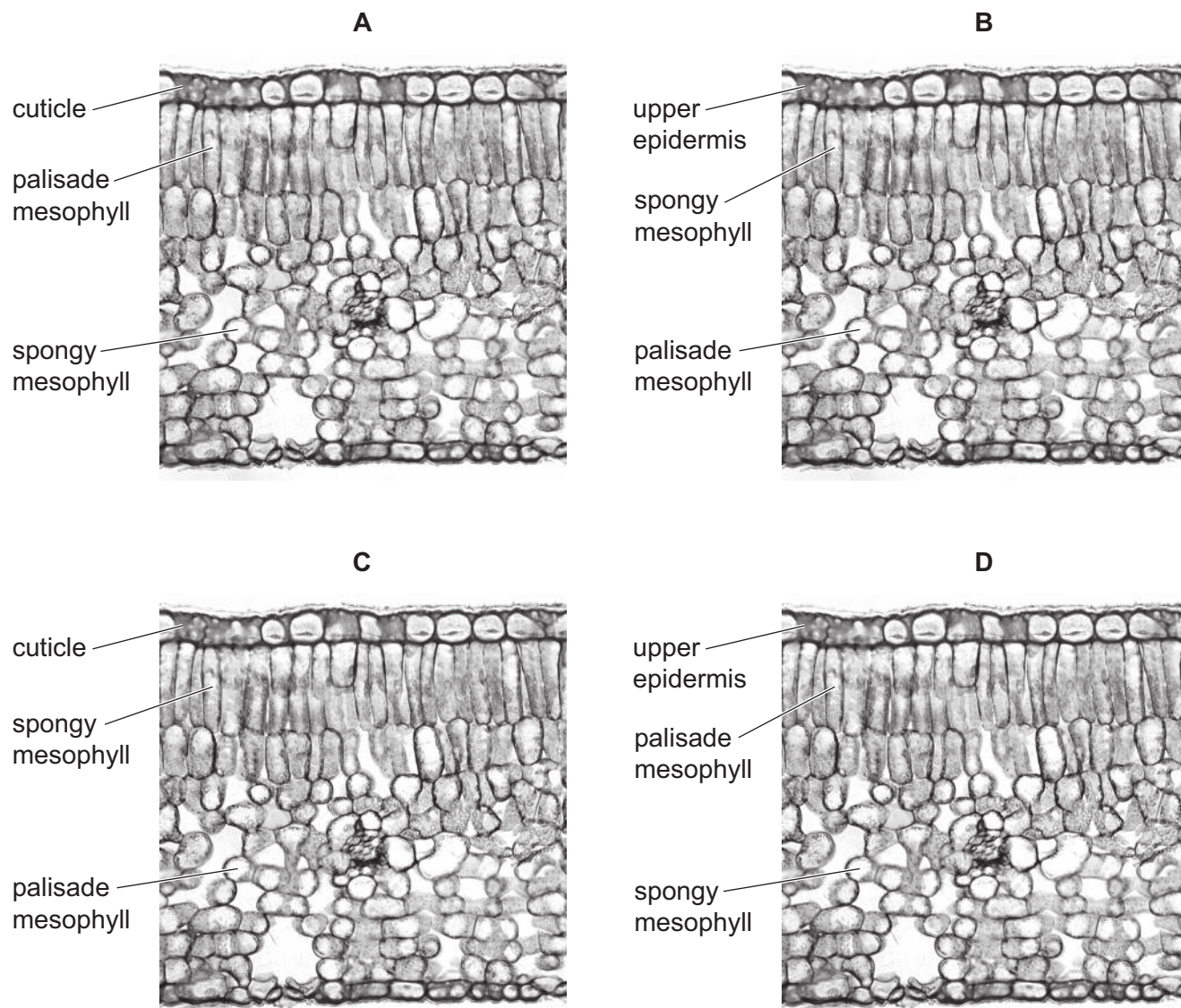
A leaf was taken from the plant and the chlorophyll was removed. The leaf was then tested for starch using iodine solution.

Which diagram shows the result of the test?



6

13 Which photomicrograph of the leaf section has been correctly labelled?



14 In humans, where does most of the absorption of digested food take place?

- A colon
- B kidney
- C liver
- D small intestine

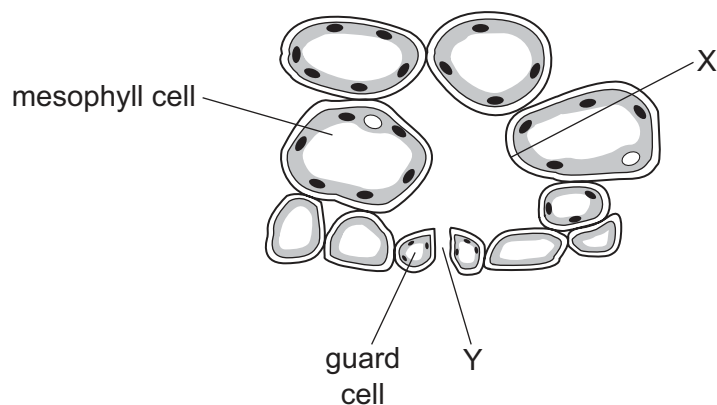
15 What is the cause of the **start** of dental decay?

- A Acid dissolves dentine.
- B Acid dissolves enamel.
- C Sugars dissolve dentine.
- D Sugars dissolve enamel.

16 Which statement correctly identifies the enzyme and the products of fat digestion?

- A** Fats are digested by lipase to form amino acids and glycerol.
- B** Fats are digested by lipase to form fatty acids and glycerol.
- C** Fats are digested by protease to form amino acids.
- D** Fats are digested by protease to form fatty acids and glycerol.

17 The diagram shows one of the stomata of a leaf, and some of the cells that are near it.



During transpiration, what describes the movement of water at X and at Y?

	movement of water at X	movement of water at Y
A	evaporation	diffusion
B	evaporation	osmosis
C	osmosis	diffusion
D	osmosis	osmosis

18 A plant shoot is placed in a solution of dye.

The dye moves up the stem.

Under which conditions will the dye move most slowly?

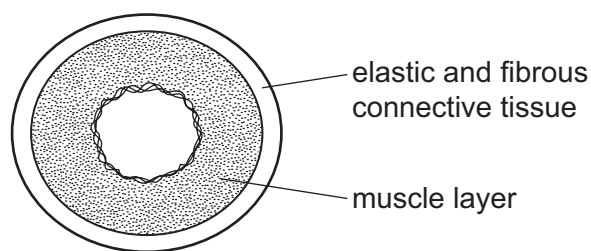
	temperature	humidity
A	high	high
B	high	low
C	low	high
D	low	low

19 Through which blood vessels does blood flow into the heart?

- 1 pulmonary artery
- 2 pulmonary vein
- 3 vena cava
- 4 aorta

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

20 The diagram shows a cross-section through a human blood vessel.



Which type of blood vessel does the diagram show?

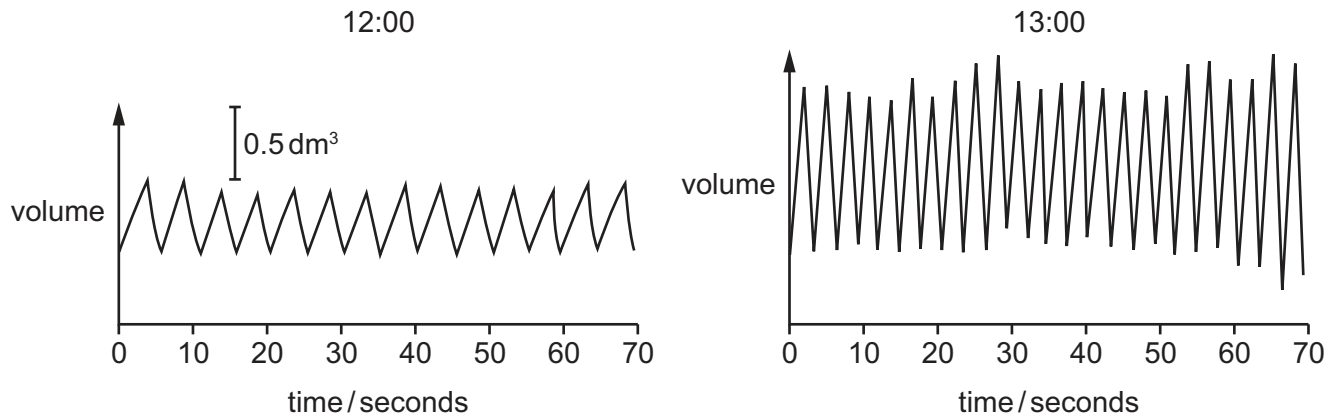
- A** an artery
- B** a capillary
- C** a vein
- D** a ventricle

21 What is a function of some white blood cells?

- A** to carry glucose
- B** to carry oxygen
- C** to produce antibiotics
- D** to produce antibodies

9

22 The diagrams show the depth and rate of breathing in a person at 12:00 and 13:00.



What happens to the person's breathing between 12:00 and 13:00?

	depth of breathing	rate of breathing
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

23 Which statement applies to respiration?

- A** It involves enzymes.
- B** Energy is absorbed.
- C** It only takes place in animal cells.
- D** Oxygen is released.

24 The table shows some products of respiration.

Which row shows the products of anaerobic respiration in muscles?

	alcohol	carbon dioxide	lactic acid	water
A	✓	✓	x	x
B	x	✓	x	✓
C	x	x	✓	x
D	x	x	✓	✓

key
 ✓ = yes
 x = no

- 25** A student carried out an experiment to investigate the effect of temperature on the volume of urine produced.

Which row shows the experiment where the environmental temperature was increased from 20 °C to 40 °C but no other changes were made?

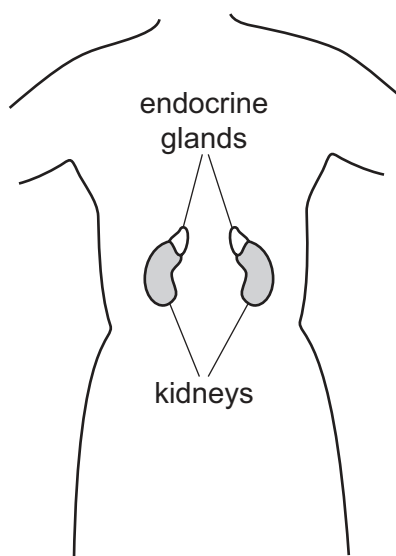
	urine produced /cm ³ per hour	
	before	after
A	60	60
B	80	40
C	120	145
D	100	130

- 26** A student's eyes blinked as a ball flew past their head. This is a reflex action.

Which row describes the reaction shown by the student?

- A** a fast reaction involving the endocrine system
 - B** a fast reaction involving the nervous system
 - C** a slow reaction involving the endocrine system
 - D** a slow reaction involving the nervous system
- 27** What type of cell must an organ contain to detect a stimulus?
- A** blood
 - B** receptor
 - C** skin
 - D** xylem

- 28 The diagram shows the position of the kidneys in a human. Each kidney has an endocrine gland above it.

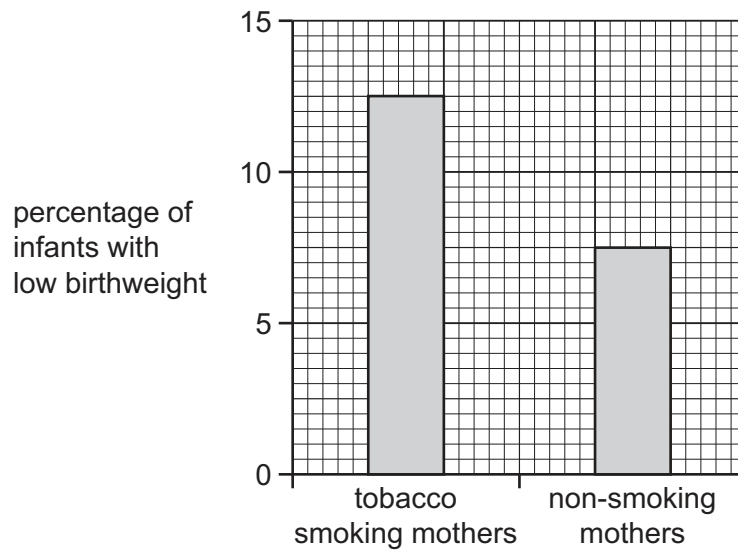


Which glands are shown?

- A adrenal glands
 - B ovaries
 - C pancreas
 - D testes
- 29 Why are people advised **not** to drive a car after drinking an excessive quantity of alcohol?
- A Alcohol is a depressant.
 - B Alcohol is a stimulant.
 - C Alcohol decreases reaction time.
 - D Alcohol is addictive.
- 30 Which statement about the process of asexual reproduction is correct?
- A It produces genetically different offspring.
 - B It requires two parents.
 - C It produces gametes.
 - D It requires only one parent.

12

- 31** Scientists studied the effect on infant birthweight of mothers smoking tobacco. They compared their findings with the birthweights of infants from non-smoking mothers. The results are shown in the bar chart.



Which statement describes what this bar chart shows?

- A** 15% of infants born to mothers who smoke have a low birthweight.
 - B** Mothers who smoke have 5% more low birthweight infants than non-smoking mothers.
 - C** Non-smoking mothers have 10% fewer low birthweight infants than smoking mothers.
 - D** Tobacco smoking is the only factor that has an effect on birthweight.
- 32** Changes occur in a boy's body at puberty; his height increases, more muscle develops and body hair grows.

Which hormone stimulates these changes?

- A** adrenaline
 - B** insulin
 - C** oestrogen
 - D** testosterone
- 33** By which process is genetic information transmitted from generation to generation?
- A** inheritance
 - B** mitosis
 - C** meiosis
 - D** variation

34 Some reptiles can lose and regrow their tails to avoid predation.

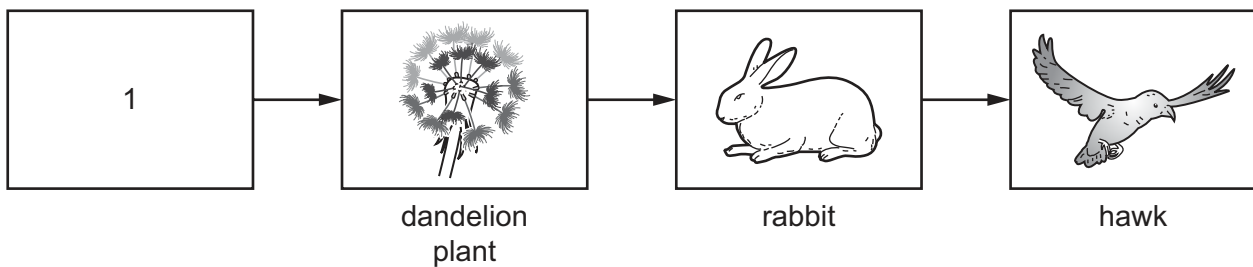
Which process occurs to regrow the tail?

- A** digestion
- B** fertilisation
- C** meiosis
- D** mitosis

35 What is an adaptive feature of an organism?

- A** any feature that is not changed by the environment
- B** any inherited feature that helps an organism to survive and reproduce
- C** any feature that shows discontinuous variation
- D** any inherited feature that an organism has

36 The diagram shows the energy flow through part of a biological system.



What should be in the box labelled 1?

- A** heat
- B** consumer
- C** producer
- D** the Sun

37 Human activities are changing the carbon dioxide concentration in the atmosphere.

Which activities will increase the carbon dioxide concentration in the atmosphere?

- 1 burning fossil fuels
- 2 burning cut-down trees
- 3 fossilisation of cut-down trees
- 4 planting replacement trees

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

38 Which description of a population is correct?

- A** all the birds in a rainforest
- B** all the arachnids in a garden
- C** all the arthropods in the world
- D** all the red deer in a forest

39 What is an example of genetic engineering?

- A** the addition of vitamins to food to increase the nutritional benefits
- B** the breeding of sheep with thick wool by choosing animals with desired characteristics
- C** the insertion of genes into crop plants to make them resistant to insect pests
- D** the production of biofuels by yeast cells

40 What happens when deforestation takes place?

- A** The number of habitats is increased.
- B** The number of species becoming extinct is increased.
- C** The possibility of flooding is decreased.
- D** The volume of soil present is increased.

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