Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **October/November 2020**

45 minutes

You must answer on the multiple choice answer sheet.

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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.

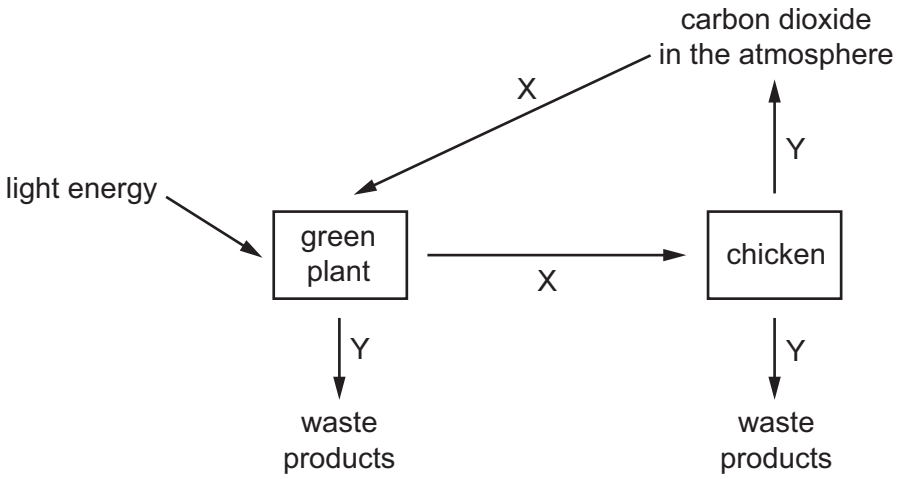
INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
- Any rough working should be done on this question paper.

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[Turn over

1 The diagram shows some of the processes carried out by living organisms.



Which two characteristics of living organisms are represented by arrows X and Y?

A excretion and sensitivity

B nutrition and excretion

C respiration and growth

D sensitivity and reproduction

2 According to the binomial system, how should a human be named?

A *Homo Sapiens*

B *Homo sapiens*

C *homo Sapiens*

D *homo sapiens*

3 Which is a feature of cells used to place organisms in the plant kingdom?

A cell membrane

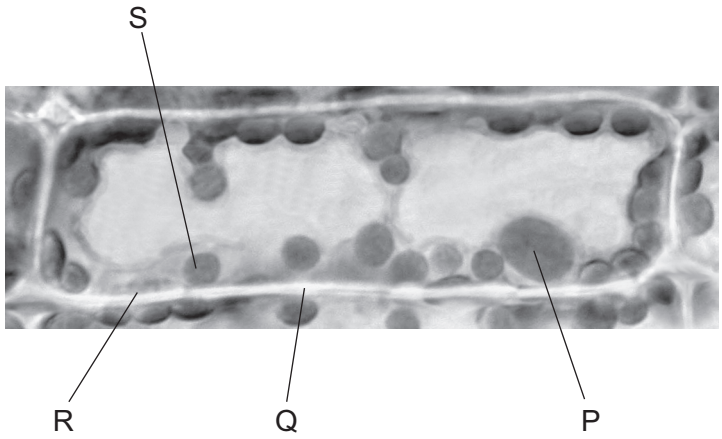
B chloroplast

C cytoplasm

D nucleus

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4 The photomicrograph shows a cell from a type of aquatic plant.

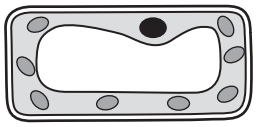


Which parts labelled on the photomicrograph indicate that this is a plant cell?

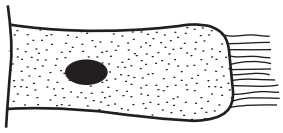
A P and R **B** P and S **C** Q and R **D** Q and S

5 Which cell is adapted for absorption?

A



B



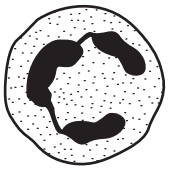
C



D



6 The cell shown in the diagram has been magnified 3000 times. The diagram is 21 mm wide.



What is the actual diameter of the cell?

A 21 mm

B $\frac{21\text{mm}}{3000}$

C 21 mm × 3000

D $\frac{3000}{21\text{mm}}$

7 What are features of osmosis?

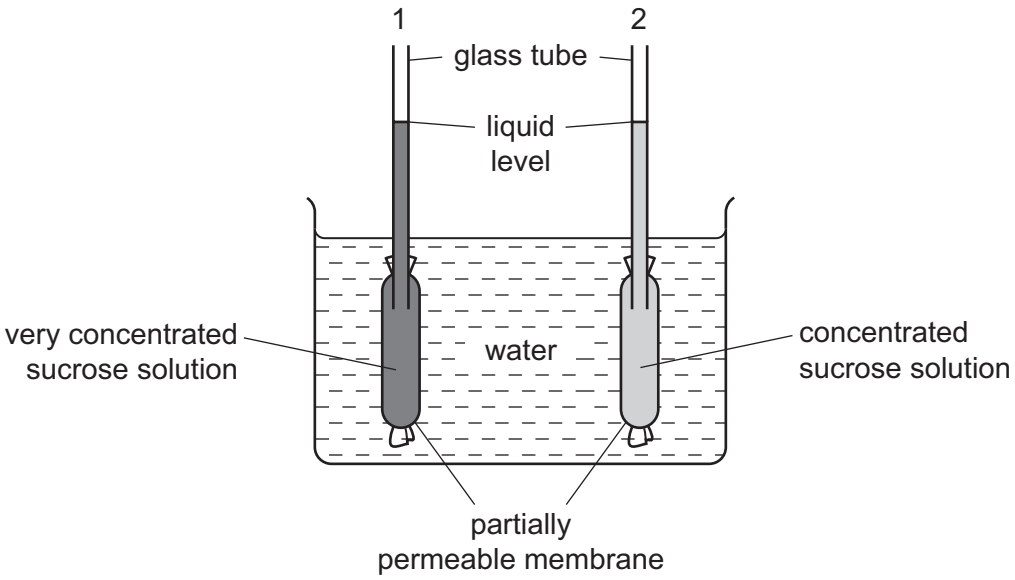
	diffusion is involved	requires cell walls	requires a partially permeable membrane
A	✓	✗	✓
B	✓	✗	✗
C	✗	✓	✓
D	✗	✓	✗

key

✓ = yes

✗ = no

8 The diagram shows apparatus which can be used to demonstrate osmosis.



After one hour, what would happen to the liquid levels in the glass tubes?

	liquid level in tube 1	liquid level in tube 2
A	falls	falls
B	falls	rises
C	rises	falls
D	rises	rises

9 Which substances are made by linking together glucose molecules only?

A cellulose, glycogen and starch

B fats, cellulose and proteins

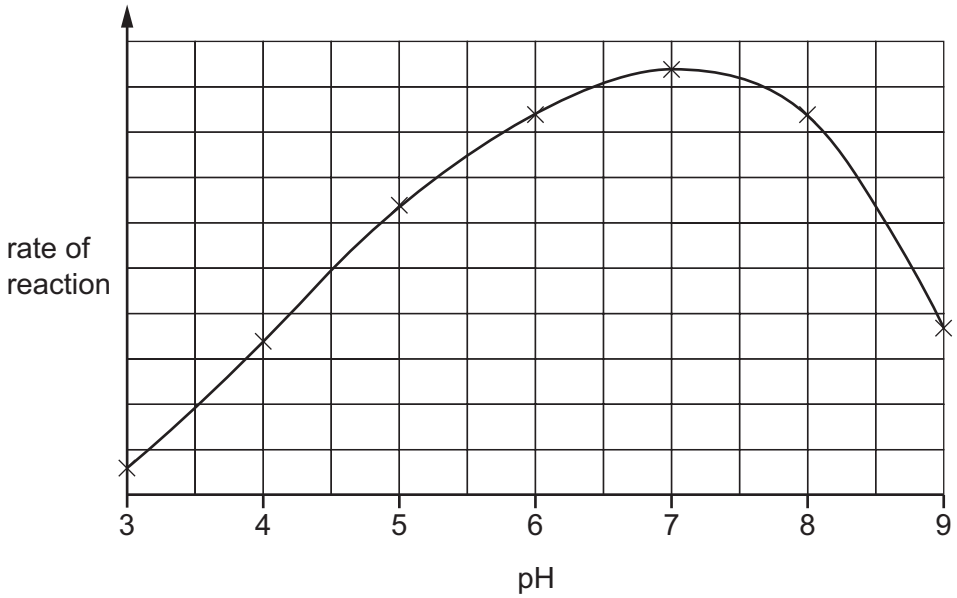
C proteins, oils and glycogen

D starch, fats and oils

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[Turn over

10 The graph shows the effect of pH on the rate of reaction of an enzyme.



What does the graph show?

A The enzyme is destroyed at pH 9.

B The enzyme works best at pH 6.

C The rate of reaction halves as the pH changes from pH 5 to pH 7.

D The rate of reaction is the same at pH 5 and pH 8.5.

11 What kind of molecule is an enzyme?

A fat

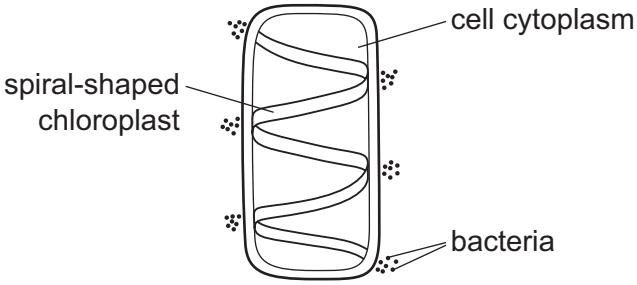
B glucose

C protein

D starch

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12 The diagram shows a cell with groups of bacteria around its edge.



The bacteria move to areas of high oxygen concentration.

Which process in the cell causes the bacteria to form these groups?

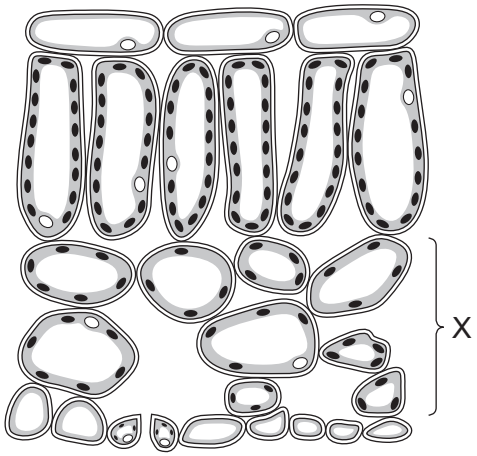
A digestion

B photosynthesis

C reproduction

D respiration

13 The diagram shows part of a leaf.



What is layer X?

A lower epidermis

B palisade mesophyll

C spongy mesophyll

D vascular bundle

14 Which stage of nutrition takes place when food molecules become part of a body cell?

A absorption

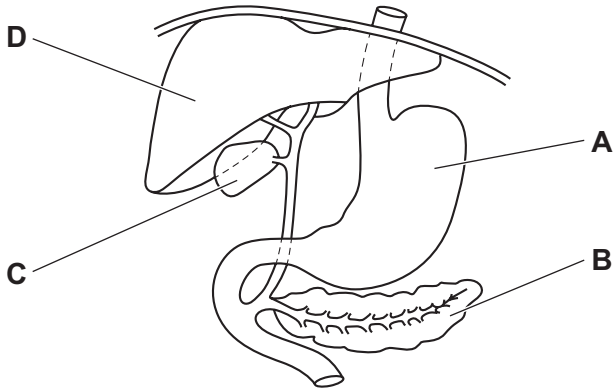
B assimilation

C digestion

D ingestion

15 The diagram shows part of the alimentary canal and associated organs.

Which labelled part stores bile?



16 Which human teeth are used for biting and cutting food?

A canines and molars

B incisors and canines

C molars and premolars

D premolars and incisors

17 In which order does water pass through these structures in a plant?

A mesophyll → root hair → xylem

B mesophyll → xylem → root hair

C root hair → mesophyll → xylem

D root hair → xylem → mesophyll

18 A decrease in which factor normally causes the transpiration rate to increase?

A humidity

B light intensity

C number of stomata

D temperature

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19 In a mammal, what ensures the blood flows one-way round the circulatory system?

A brain

B capillaries

C lungs

D valves

20 Which structure separates the right and left sides of the heart?

A coronary artery

B one-way valve

C right atrium

D septum

21 Lyme disease is a disease which can be transmitted to humans in the following way:

a mouse carries the bacteria *Borrelia burgdorferi* in its blood

↓

a tick bites the mouse and the bacteria are transferred into the tick

↓

the tick bites a human and bacteria are transferred to the human

↓

the human becomes infected with Lyme disease

What is the pathogen in this process?

A tick

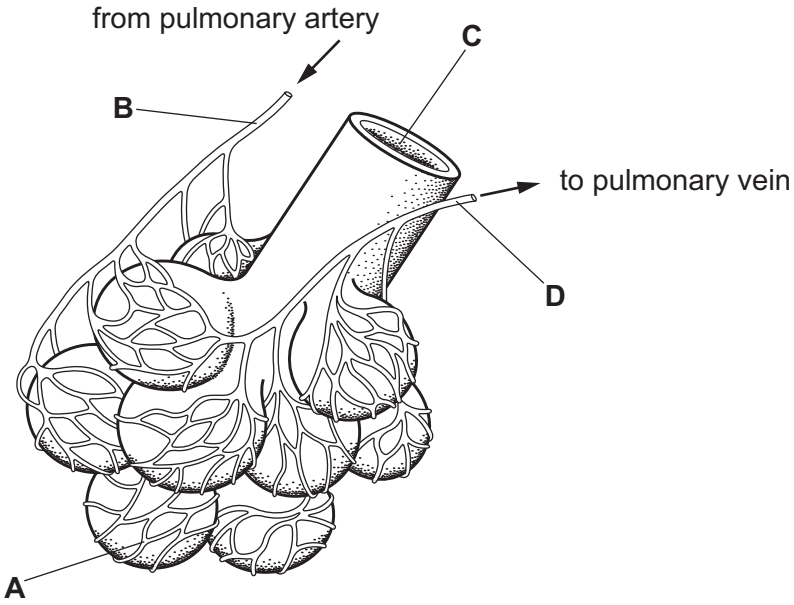
B *Borrelia burgdorferi*

C mouse

D blood

22 The diagram shows some of the structures in a human lung.

Where is the carbon dioxide concentration highest?



23 What is produced by anaerobic respiration in yeast?

A alcohol, carbon dioxide and water

B alcohol and carbon dioxide only

C carbon dioxide and lactic acid

D lactic acid only

24 The amount of urea in the blood increases as it passes through organ X.

What is organ X?

A heart

B kidney

C liver

D pancreas

25 Sensory neurones conduct impulses from

A the brain and spinal cord to muscles.

B one sense organ to another sense organ.

C sense organs to the brain and spinal cord.

D muscles to sense organs.

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26 What is a function of the cornea?

A carries impulses to the brain

B contains light-sensitive receptors

C controls how much light enters the eye

D refracts light

27 Which responses are shown by the root of a plant?

	gravitropism	phototropism
A	–	–
B	–	+
C	+	–
D	+	+

key

+ = grows towards the stimulus

– = grows away from the stimulus

28 Which is a definition of all drugs?

A a substance taken into the body that acts as a depressant

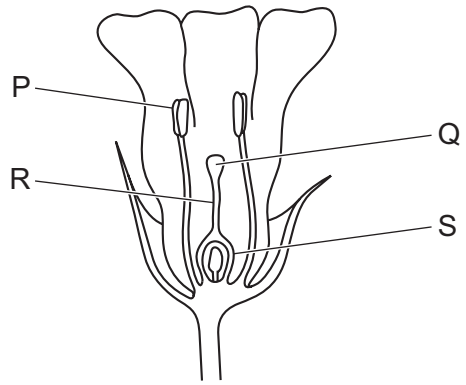
B a substance taken into the body that affects chemical reactions in the body

C a substance taken into the body to cure illness

D a substance taken into the body to kill bacteria

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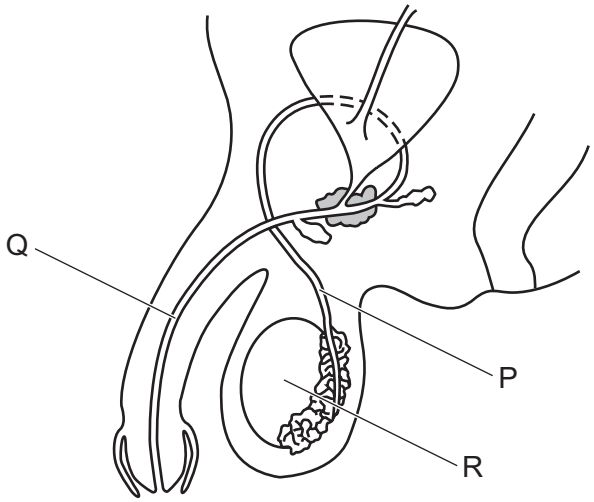
29 The diagram shows half a flower.



Which row identifies the parts of the flower?

	P	Q	R	S
A	anther	stigma	style	ovary
B	anther	style	stigma	anther
C	style	anther	ovary	style
D	style	ovary	anther	stigma

30 The diagram shows the human male reproductive system.



What are structures P, Q and R?

	P	Q	R
A	sperm duct	urethra	testis
B	sperm duct	ureter	testis
C	ureter	penis	sperm duct
D	urethra	penis	testis

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31 Which method of birth control would also help to protect against HIV?

A condom

B contraceptive pill

C diaphragm

D IUD

32 Which word describes nuclear division to produce genetically identical cells?

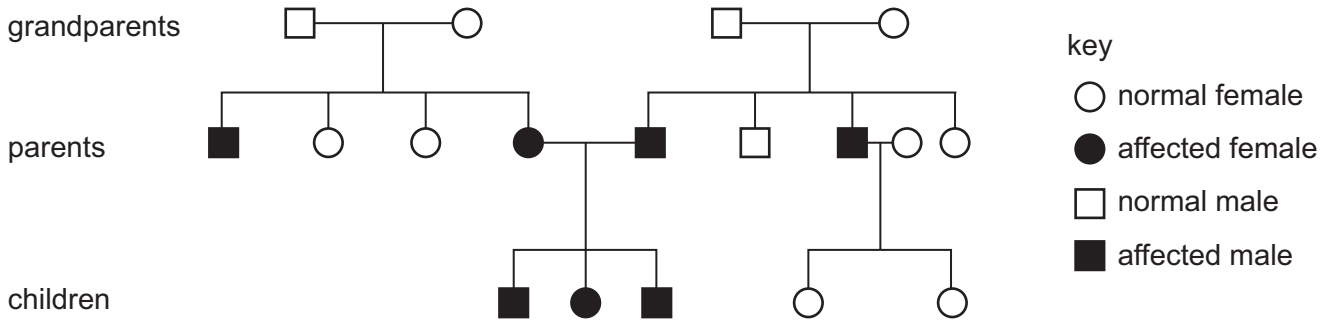
A fertilisation

B inheritance

C meiosis

D mitosis

33 The diagram shows a family tree. Some individuals have inherited a genetic condition.



Which statement about the grandparents is correct?

A Each carries two recessive alleles for this condition.

B Each carries only one recessive allele for this condition.

C Only the grandmothers are heterozygous.

D Only the grandfathers are heterozygous.

34 What is a definition of variation?

A having two identical alleles of a particular gene

B individuals of the same species in one area

C differences between individuals of the same species

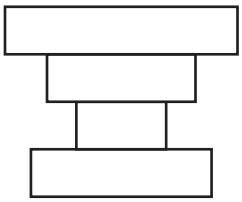
D the way in which new alleles are formed

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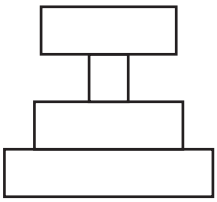
[Turn over

35 Which pyramid of numbers has more tertiary consumers than producers?

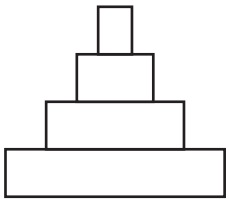
A



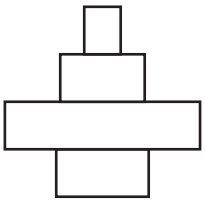
B



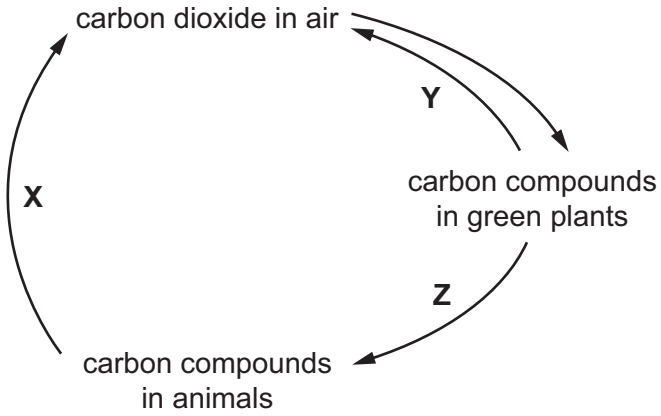
C



D



36 The diagram represents part of the carbon cycle.

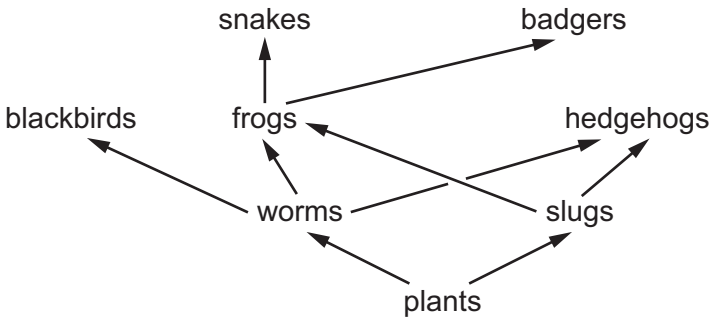


Which processes are represented by **X**, **Y** and **Z**?

	X	Y	Z
A	photosynthesis	feeding	combustion
B	respiration	respiration	feeding
C	combustion	feeding	photosynthesis
D	feeding	respiration	combustion

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37 The diagram shows part of a food web.



What is most likely to decrease the size of the frog population?

A fewer badgers

B fewer slugs

C more plants

D more worms

38 Genes can be inserted into crop plants to make them resistant to herbicides.

Which process is this an example of?

A antibiotic resistance

B genetic engineering

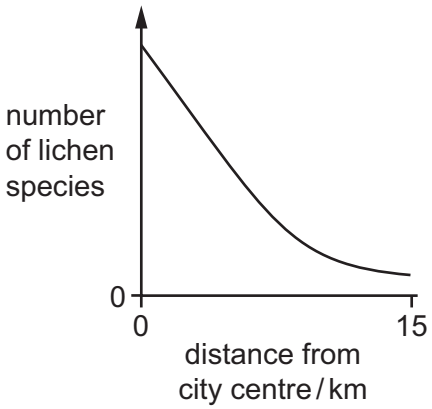
C natural selection

D selective breeding

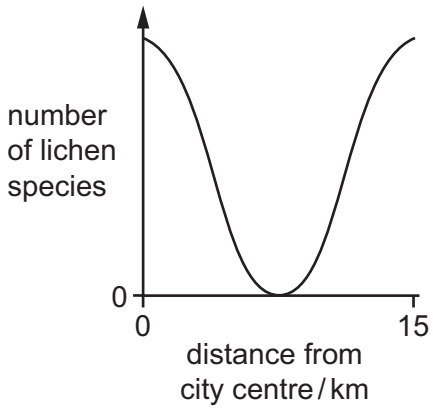
39 Lichens are organisms that do **not** grow well in polluted air.

Which graph shows the change in the number of lichen species from the centre of a polluted city to the unpolluted countryside 15 km away?

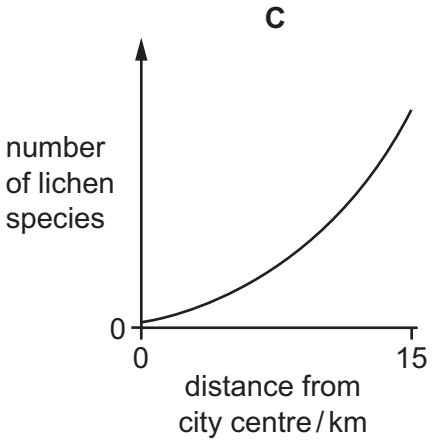
A



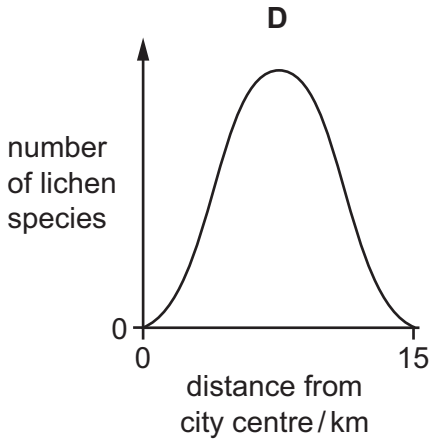
B



C



D



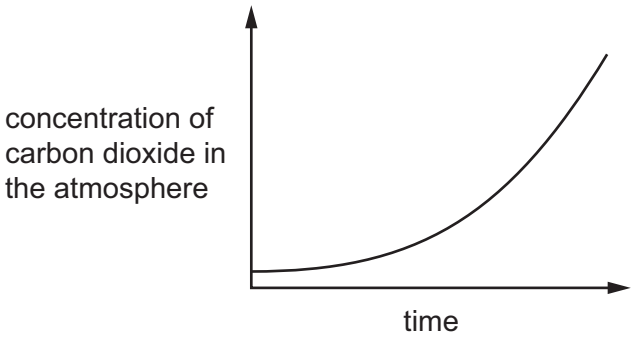
40 Three human activities are listed.

1 burning fossil fuels

2 deforestation

3 replanting forests

Which activities can cause the change shown in the graph?



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

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