Cambridge Assessment International Education

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.

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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

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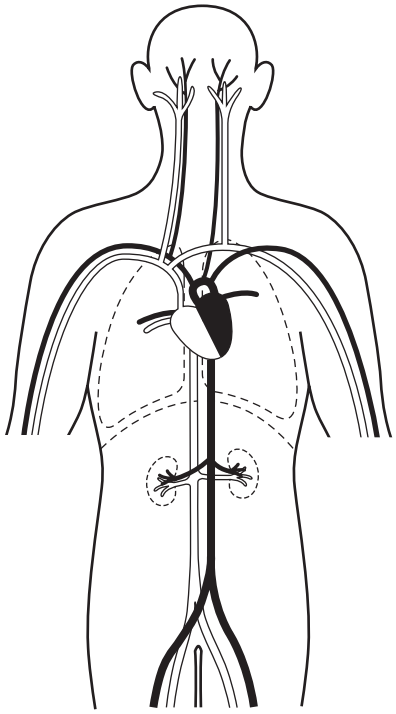
5 The diagram shows some of the blood vessels and other structures in the human body.



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 ×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

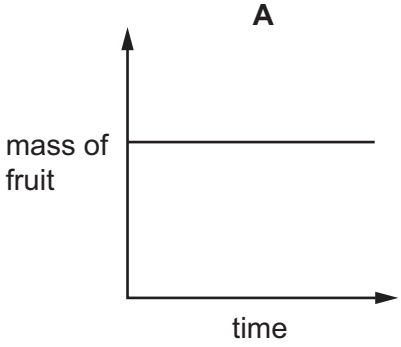
D respiration

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?

A



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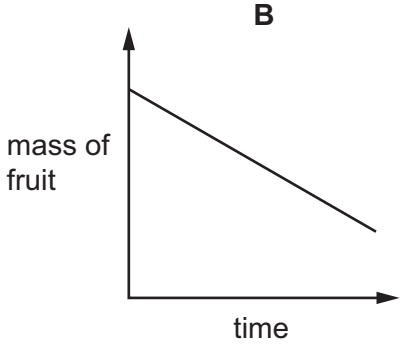

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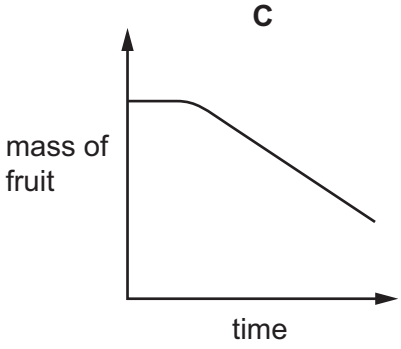

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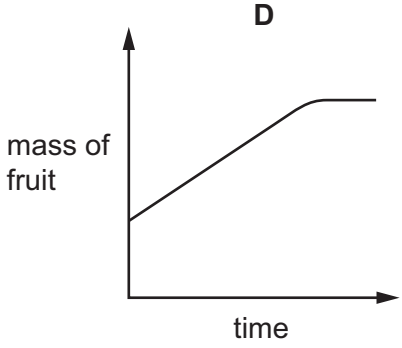

9 Which element is found in proteins but **not** carbohydrates?

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.

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11 Which type of molecule are enzymes made of?

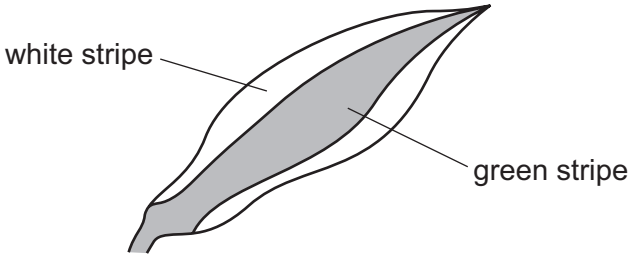
A carbohydrate

B fat

C protein

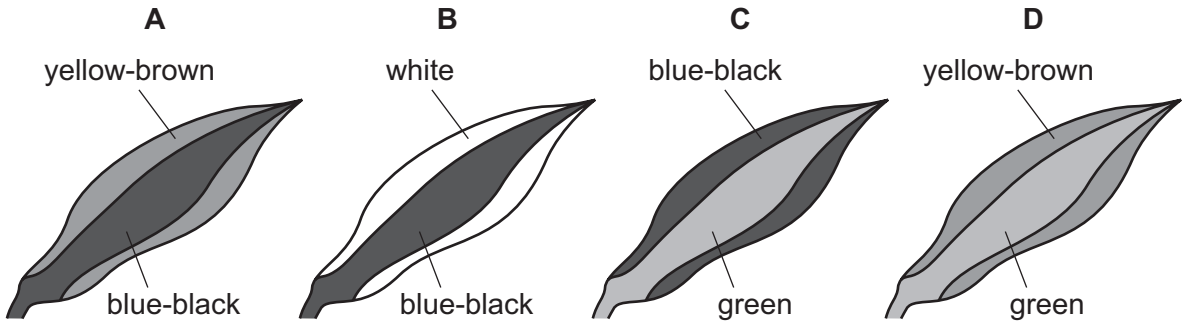
D vitamin

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



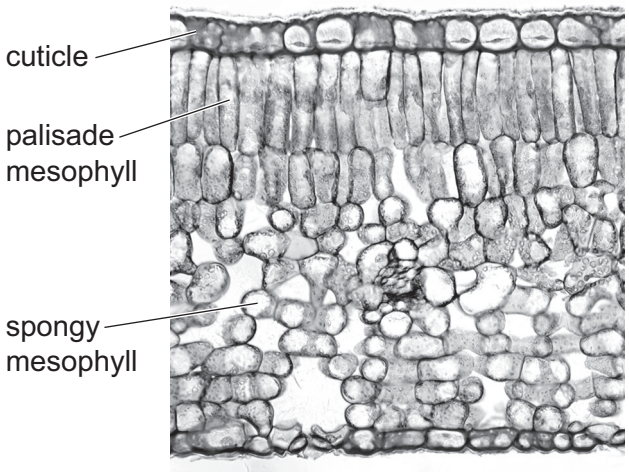
A leaf was taken from the plant and the chlorophyll was removed. The leaf was then tested for starch using iodine solution.

Which diagram shows the result of the test?



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

A



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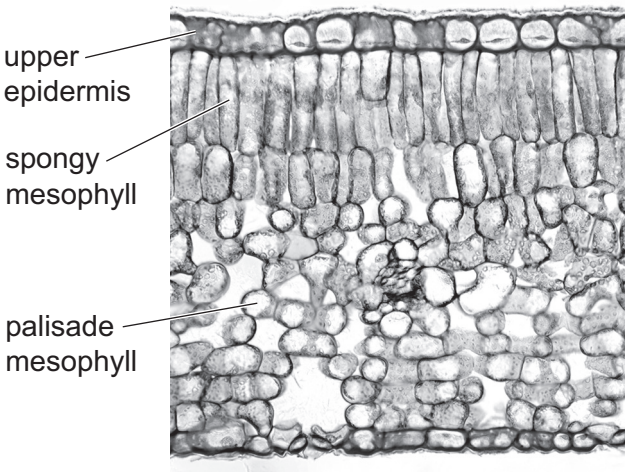

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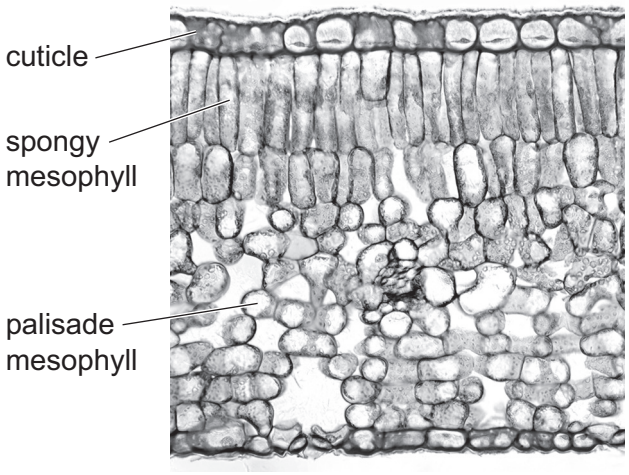

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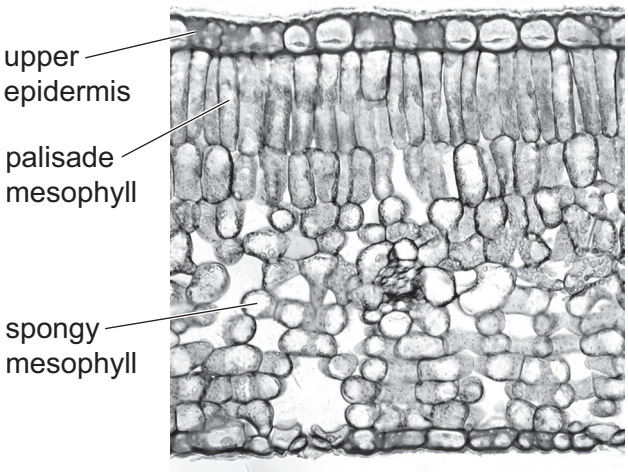

14 In humans, where does most of the absorption of digested food take place?

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.

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

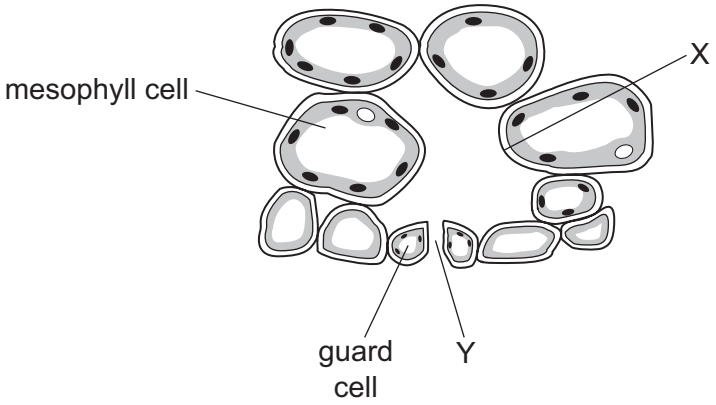
A Fats are digested by lipase to form amino acids and glycerol.

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

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[Turn over

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

1 pulmonary artery

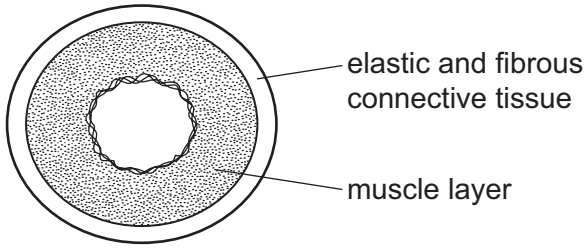
2 pulmonary vein

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

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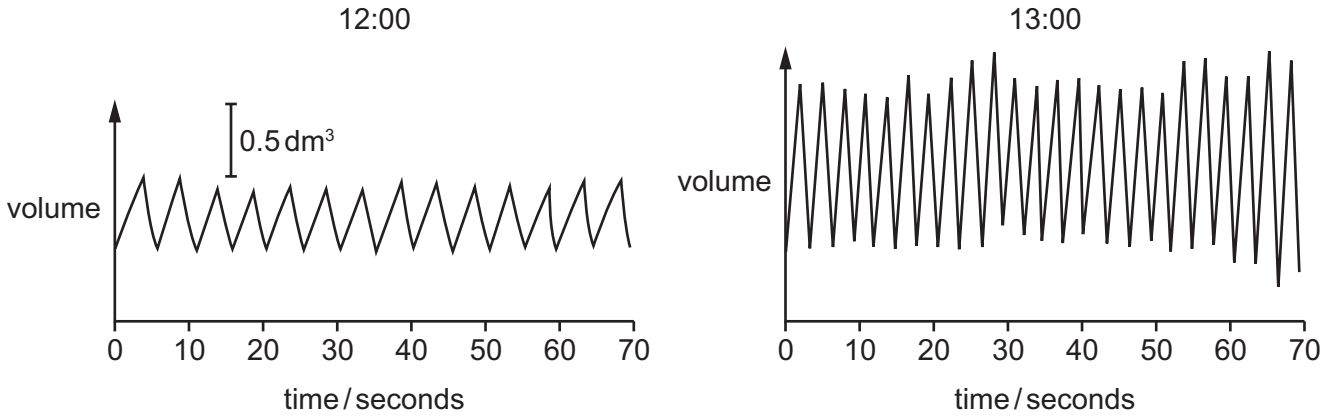
22 The diagrams show the depth and rate of breathing in a person at 12:00 and 13:00.



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	✓	✓	✗	✗
B	✗	✓	✗	✓
C	✗	✗	✓	✗
D	✗	✗	✓	✓

key
✓ = yes
✗ = 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

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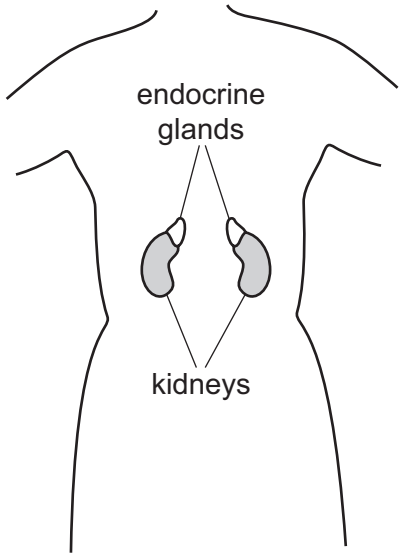
28 The diagram shows the position of the kidneys in a human. Each kidney has an endocrine gland above it.



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.

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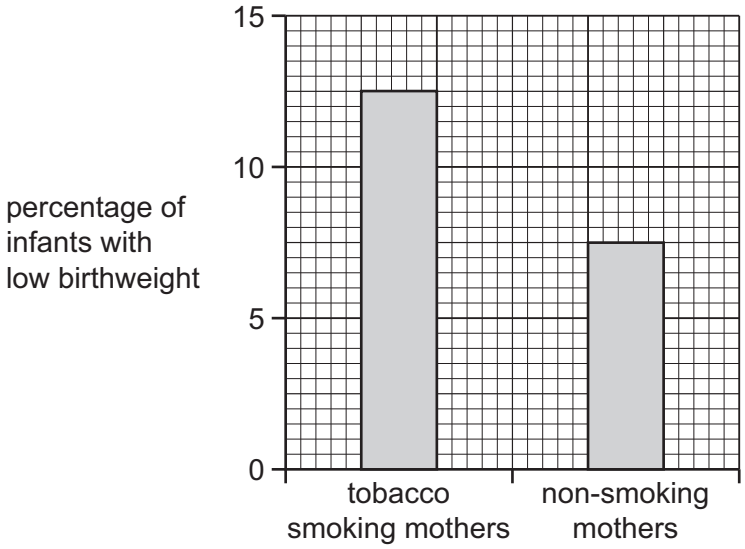
31 Scientists studied the effect on infant birthweight of mothers smoking tobacco. They compared their findings with the birthweights of infants from non-smoking mothers. The results are shown in the bar chart.



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

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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?

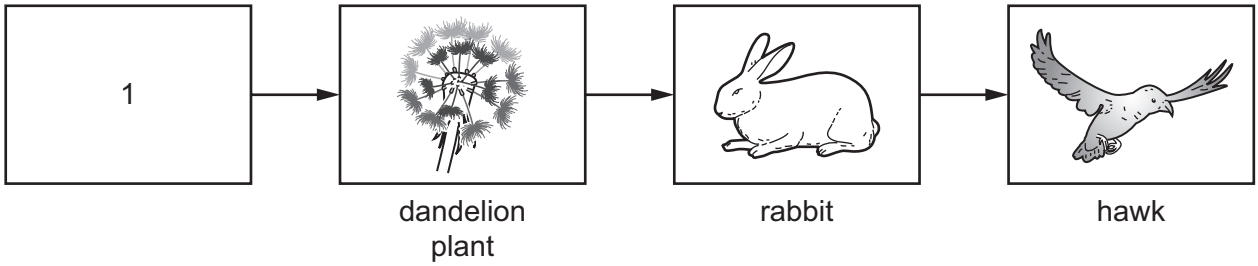
A any feature that is not changed by the environment

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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