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

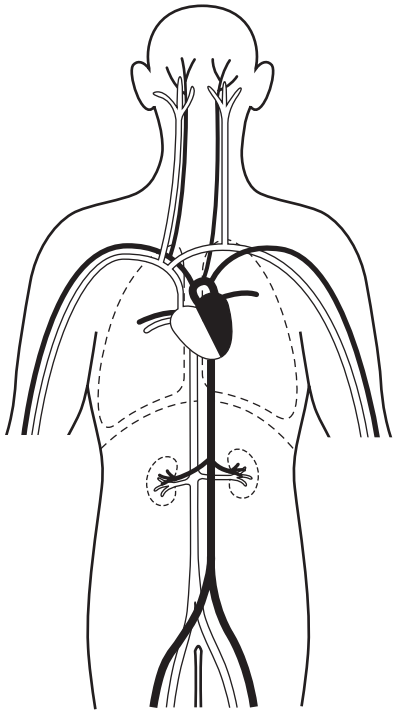
B chloroplast

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.

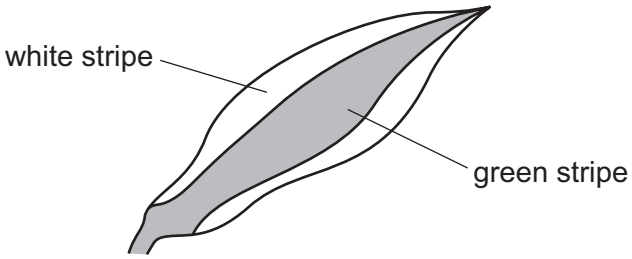
B The enzyme is gradually used up during the reaction.

C The enzyme is slowly broken down during the reaction.

D The higher the temperature, the slower the reaction.

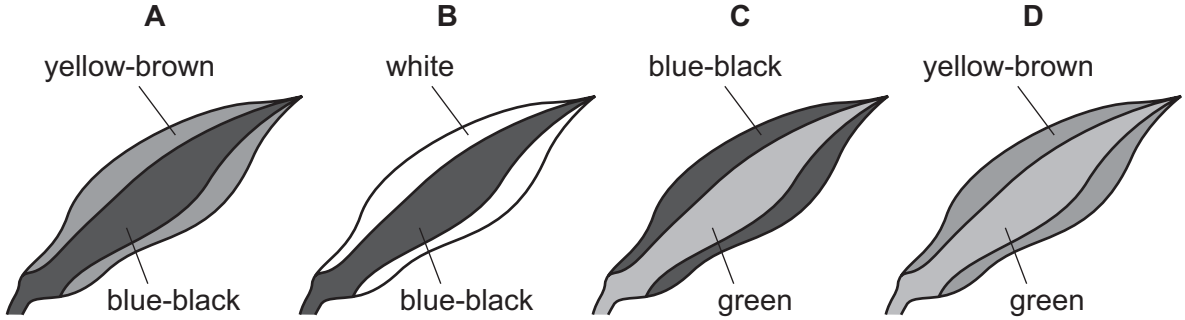
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12 A plant with striped leaves was kept in bright light for six hours.

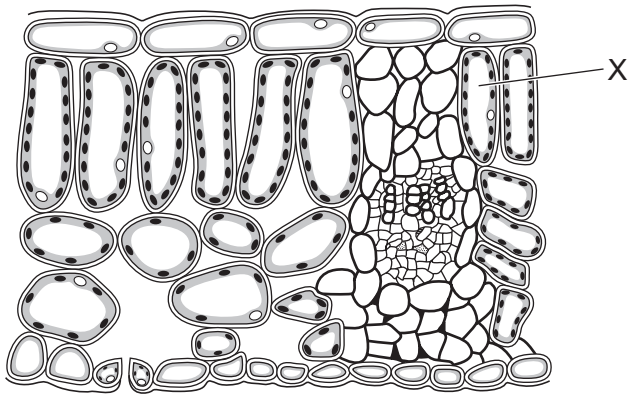


A leaf was taken from the plant and the chlorophyll was removed. The leaf was then tested for starch using iodine solution.

Which diagram shows the result of the test?



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?

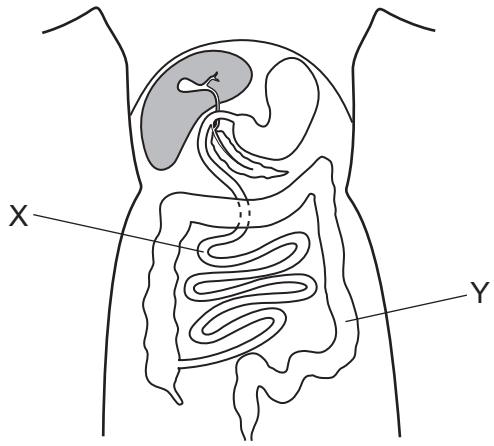
A colon

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?

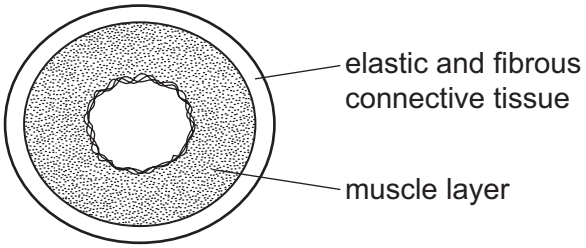
A through arteries into the atria

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

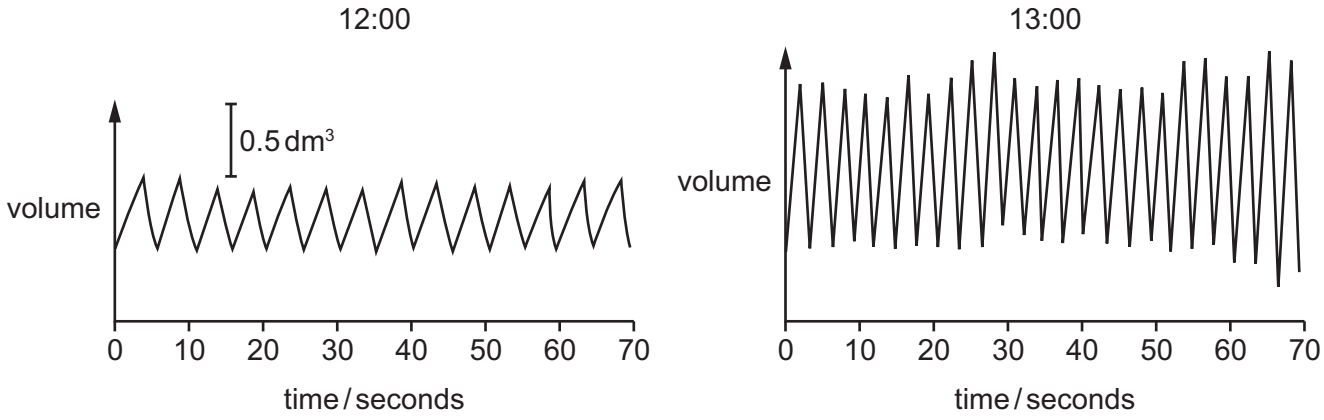
B to carry oxygen

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?

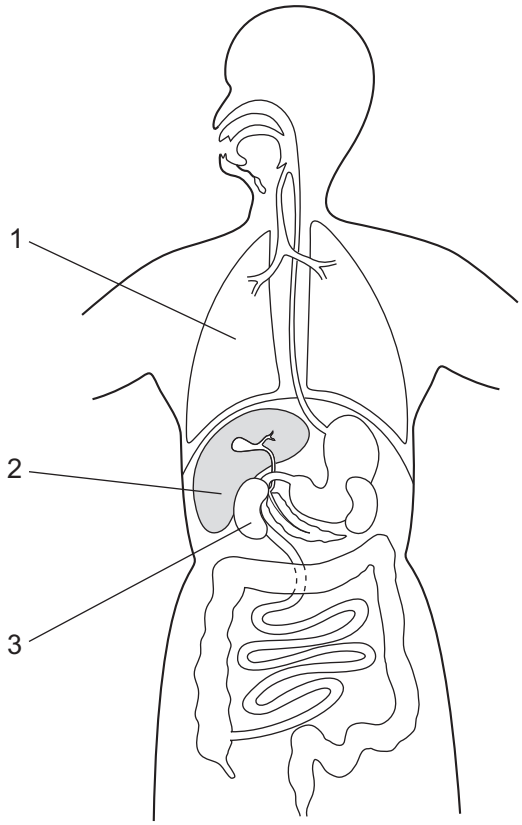
	lactic acid	alcohol	carbon dioxide
A	✓	✗	✓
B	✓	✗	✗
C	✗	✓	✓
D	✓	✓	✗

key

✓ = yes

✗ = no

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

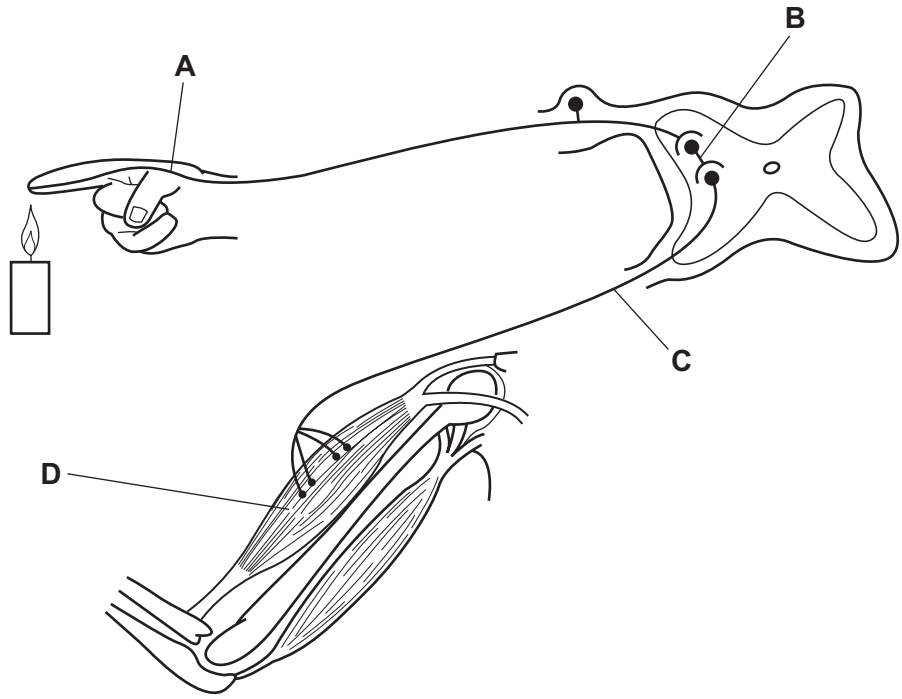


Which row matches the function to the correct organ?

	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

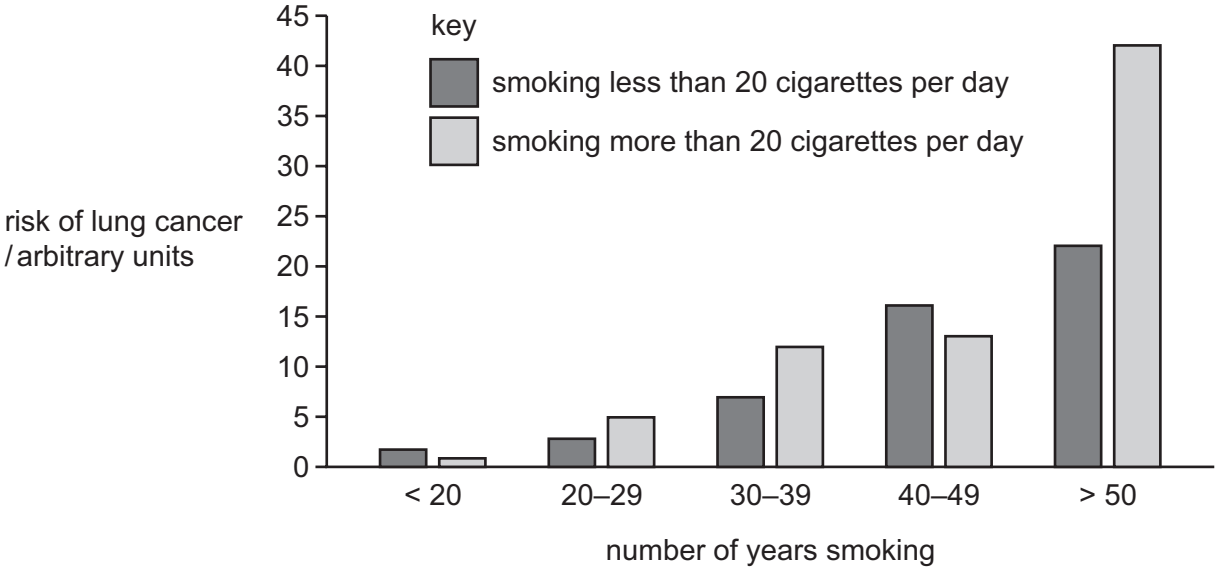
B insulin

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?

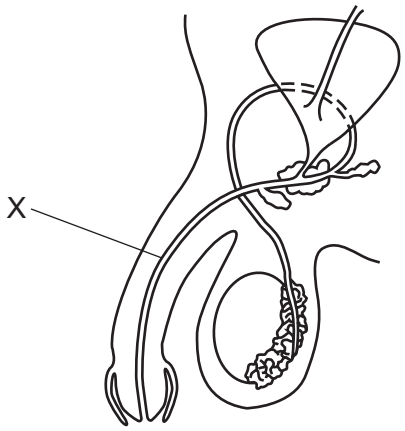
1 Smoking more than 20 cigarettes per day always increases the risk of lung cancer more than smoking less than 20 cigarettes per day.

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?

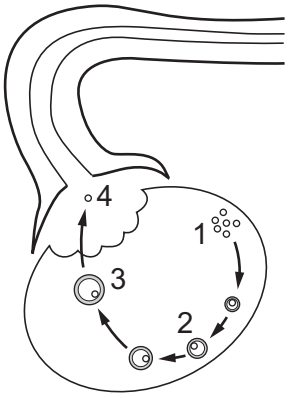
A bladder

B prostate gland

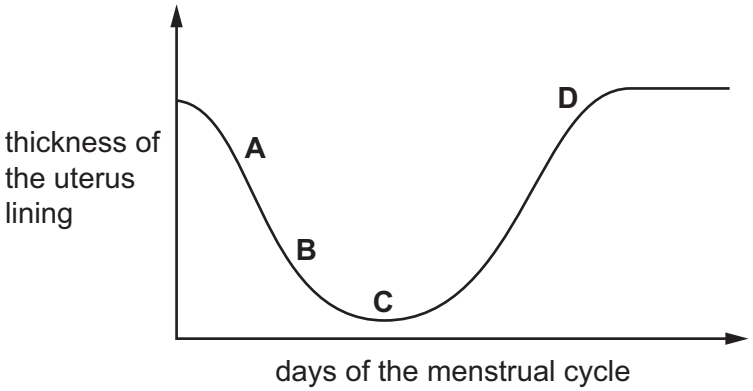
C sperm duct

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

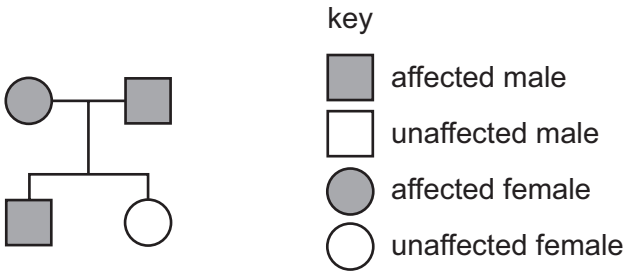
B conduction of impulses

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.

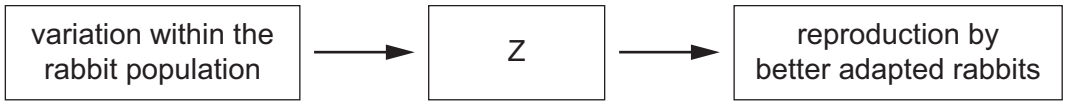
The pedigree diagram of the family is shown.



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?

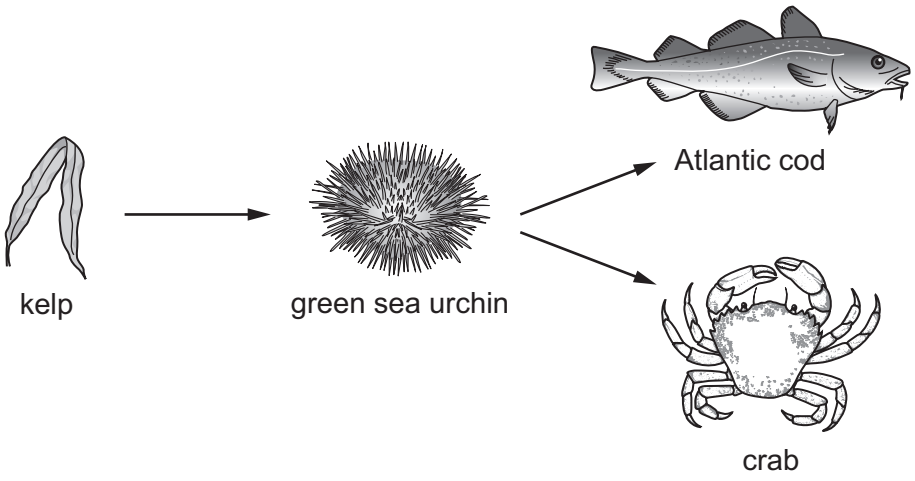
A competition between rabbits for limited resources

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

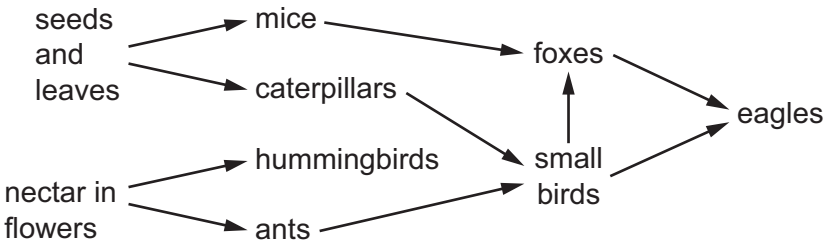
B kelp

C the sea

D the Sun

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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

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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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