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Cambridge Assessment International Education

# Cambridge IGCSE™

**BIOLOGY** **0610/12**

Paper 1 Multiple Choice (Core) **May/June 2025**

**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.



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**1** When a herbivore sees a carnivore, which characteristic of living things is involved?

**A** excretion

**B** growth

**C** reproduction

**D** sensitivity

**2** Which organism has been named using the binomial system?

**A** *Brown seaweed*

**B** *Polar bear*

**C** *Red fox*

**D** *Vulpes vulpes*

**3** Which list contains **only** arthropods?

**A** amphibians, insects, myriapods

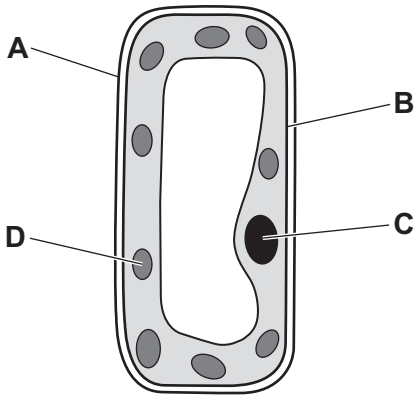
**B** arachnids, crustaceans, myriapods

**C** crustaceans, insects, fish

**D** insects, myriapods, reptiles

**4** The diagram shows a plant cell.

Which letter identifies where photosynthesis occurs in the cell?

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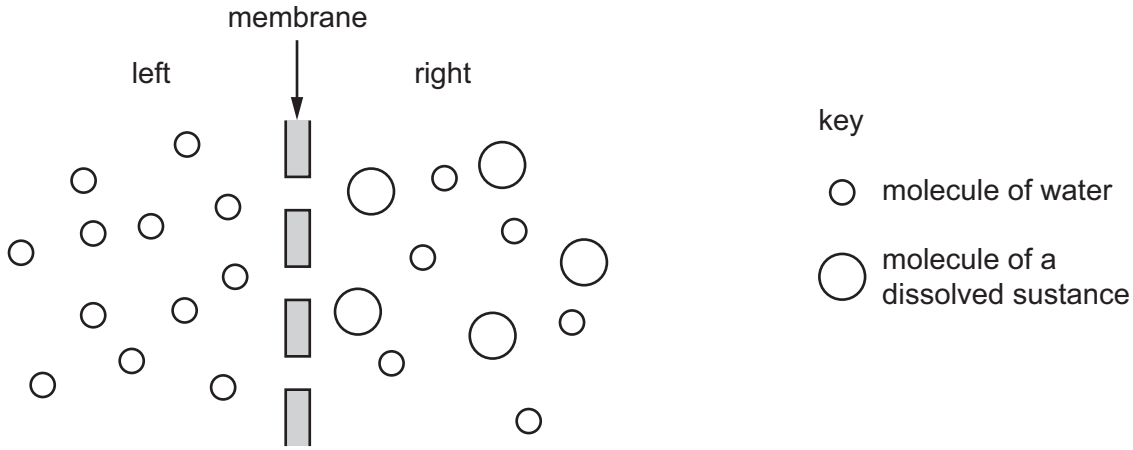
**5** The table shows the magnifications and image lengths of three specimens when seen with a light microscope.

| specimen | magnification | image length / mm |
|---|---|---|
| X | ×50 | 0.20 |
| Y | ×150 | 0.50 |
| Z | ×250 | 0.40 |

What is the order of increasing actual lengths of the specimens, from smallest to largest?

**A** X → Y → Z **B** X → Z → Y **C** Y → X → Z **D** Z → Y → X

**6** The diagram represents two liquids separated by a partially permeable membrane.




Which statement describes how the molecules will move by osmosis?

**A** Molecules of the dissolved substance move from left to right.

**B** Molecules of the dissolved substance move from right to left.

**C** Overall, water molecules move from left to right.

**D** Overall, water molecules move from right to left.

**7** Small molecules are used to synthesise large food molecules.

Which statement is correct?

**A** Amino acids are the basic units of carbohydrates.

**B** Fatty acids are the basic units of glycogen.

**C** Glycerol is a basic unit of oils.

**D** Simple sugar is the basic unit of protein.

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**8** A student used biuret reagent to test milk for the presence of protein.

The milk tested positive for protein.

Which colour did the sample change to?

**A** blue

**B** blue-black

**C** brick red

**D** purple

**9** Which substances are used for photosynthesis?

**A** carbon dioxide and glucose

**B** carbon dioxide and water

**C** glucose and oxygen

**D** glucose and water

**10** What happens when a plant lacks magnesium ions?

| | chlorophyll production | colour of leaves produced |
|---|---|---|
| **A** | decreases | green |
| **B** | decreases | yellow |
| **C** | increases | green |
| **D** | increases | yellow |

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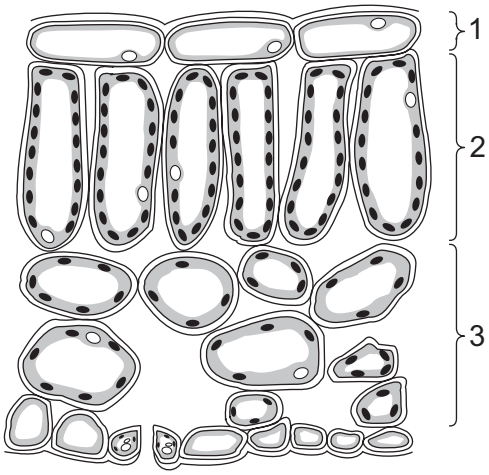
**11** The diagram shows part of a cross-section of a leaf.




What are tissues 1, 2 and 3?

| | 1 | 2 | 3 |
|---|---|---|---|
| **A** | epidermis | palisade mesophyll | spongy mesophyll |
| **B** | epidermis | spongy mesophyll | palisade mesophyll |
| **C** | palisade mesophyll | epidermis | spongy mesophyll |
| **D** | spongy mesophyll | palisade mesophyll | epidermis |

**12** A diet contains a lot of plant material, but **no** meat.

Which dietary component is **unlikely** to be deficient in this diet?

**A** fat

**B** fibre

**C** protein

**D** vitamin D

**13** Which two parts of the mouth are teeth embedded in?

**A** cement and pulp

**B** enamel and dentine

**C** gums and bone

**D** pulp and bone

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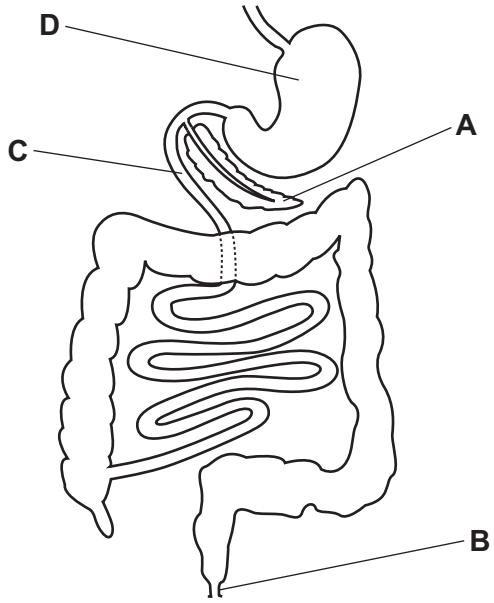
**14** The diagram shows part of the human digestive system.

Where does amylase act on food?




**15** What is absorbed in the colon and the small intestine?

| | colon | small intestine |
|---|---|---|
| **A** | digested food only | digested food and water |
| **B** | digested food only | water only |
| **C** | water | digested food only |
| **D** | water | digested food and water |

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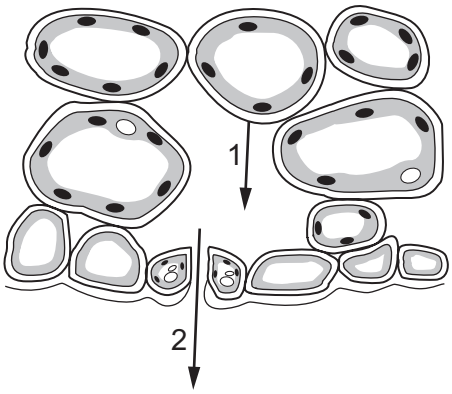
**16** The diagram shows the movement of water molecules from a plant leaf to its environment.

Two processes have been numbered.

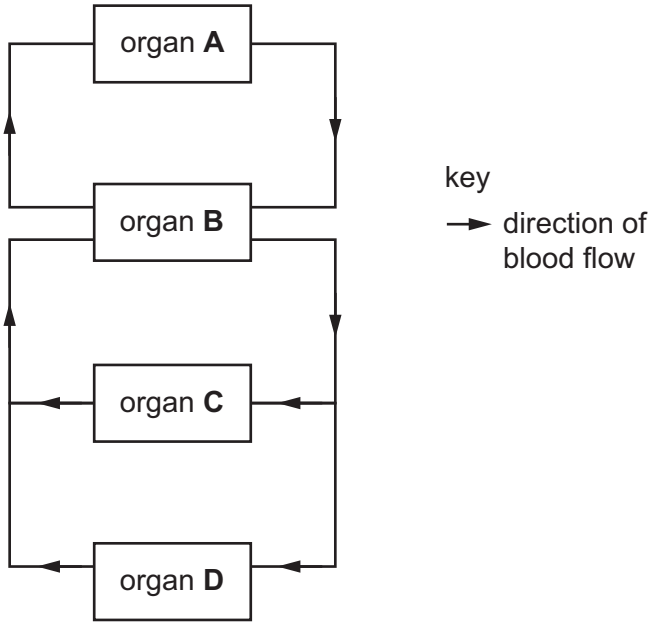



Which row identifies the numbered processes?

| | process 1 | process 2 |
|---|---|---|
| **A** | diffusion | evaporation |
| **B** | evaporation | diffusion |
| **C** | evaporation | osmosis |
| **D** | osmosis | evaporation |

**17** The diagram shows a simplified circulatory system in humans.

Which organ represents the pump in this circulatory system?

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**18** Which blood vessel transports blood from the lungs to the heart?

**A** aorta

**B** pulmonary artery

**C** pulmonary vein

**D** vena cava

**19** How can the spread of disease be prevented?

**A** leaving food uncovered

**B** only washing hands after meals

**C** using the same equipment to prepare raw and cooked food

**D** washing hands before and after handling raw food

**20** Which substance can be used to test for carbon dioxide?

**A** DCPIP

**B** ethanol

**C** iodine solution

**D** limewater

**21** Which statement is a correct comparison of aerobic respiration and anaerobic respiration in **yeast**?

**A** Only aerobic respiration produces carbon dioxide.

**B** Only anaerobic respiration produces alcohol.

**C** They both produce water.

**D** They both use the reactants glucose and oxygen.

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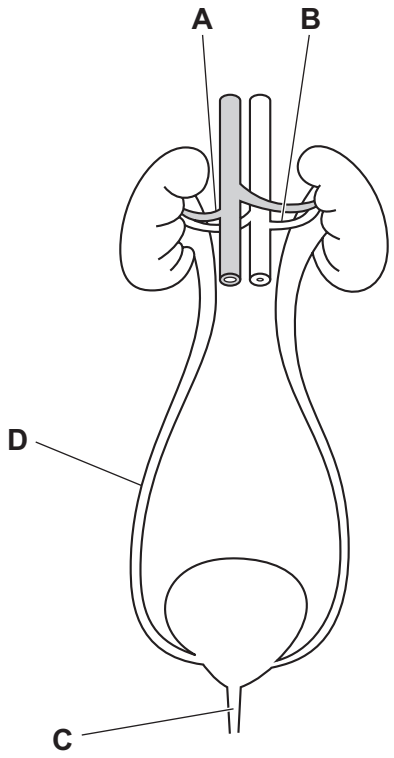
**22** The diagram shows some of the organs involved in excretion.

Which label is a ureter?




**23** A person touches a hot object which stimulates structure P in the skin. This causes an electrical impulse to be sent through structure Q to the central nervous system.

Which row identifies structures P and Q?

| | P | Q |
|---|---|---|
| **A** | effector | motor neurone |
| **B** | effector | sensory neurone |
| **C** | receptor | motor neurone |
| **D** | receptor | sensory neurone |

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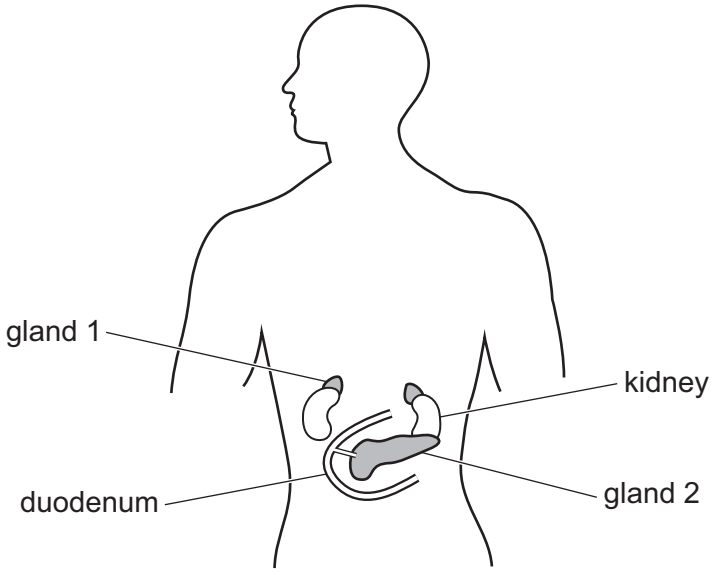
**24** The diagram shows the position of two glands in the body.




Which row states the hormones produced by these glands?

| | gland 1 | gland 2 |
|---|---|---|
| **A** | adrenaline | insulin |
| **B** | amylase | adrenaline |
| **C** | insulin | lipase |
| **D** | lipase | amylase |

**25** A seedling was placed in a horizontal position.

Which diagram shows the expected gravitropic responses in the seedling?

**A**




**B**




**C**




**D**



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**26** The diagram shows a sperm cell.

Which part contains digestive enzymes?




**27** Which secondary sexual characteristic is associated with testosterone?

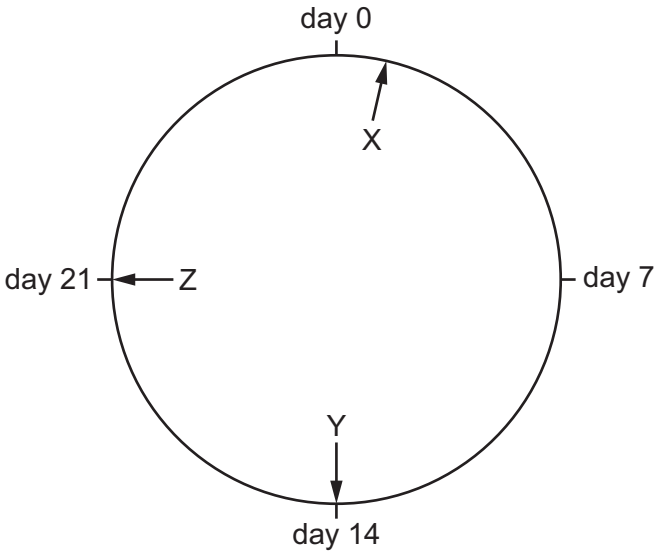
**A** breast development

**B** facial hair growth

**C** start of the menstrual cycle

**D** widening of hips

**28** The diagram shows a human menstrual cycle.




What are represented by X, Y and Z?

| | the lining of the uterus is breaking down | an ovary releases an egg | a thick uterus lining is maintained |
|---|---|---|---|
| **A** | X | Y | Z |
| **B** | X | Z | Y |
| **C** | Z | Y | X |
| **D** | Z | X | Y |

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**29** What is an alternative form of a gene called?

**A** allele

**B** chromosome

**C** genotype

**D** protein

**30** Cystic fibrosis is an inherited condition that occurs when an individual is homozygous for the recessive allele.

If both parents are heterozygous for this characteristic, what is the probability that their first child will have cystic fibrosis?

**A** 0% **B** 25% **C** 50% **D** 100%

**31** Which characteristic is an example of continuous variation?

**A** ABO blood groups in humans

**B** body mass in cats

**C** seed colour in pea plants

**D** seed shape in pea plants

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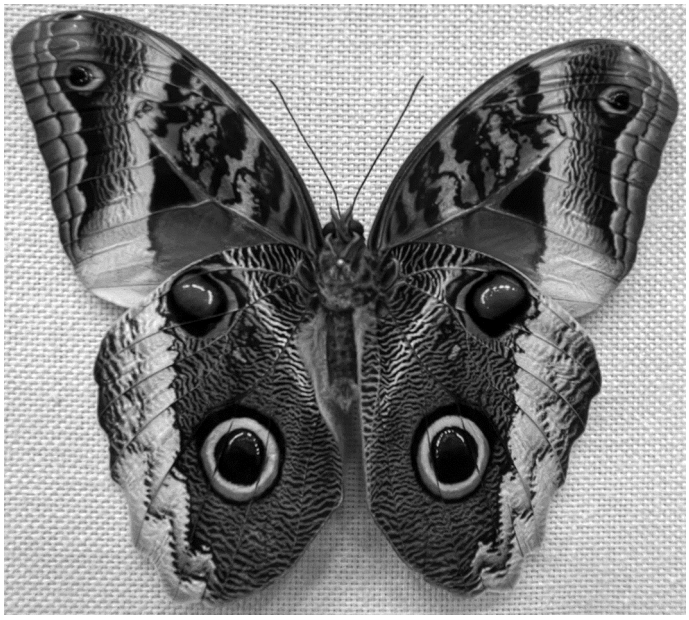
**32** The photograph shows the butterfly *Caligo martia*.



Which feature is an adaptation to prevent predation?

**A** large wings to fly slowly

**B** long antennae to detect flower nectar

**C** spots on the wings that look like large eyes

**D** the pattern on the wings that makes the butterfly easier to see

**33** What is the principal source of energy input to biological systems?

**A** kinetic

**B** photosynthesis

**C** respiration

**D** the Sun

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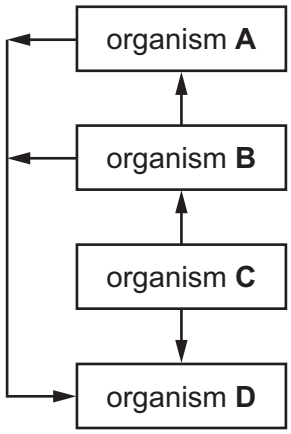
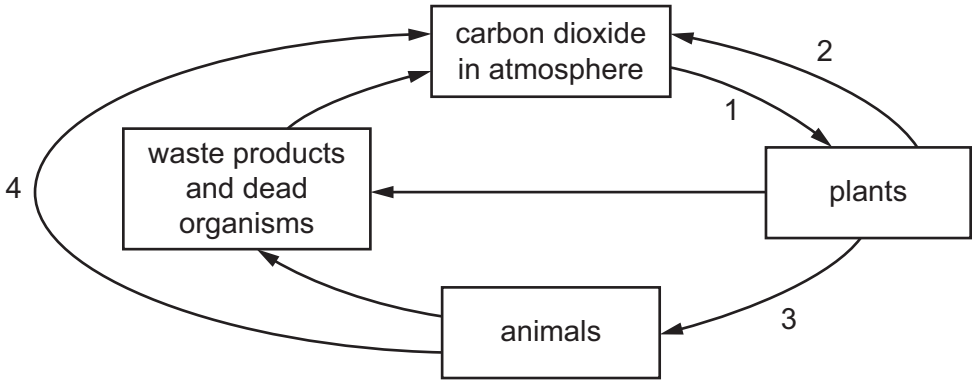
**34** The diagram shows the flow of energy in a food chain.

Which organism is the producer in the food chain?




**35** The diagram shows part of the carbon cycle.

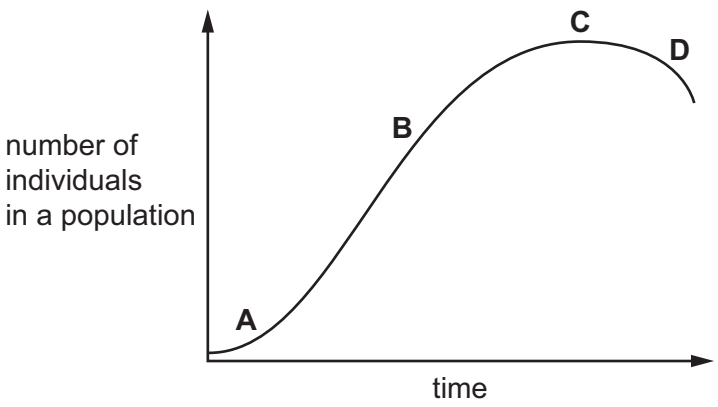



Which two numbered arrows represent respiration?

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

**36** The diagram shows a population curve.

Which letter identifies the lag phase in this sigmoid curve?

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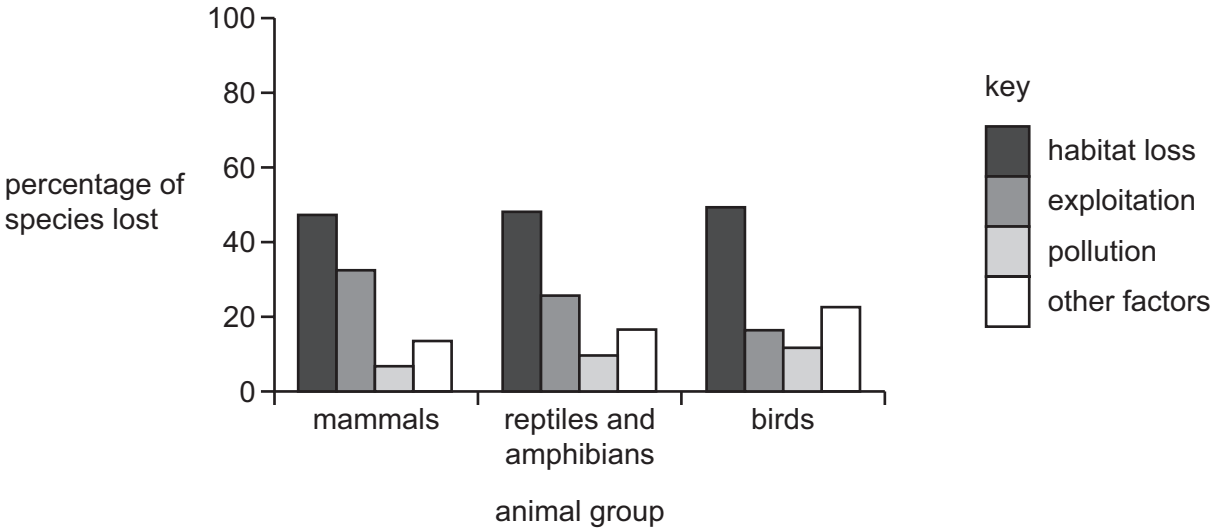
**37** The graph shows the percentage of species lost, in three different animal groups, due to different human activities during the last ten years.




Which activity has caused the highest percentage of species loss overall?

**A** habitat loss

**B** exploitation

**C** pollution

**D** other factors

**38** Why are bacteria useful in biotechnology and genetic modification?

1 They can make complex molecules.

2 They have a rapid reproduction rate.

3 They have cell walls.

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

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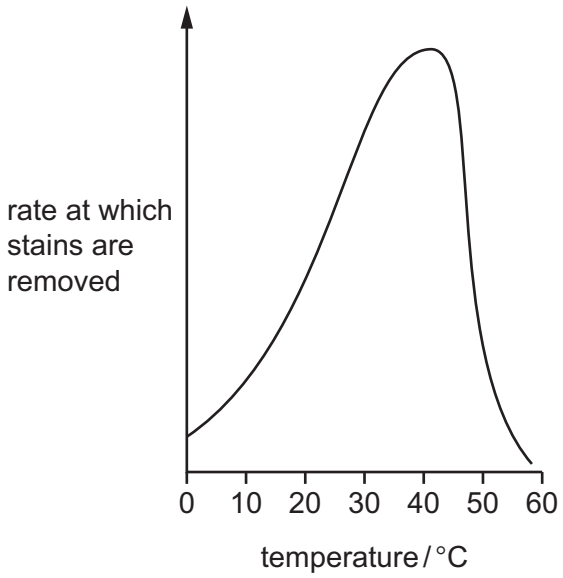
**39** The graph shows how changing the temperature affects the rate of stain removal from clothes, using a biological washing powder.




What does the graph suggest about biological washing powders?

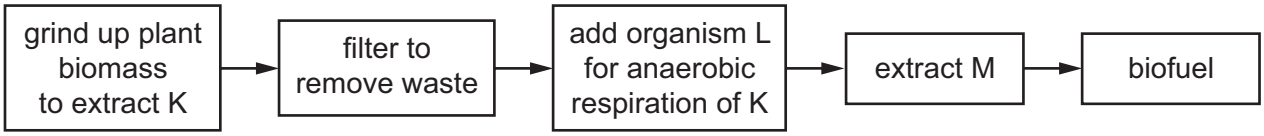
**A** Biological washing powders contain enzymes.

**B** Biological washing powders work best at all temperatures above 40 °C.

**C** The optimum temperature for the reaction is between 10 °C and 30 °C.

**D** There is a directly proportional relationship between the temperature used and the rate at which stains are removed.

**40** The flow chart shows some of the processes involved in making biofuel.




What are represented by K, L and M in the diagram?

| | K | L | M |
|---|---|---|---|
| **A** | ethanol | bacteria | glucose |
| **B** | glucose | yeast | ethanol |
| **C** | glucose | bacteria | water |
| **D** | lactic acid | yeast | glucose |

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