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.

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.

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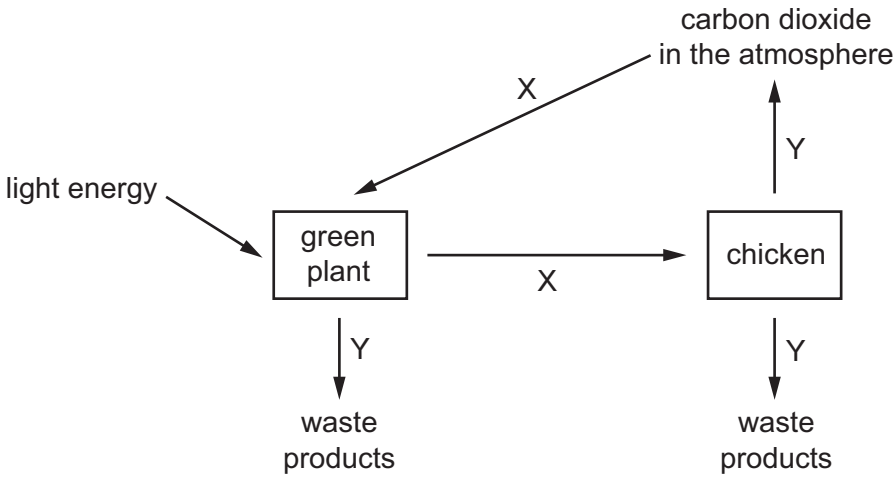
**1** The diagram shows some of the processes carried out by living organisms.

View solution




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?

View solution

**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?

View solution

**A** cell membrane

**B** chloroplast

**C** cytoplasm

**D** nucleus

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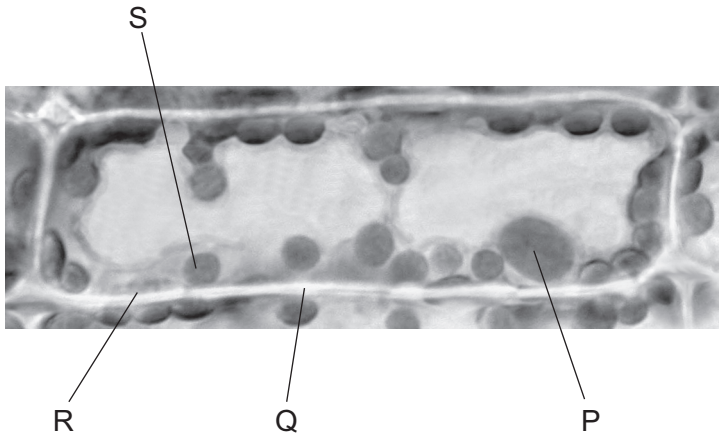
**4** The photomicrograph shows a cell from a type of aquatic plant.

View solution



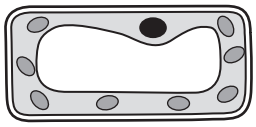

Which parts labelled on the photomicrograph indicate that this is a plant cell?

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

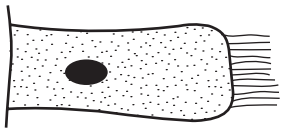
**5** Which cell is adapted for absorption?

View solution

**A**



**B**



**C**

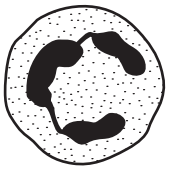


**D**



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

View solution



What is the actual diameter of the cell?

**A** 21 mm

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

**C** 21 mm × 3000

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

View solution

**7** What are features of osmosis?

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

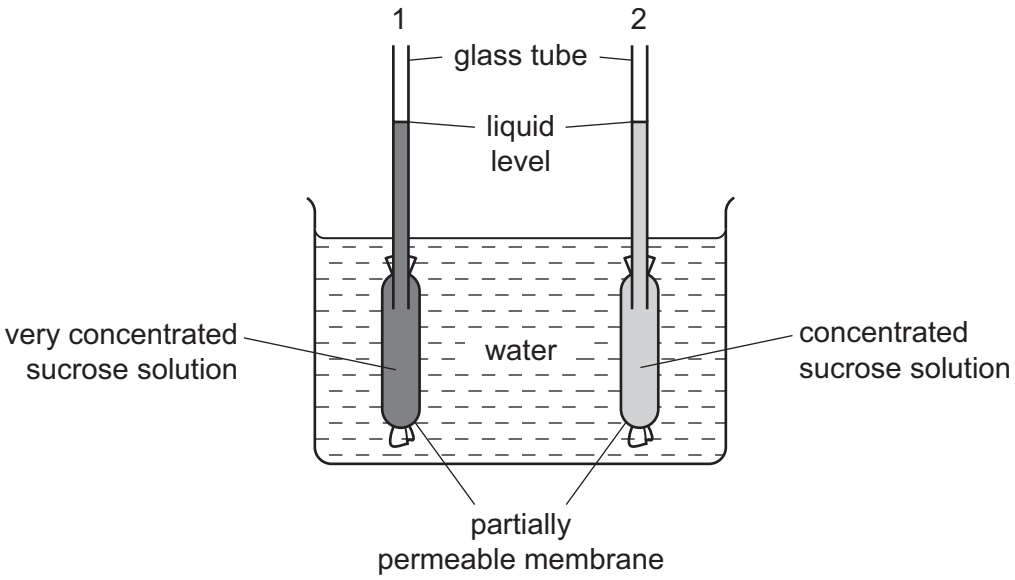
key

✓ = yes

✗ = no

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

View solution




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 |

View solution

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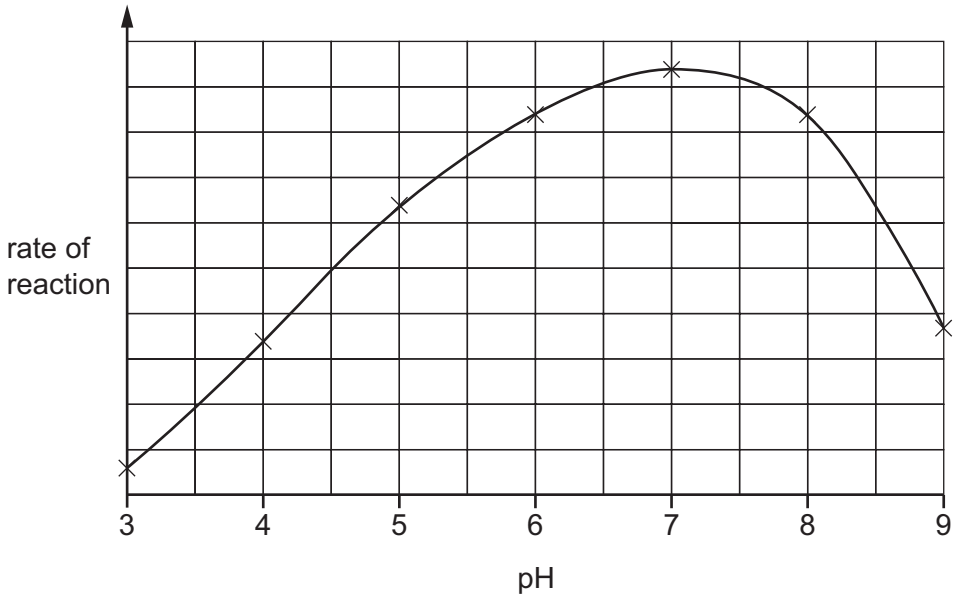
**10** The graph shows the effect of pH on the rate of reaction of an enzyme.

View solution




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?

View solution

**A** fat

**B** glucose

**C** protein

**D** starch

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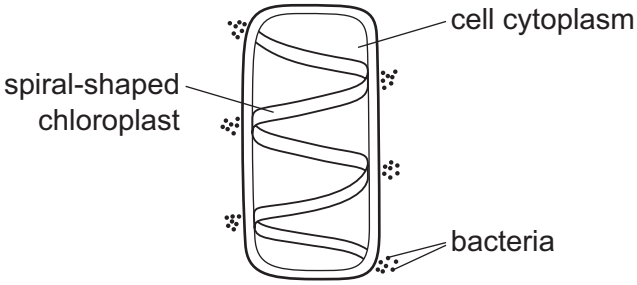
**12** The diagram shows a cell with groups of bacteria around its edge.

View solution




The bacteria move to areas of high oxygen concentration.

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

**A** digestion

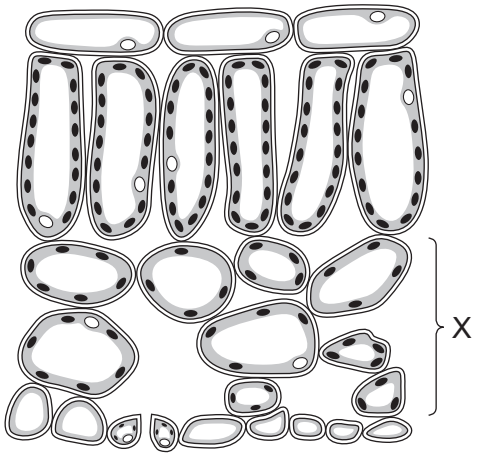
**B** photosynthesis

**C** reproduction

**D** respiration

**13** The diagram shows part of a leaf.

View solution




What is layer X?

**A** lower epidermis

**B** palisade mesophyll

**C** spongy mesophyll

**D** vascular bundle

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

View solution

**A** absorption

**B** assimilation

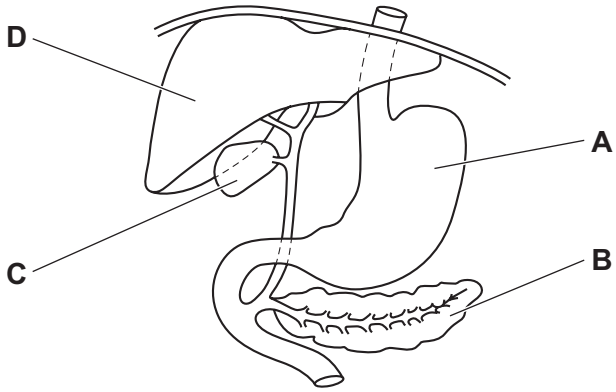
**C** digestion

**D** ingestion

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

View solution

Which labelled part stores bile?




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

View solution

**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?

View solution

**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?

View solution

**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?

View solution

**A** brain

**B** capillaries

**C** lungs

**D** valves

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

View solution

**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:

View solution

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

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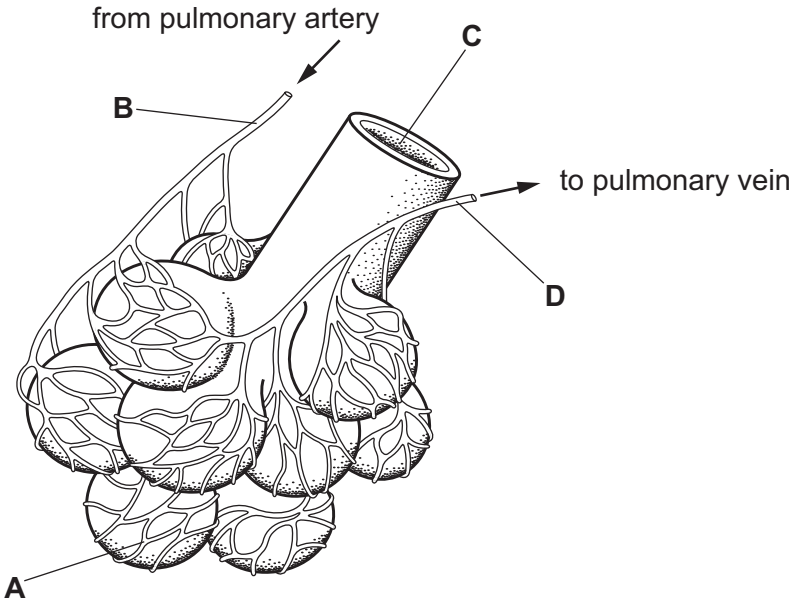
**22** The diagram shows some of the structures in a human lung.

View solution

Where is the carbon dioxide concentration highest?




**23** What is produced by anaerobic respiration in yeast?

View solution

**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.

View solution

What is organ X?

**A** heart

**B** kidney

**C** liver

**D** pancreas

**25** Sensory neurones conduct impulses from

View solution

**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?

View solution

**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?

View solution

| | gravitropism | phototropism |
|---|---|---|
| **A** | – | – |
| **B** | – | + |
| **C** | + | – |
| **D** | + | + |

key

+ = grows towards the stimulus

– = grows away from the stimulus

**28** Which is a definition of all drugs?

View solution

**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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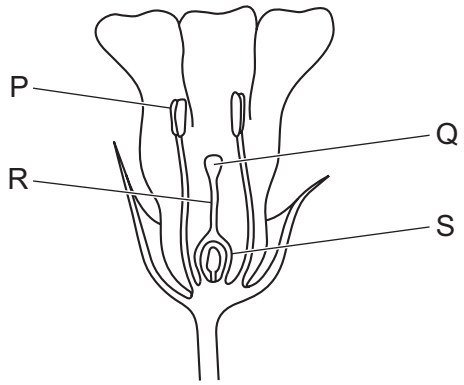
**29** The diagram shows half a flower.

View solution

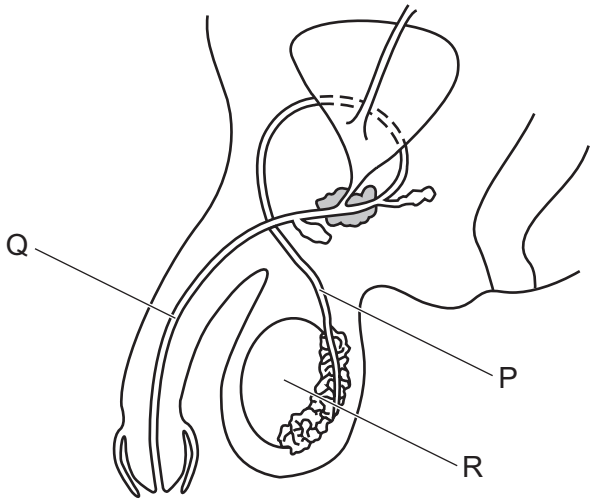



Which row identifies the parts of the flower?

| | 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.

View solution




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?

View solution

**A** condom

**B** contraceptive pill

**C** diaphragm

**D** IUD

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

View solution

**A** fertilisation

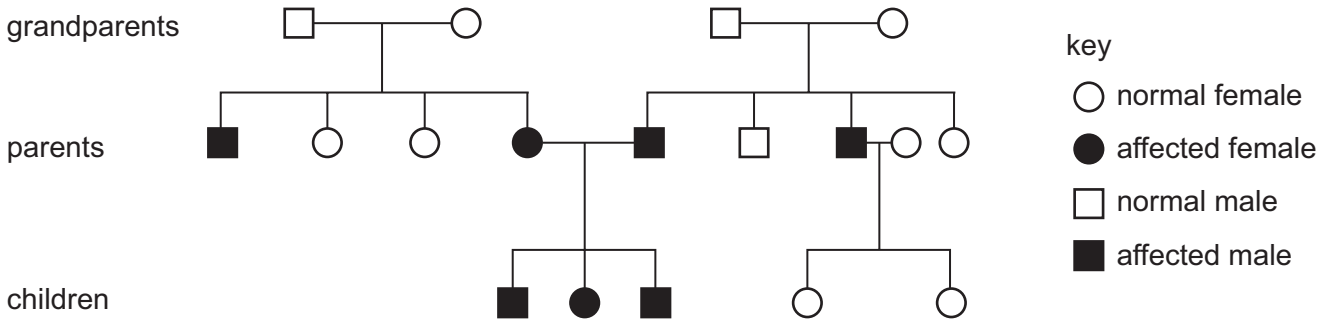
**B** inheritance

**C** meiosis

**D** mitosis

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

View solution




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?

View solution

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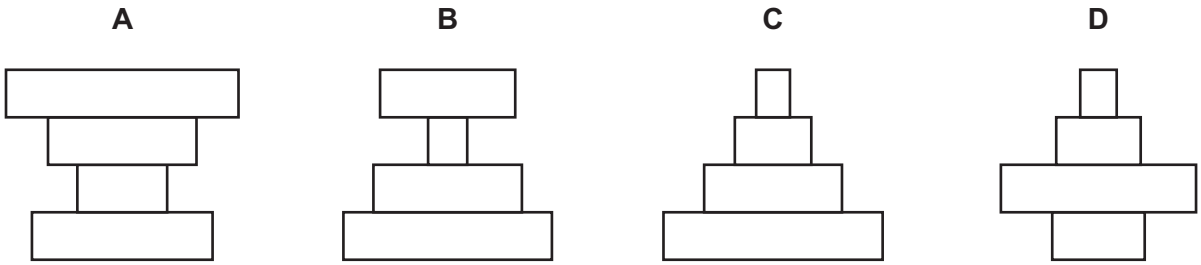
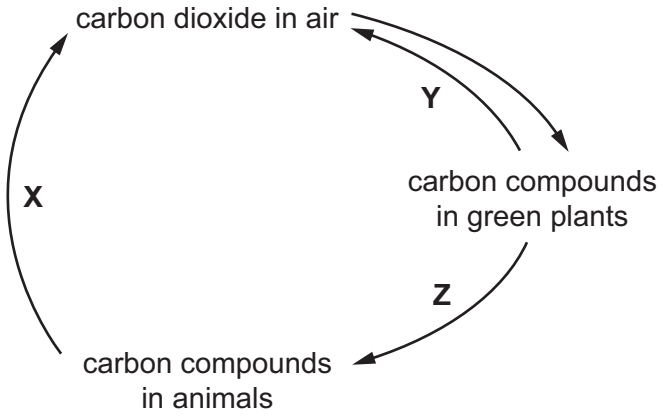
**35** Which pyramid of numbers has more tertiary consumers than producers?

View solution




**36** The diagram represents part of the carbon cycle.

View solution




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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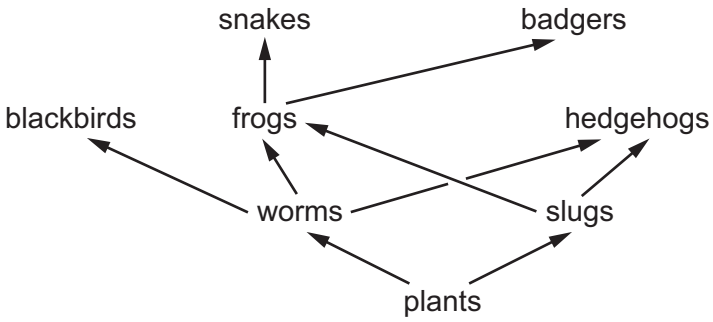
**37** The diagram shows part of a food web.

View solution




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.

View solution

Which process is this an example of?

**A** antibiotic resistance

**B** genetic engineering

**C** natural selection

**D** selective breeding

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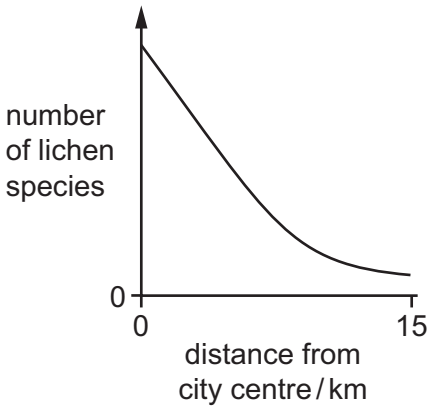
**39** Lichens are organisms that do **not** grow well in polluted air.

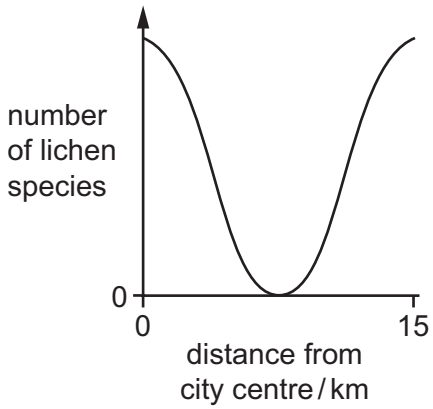
Which graph shows the change in the number of lichen species from the centre of a polluted city to the unpolluted countryside 15 km away?

View solution

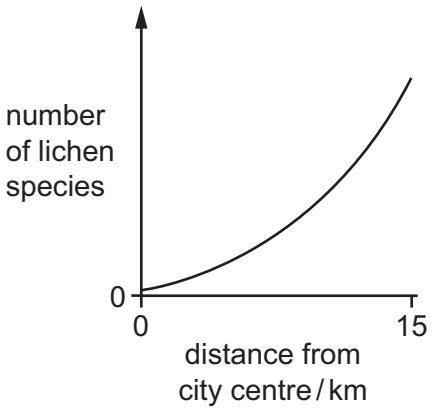
**A**



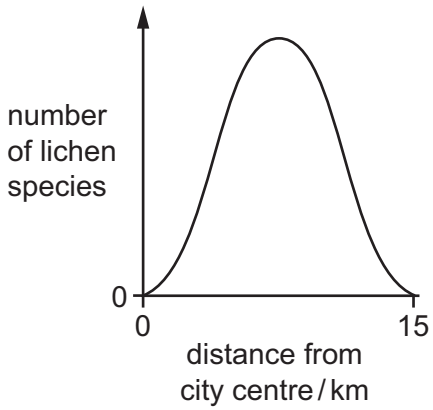

**B**




**C**




**D**



**40** Three human activities are listed.

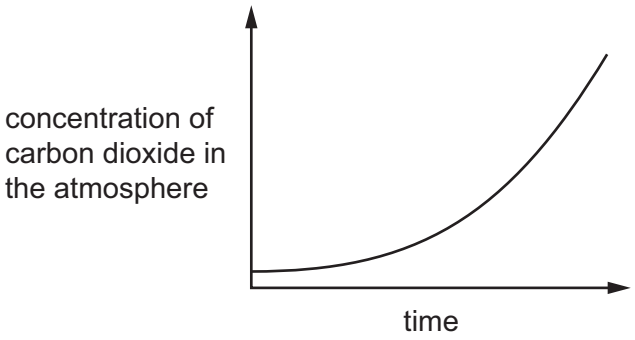
View solution

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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