



Cambridge IGCSE™

BIOLOGY

0610/13

Paper 1 Multiple Choice (Core)

October/November 2020

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.

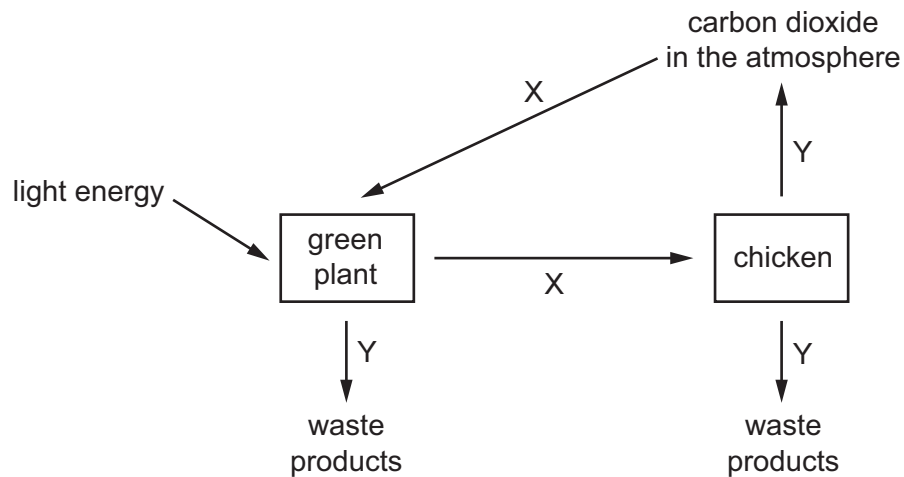
INFORMATION

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

This document has **20** pages. Blank pages are indicated.



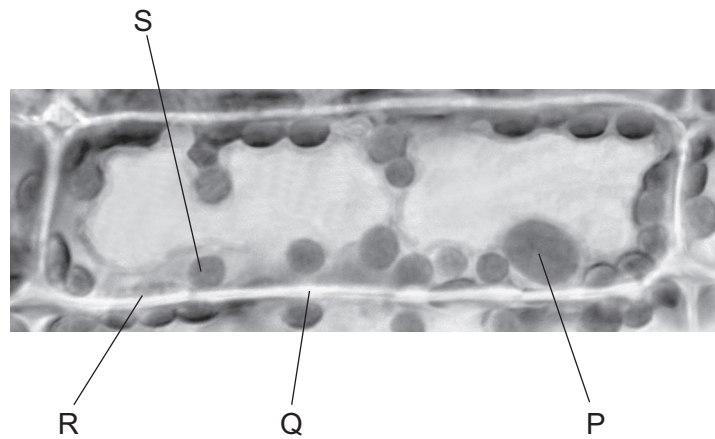
- 1 The diagram shows some of the processes carried out by living organisms.



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

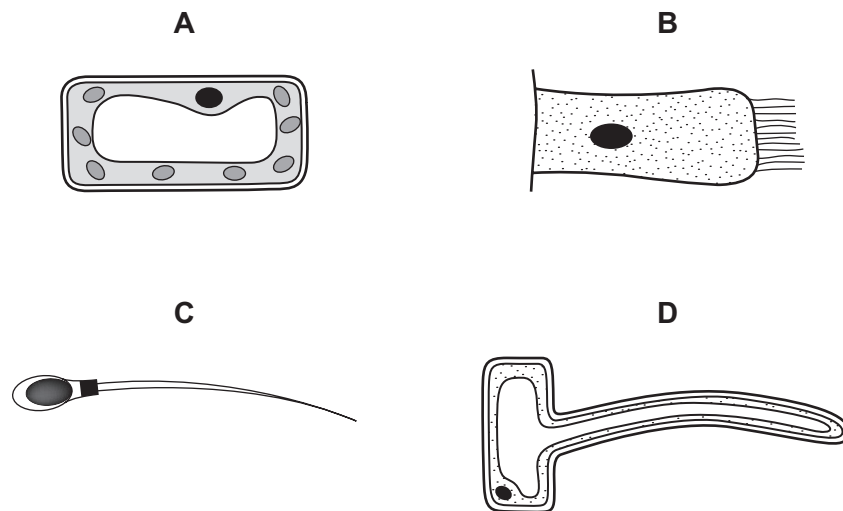
- A excretion and sensitivity
 - B nutrition and excretion
 - C respiration and growth
 - D sensitivity and reproduction
- 2 According to the binomial system, how should a human be named?
- A *Homo Sapiens*
 - B *Homo sapiens*
 - C *homo Sapiens*
 - D *homo sapiens*
- 3 Which is a feature of cells used to place organisms in the plant kingdom?
- A cell membrane
 - B chloroplast
 - C cytoplasm
 - D nucleus

- 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?



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

- 7 What are features of osmosis?

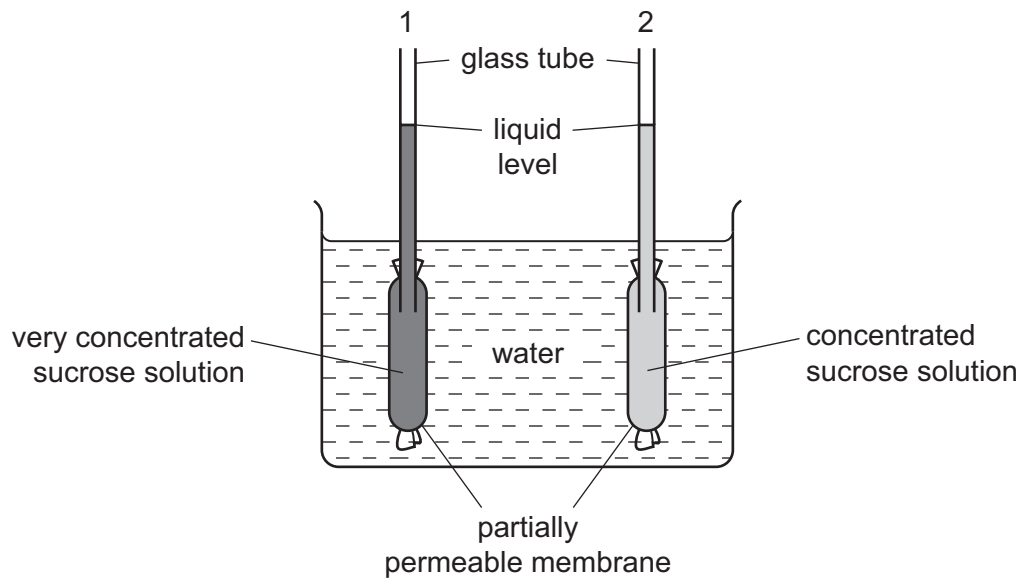
	diffusion is involved	requires cell walls	requires a partially permeable membrane
A	✓	x	✓
B	✓	x	x
C	x	✓	✓
D	x	✓	x

key

✓ = yes

x = no

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



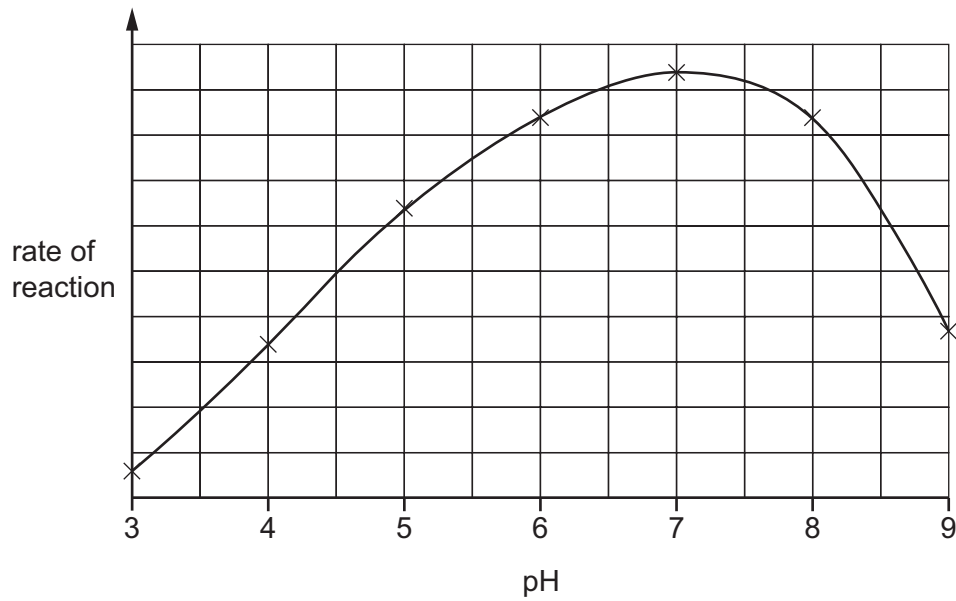
After one hour, what would happen to the liquid levels in the glass tubes?

	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

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



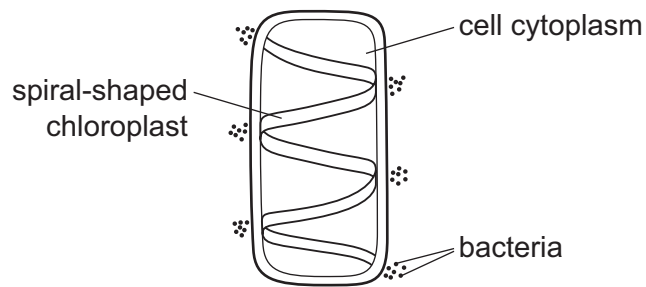
What does the graph show?

- 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

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

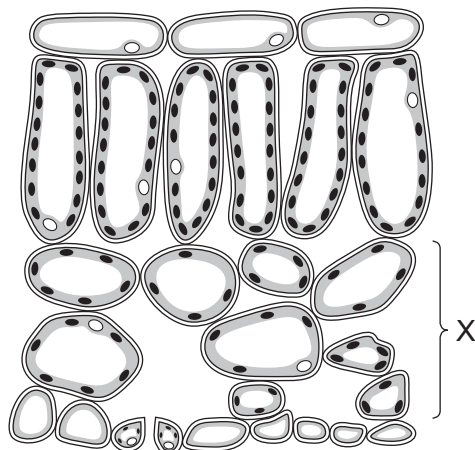


The bacteria move to areas of high oxygen concentration.

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

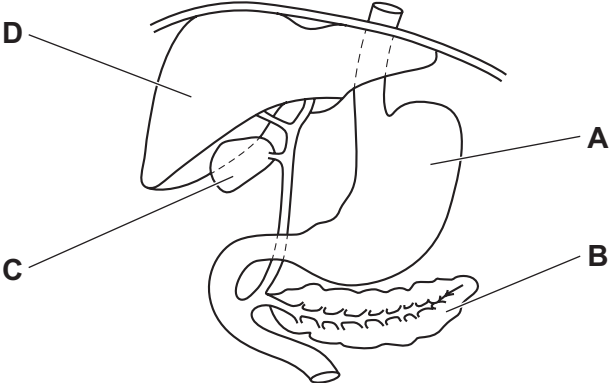
- A** digestion
- B** photosynthesis
- C** reproduction
- D** respiration

- 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

- 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



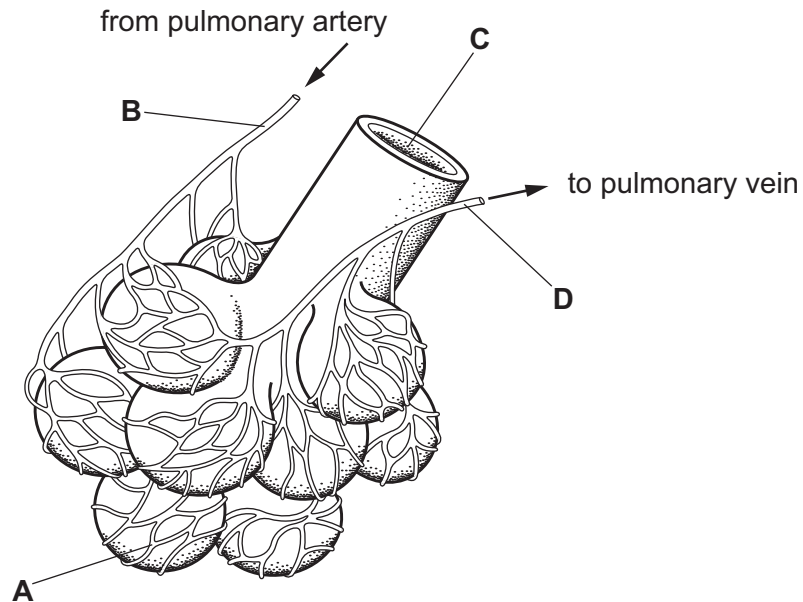
the human becomes infected with Lyme disease

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.

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

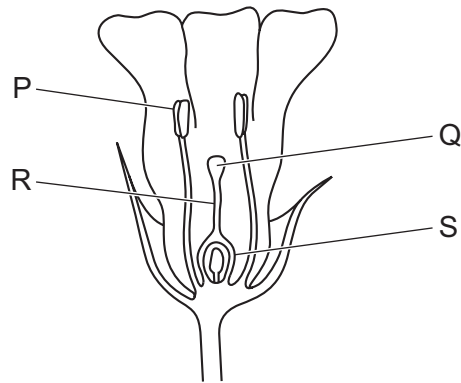
+ = grows towards the stimulus

– = 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

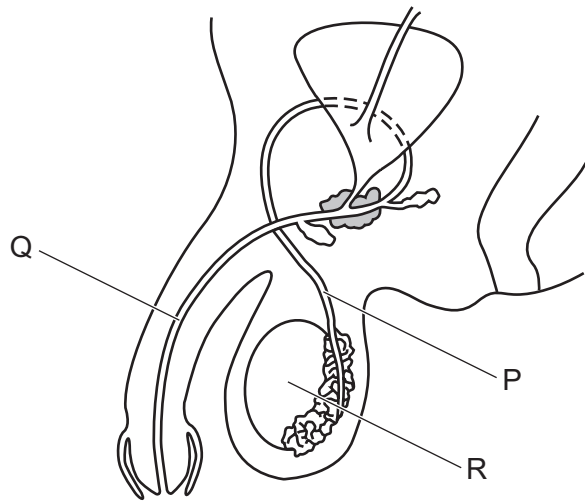
29 The diagram shows half a flower.



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

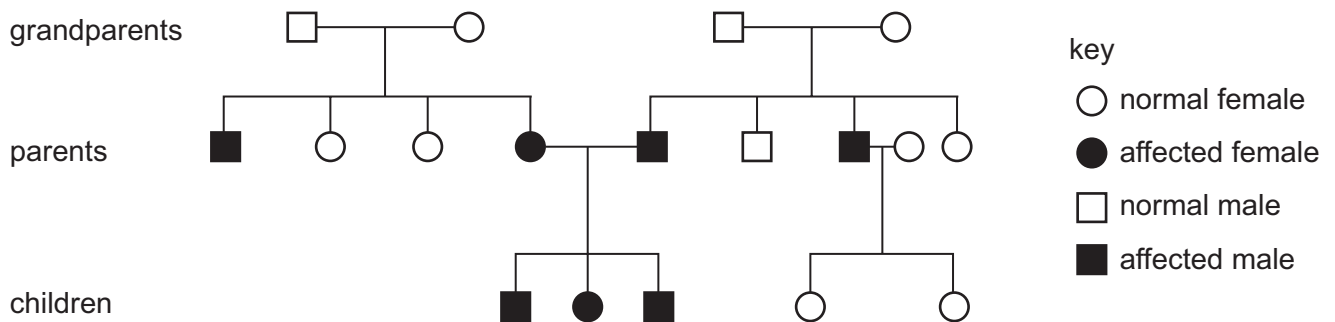
31 Which method of birth control would also help to protect against HIV?

- 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.



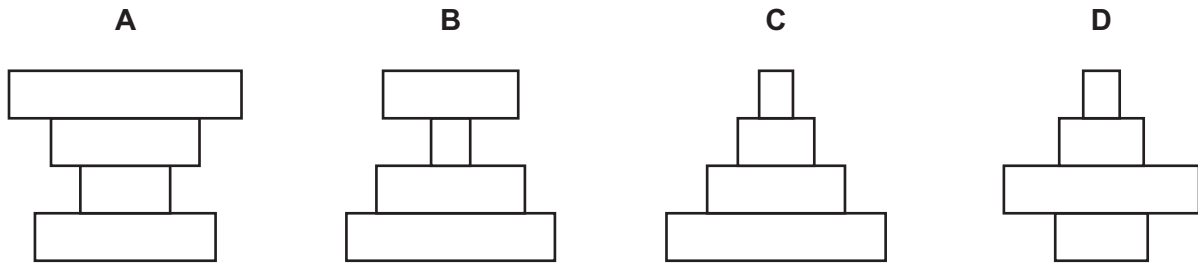
Which statement about the grandparents is correct?

- 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.

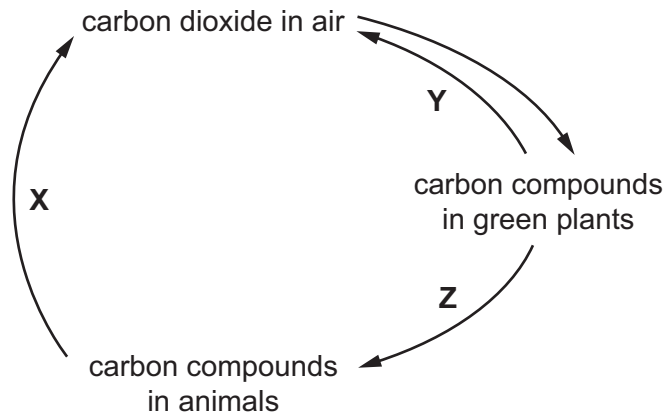
34 What is a definition of variation?

- 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

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



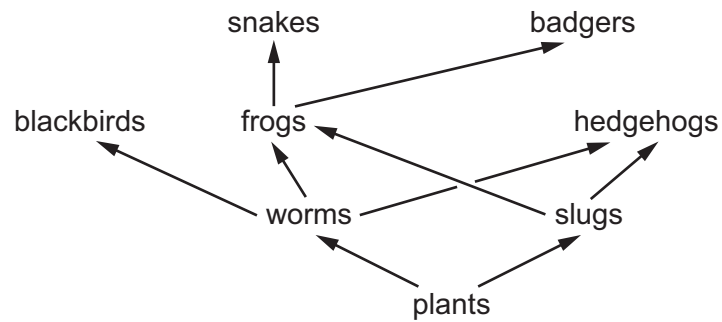
36 The diagram represents part of the carbon cycle.



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

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

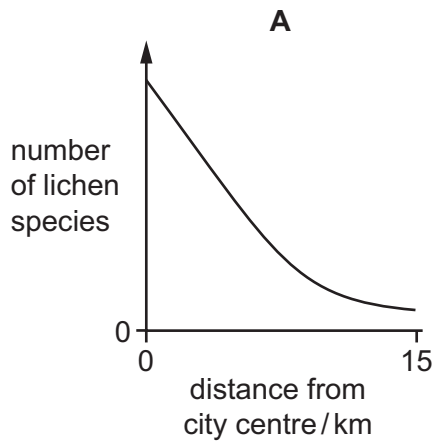
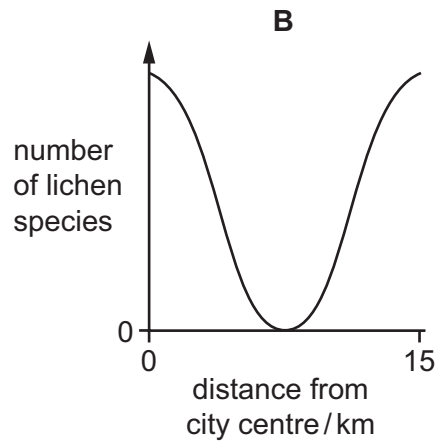
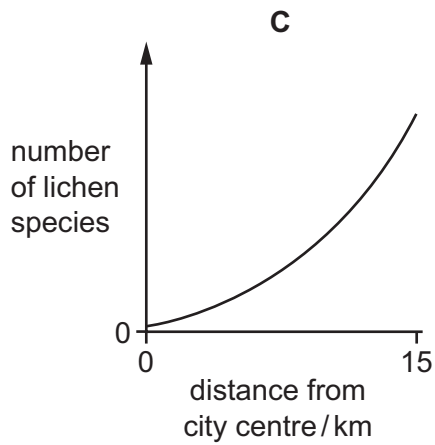
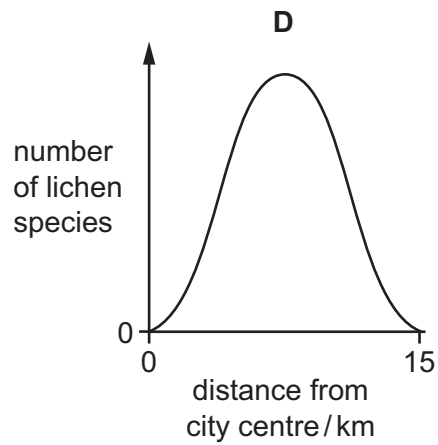
38 Genes can be inserted into crop plants to make them resistant to herbicides.

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.

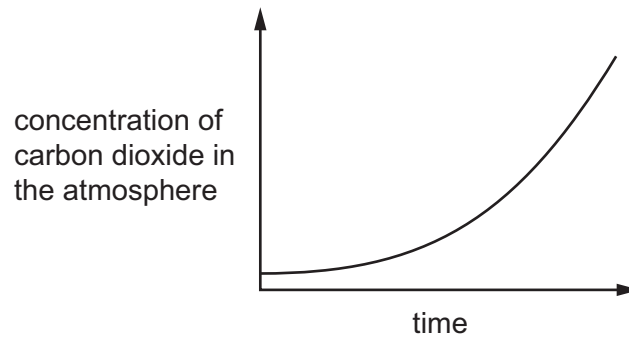
Which graph shows the change in the number of lichen species from the centre of a polluted city to the unpolluted countryside 15 km away?



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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