Cambridge Assessment International Education

# Cambridge IGCSE™

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

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.


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**1** What is a characteristic of all living organisms?

**A** breathing

**B** circulation

**C** egestion

**D** sensitivity

**2** Which term is used to describe a group of living things that can reproduce to produce fertile offspring?

**A** binomial

**B** genus

**C** organism

**D** species

**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** Which part of a cell makes glucose?

**A** cell membrane

**B** chloroplast

**C** nucleus

**D** vacuole

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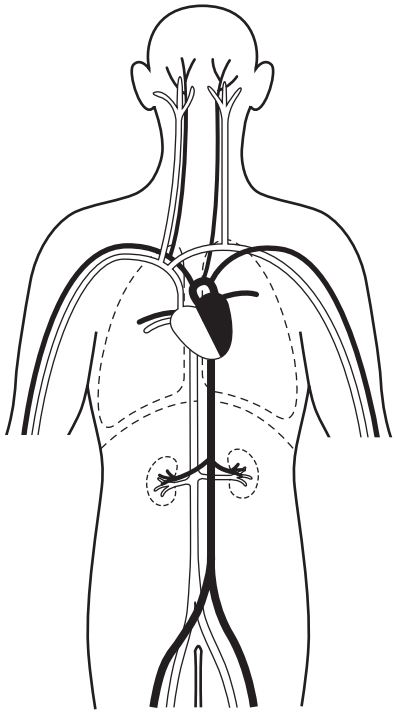
**5** The diagram shows some of the blood vessels and other structures in the human body.



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** A cylinder of potato tissue was placed in a concentrated salt solution. After soaking for one hour the potato tissue was observed.

How will the potato tissue have changed after soaking for one hour?

**A** longer and firmer

**B** no change

**C** shorter and softer

**D** shorter and firmer

**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.

**11** Which statement about an enzyme-controlled reaction is correct?

**A** During the reaction, the substrate changes into products.

**B** The enzyme is gradually used up during the reaction.

**C** The enzyme is slowly broken down during the reaction.

**D** The higher the temperature, the slower the reaction.

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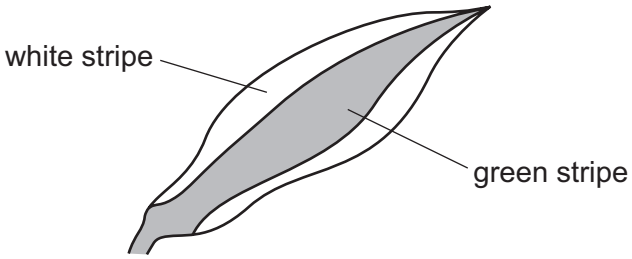
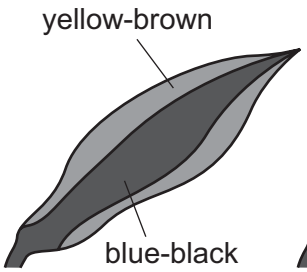
**12** A plant with striped leaves was kept in bright light for six hours.



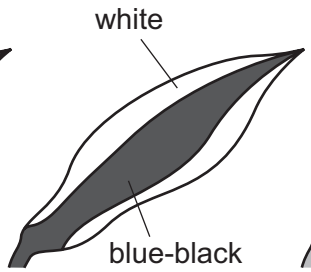

A leaf was taken from the plant and the chlorophyll was removed. The leaf was then tested for starch using iodine solution.

Which diagram shows the result of the test?

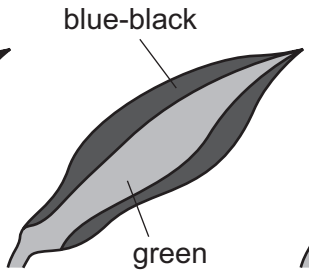
**A**



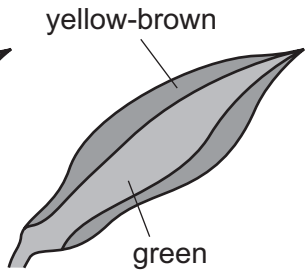

**B**



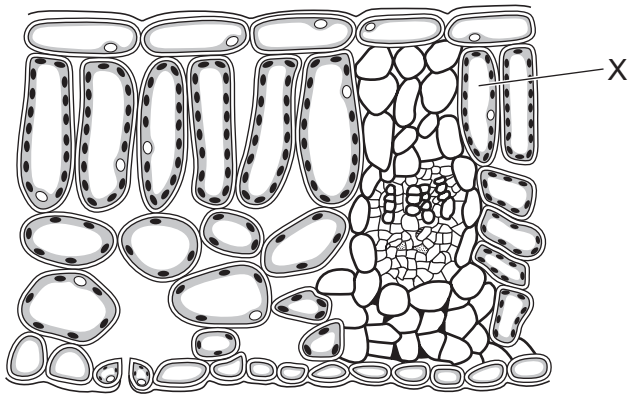

**C**




**D**




**13** The diagram shows a cross-section of a leaf.




What is the name of cell X?

**A** epidermal

**B** guard

**C** palisade mesophyll

**D** spongy mesophyll

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

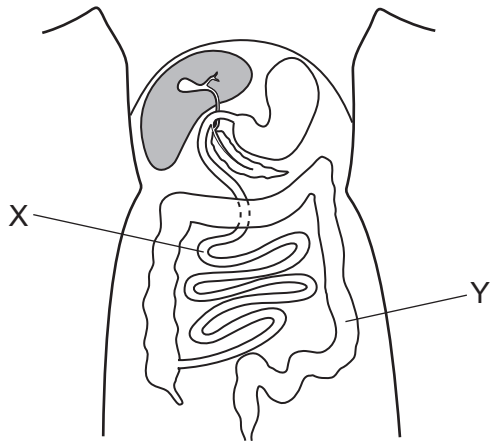
**A** colon

**B** kidney

**C** liver

**D** small intestine

**15** The diagram shows part of the human body.




Which statement about organs X and Y is correct?

**A** X absorbs more water from food than Y.

**B** X does not absorb water from food.

**C** Y absorbs more water from food than X.

**D** Y does not absorb water from food.

**16** What are the functions of human incisors and molars?

| | incisors | molars |
|---|---|---|
| **A** | cutting | cutting |
| **B** | cutting | grinding |
| **C** | grinding | cutting |
| **D** | grinding | grinding |

**17** Which sequence describes the pathway taken by water as it moves through a plant?

**A** root hair cell → xylem → root cortex cell → mesophyll

**B** mesophyll → xylem → root cortex cell → root hair cell

**C** root cortex cell → root hair cell → xylem → mesophyll

**D** root hair cell → root cortex cell → xylem → mesophyll

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**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 |

**19** How does blood enter the heart?

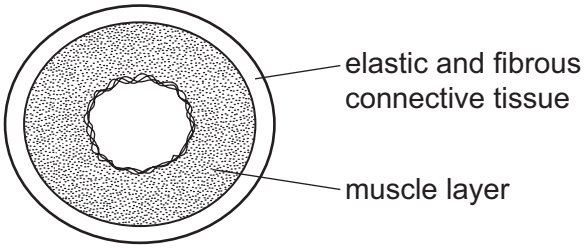
**A** through arteries into the atria

**B** through arteries into the ventricles

**C** through veins into the atria

**D** through veins into the ventricles

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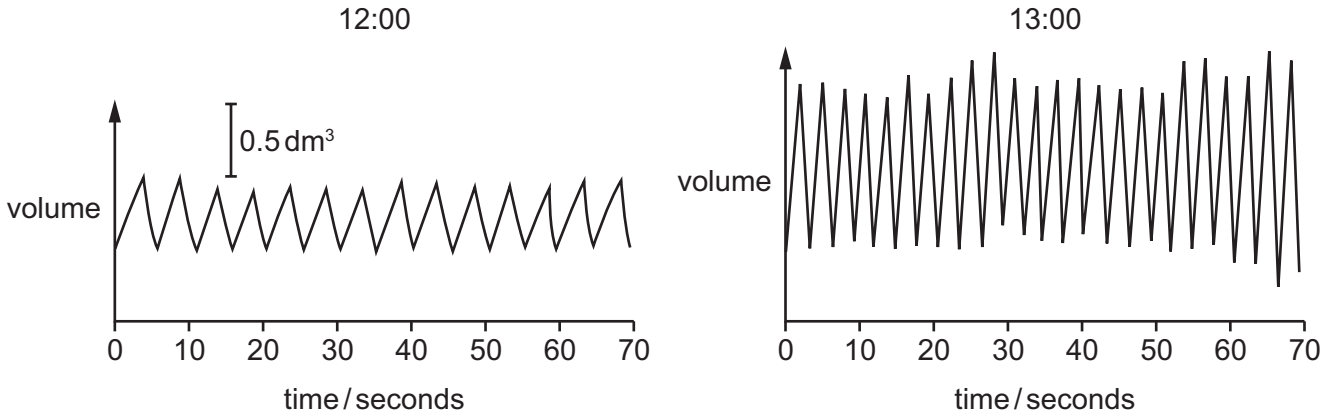
**22** The diagrams show the depth and rate of breathing in a person at 12:00 and 13:00.




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** What is the link between muscle contraction, protein synthesis and the maintenance of a constant body temperature?

**A** They are controlled by hormones.

**B** They are examples of homeostasis.

**C** They require energy.

**D** They require carbon dioxide.

**24** What are the products of anaerobic respiration in yeast?

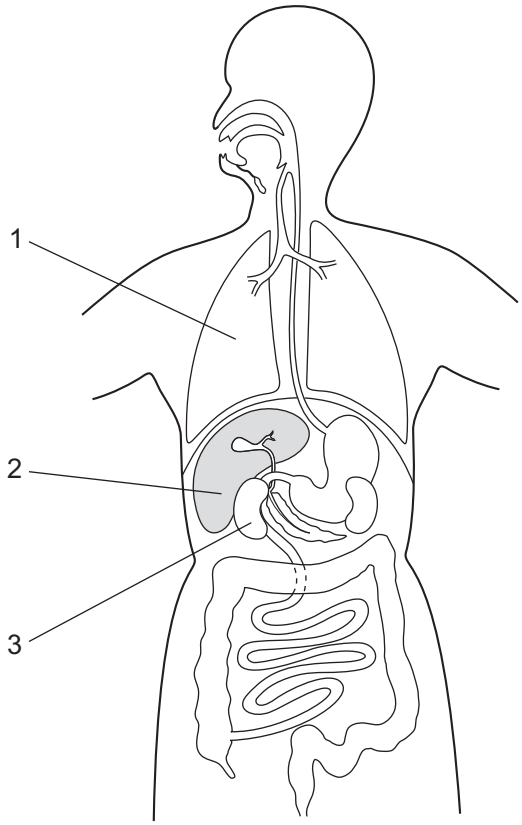
| | lactic acid | alcohol | carbon dioxide |
|---|---|---|---|
| **A** | ✓ | ✗ | ✓ |
| **B** | ✓ | ✗ | ✗ |
| **C** | ✗ | ✓ | ✓ |
| **D** | ✓ | ✓ | ✗ |

key

✓ = yes

✗ = no

**25** The diagram shows some of the organs in the human body.

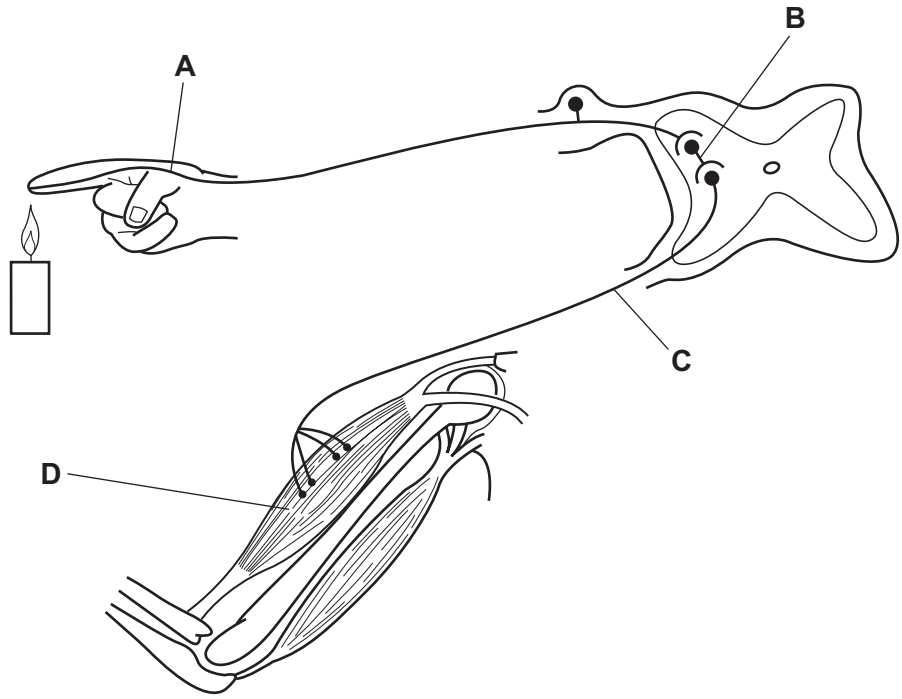



Which row matches the function to the correct organ?

| | excretes carbon dioxide | excretes urea | produces urea |
|---|---|---|---|
| **A** | 1 | 2 | 3 |
| **B** | 1 | 3 | 2 |
| **C** | 2 | 3 | 1 |
| **D** | 2 | 1 | 3 |

**26** The diagram shows a reflex arc.

Which labelled part is the effector?




**27** A person's iris is damaged.

What is the effect of this?

**A** Nerve impulses from the eye cannot reach the brain.

**B** The person cannot control how much light enters the eye.

**C** The person cannot focus light onto the retina.

**D** Receptors do not produce nerve impulses in response to light.

**28** Which hormone is secreted by the pancreas?

**A** adrenaline

**B** insulin

**C** oestrogen

**D** testosterone

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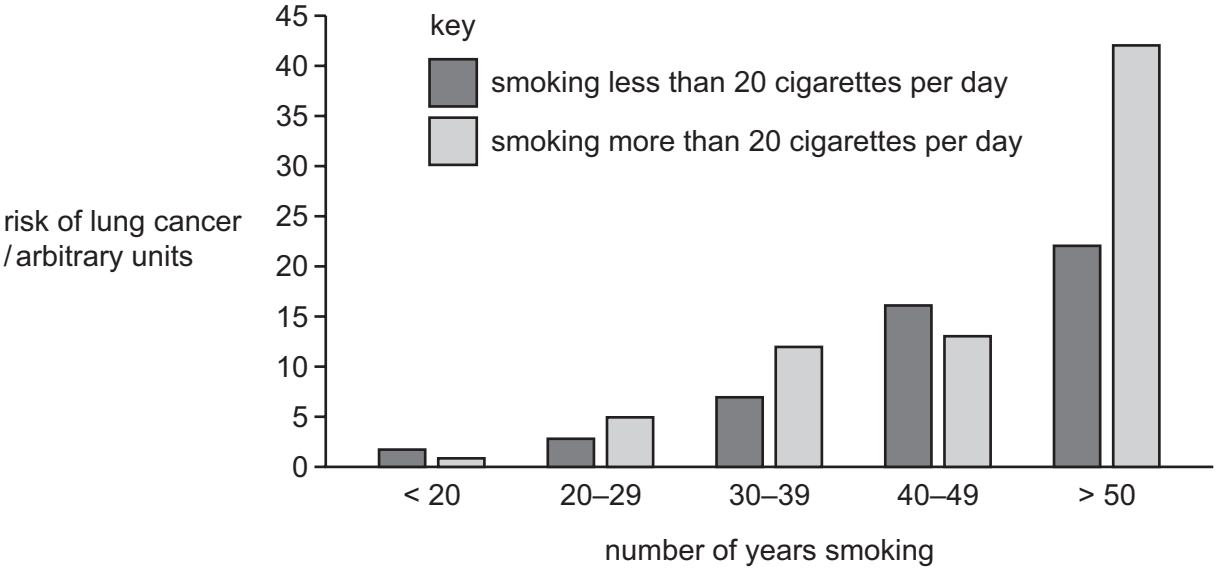
**29** The graph shows how smoking different numbers of cigarettes for different lengths of time affects the risk of lung cancer.




Which conclusions are supported by the data in the graph?

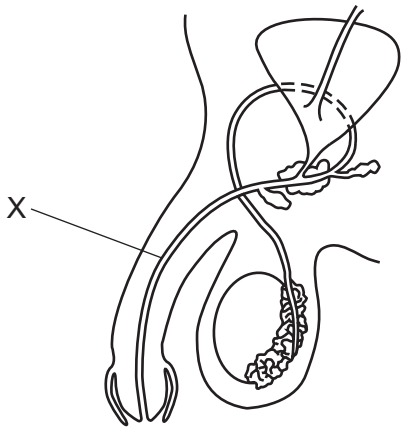
1 Smoking more than 20 cigarettes per day always increases the risk of lung cancer more than smoking less than 20 cigarettes per day.

2 Smoking cigarettes for more years increases the risk of lung cancer.

3 Smoking more than 20 cigarettes per day for more than 50 years has the highest risk of lung cancer.

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

**30** The diagram shows the male human reproductive system.




What is X?

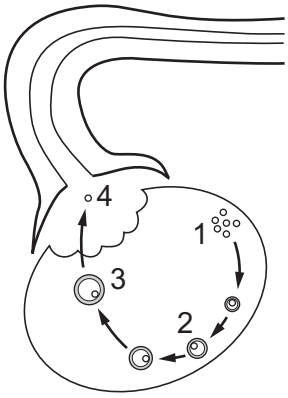
**A** bladder

**B** prostate gland

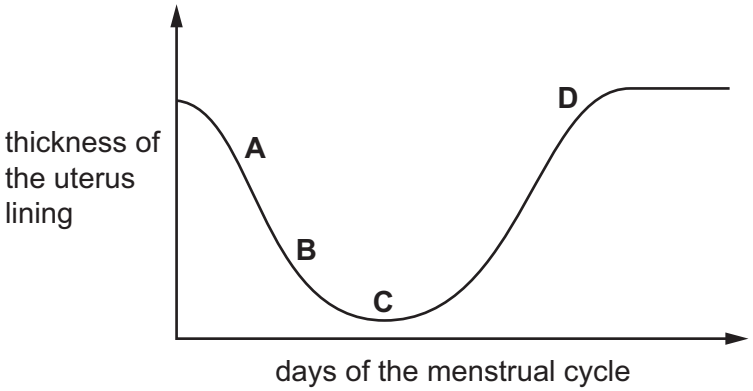
**C** sperm duct

**D** urethra

**31** The diagram shows changes in the ovary.




Which point represents the thickness of the uterus lining when the ovary is at stage 4?



**32** How can HIV be transmitted?

**A** contact with saliva

**B** drinking water containing untreated sewage

**C** recessive alleles

**D** unprotected sexual intercourse with an infected person

**33** The diagram shows a specialised cell.

What is the function of this specialised cell?

**A** asexual reproduction

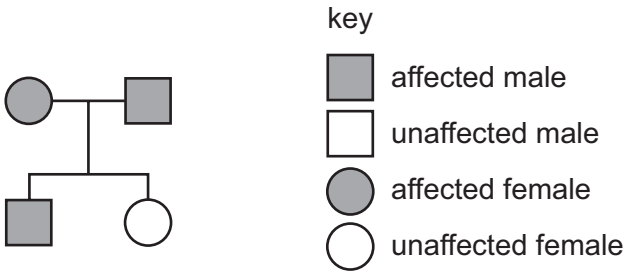
**B** conduction of impulses

**C** movement of mucus in the trachea

**D** sexual reproduction

**34** Both parents in a family have a characteristic caused by the dominant allele of a gene. They have two children.

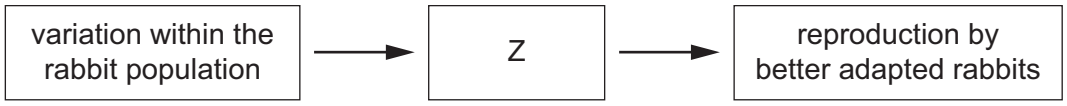
The pedigree diagram of the family is shown.




Which row describes the genotypes of the parents in relation to this gene?

| | female parent | male parent |
|---|---|---|
| **A** | heterozygous | heterozygous |
| **B** | heterozygous | homozygous |
| **C** | homozygous | heterozygous |
| **D** | homozygous | homozygous |

**35** The diagram shows some of the stages involved in natural selection in wild rabbits.




Which statement is missing from box Z?

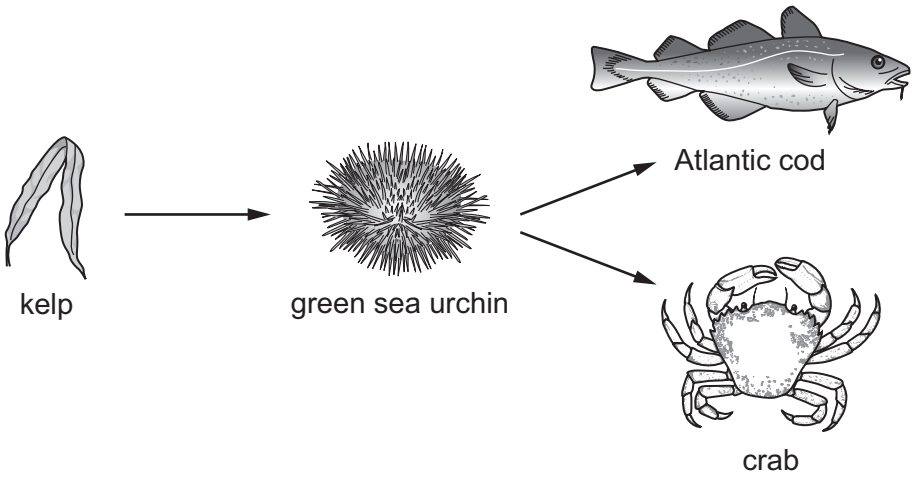
**A** competition between rabbits for limited resources

**B** passing on of alleles to the next generation of young rabbits

**C** production of limited numbers of young rabbits

**D** selection by humans of rabbits with desirable characteristics

**36** The diagram shows a food web.




What is the principal source of energy input into this food web?

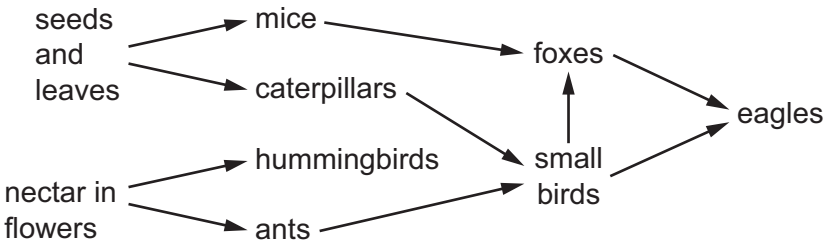
**A** green sea urchins

**B** kelp

**C** the sea

**D** the Sun

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




Which statement is correct?

**A** Eagles obtain all their energy by eating foxes.

**B** If the hummingbirds all die the caterpillars will have more food.

**C** The food chain nectar in flowers → ants → small birds → foxes is part of this food web.

**D** The mice and caterpillars are the only examples of herbivores in this food web.

**38** Which process in the water cycle only involves living organisms?

**A** condensation

**B** evaporation

**C** precipitation

**D** transpiration

**39** Bacteria are useful in ……X…… because of their rapid ……Y…… rate and their ability to make complex ……Z…… .

Which row completes the sentence?

| | X | Y | Z |
|---|---|---|---|
| **A** | bread making | competition | chemicals |
| **B** | biotechnology | reproduction | molecules |
| **C** | ethanol production | competition | enzymes |
| **D** | genetic engineering | production | pectinase |

**40** An area of forest was destroyed by a forest fire. Eventually the forest regrew.

What is likely to happen to the amount of soil erosion and flooding when the forest has regrown?

**A** Soil erosion increases and flooding increases.

**B** Soil erosion decreases and flooding decreases.

**C** Soil erosion increases and flooding decreases.

**D** Soil erosion decreases and flooding increases.

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