Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **October/November 2016**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO **NOT** WRITE IN ANY BARCODES.

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 separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **16** printed pages.

1 Breathing out combines which two characteristics of living organisms?

A excretion and movement

B excretion and respiration

C movement and sensitivity

D sensitivity and respiration

2 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

3 The diagram shows an insect.

Use the key to identify the insect.

1	wings present	.....	go to 2
	wings absent	.....	**A**
2	two pairs of wings	.....	go to 3
	one pair of wings	.....	**B**
3	wings with circular markings	.....	**C**
	wings without circular markings	.....	**D**

4 Which feature shows that a cell is a plant cell?

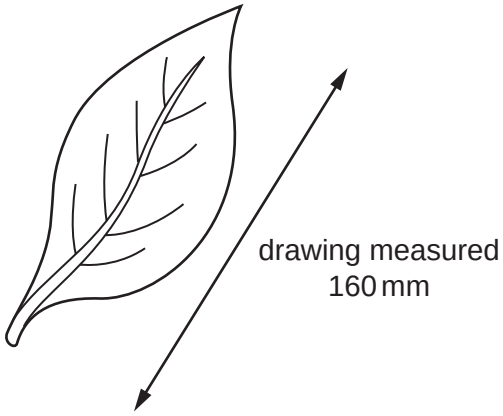
A cell membrane

B cell wall

C cytoplasm

D nucleus

5 A student drew a large diagram of a leaf as shown.



The drawing measured 160 mm.

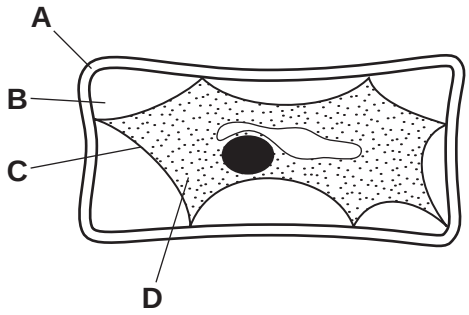
The teacher noted that the diagram was twice the size of the leaf.

What was the actual size of the leaf?

A 2 mm **B** 16 mm **C** 80 mm **D** 180 mm

6 The diagram shows a plant cell which has lost water to its surroundings by osmosis.

Which part is the partially permeable membrane?

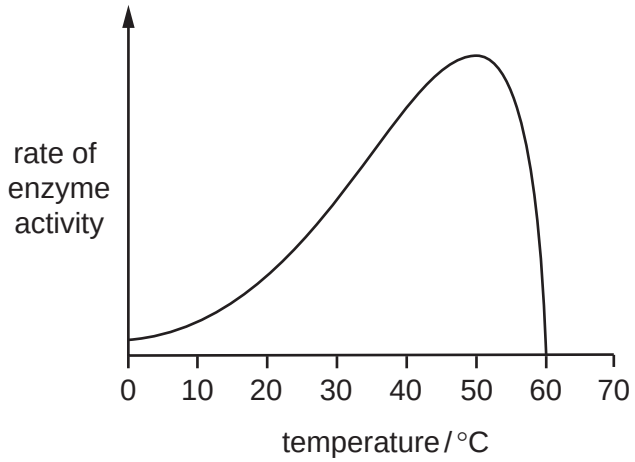


7 Which identifies the chemical elements found in proteins?

	carbon	hydrogen	oxygen	nitrogen
A	✓	✓	✓	✓
B	✓	✓	✓	✗
C	✓	✗	✓	✗
D	✗	✓	✗	✓

key
✓ = present
✗ = absent

8 The graph shows how the activity of an enzyme varies with temperature.



What is the best or optimum temperature for this enzyme and at what temperature is the enzyme not working?

	temperature / ℃	
	best	not working
A	30	0
B	30	60
C	50	0
D	50	60

9 Where are carbohydrates made in a green leaf?

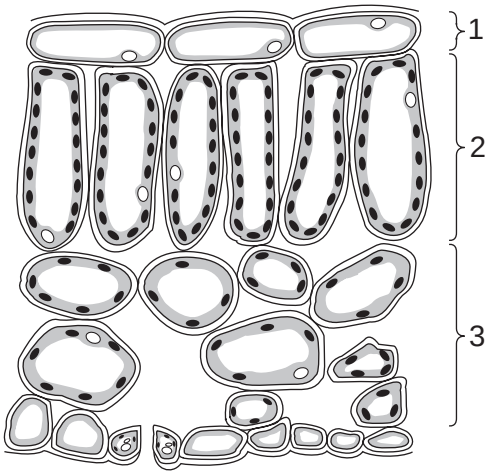
A cell vacuoles

B chloroplasts

C phloem

D xylem

10 The diagram shows a leaf as seen in cross section under the microscope.



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

11 The roots of plants take up nitrates from the soil.

What are the nitrates used to make?

A fat

B glucose

C protein

D starch

12 A child decided to eat only meat, oily fish, cheese and bread, and drink only water.

Which nutrient would be in low levels in this diet?

A calcium

B iron

C vitamin C

D vitamin D

[Turn over

13 What is the correct order of the processes that take place in the alimentary canal?

A absorption, digestion, ingestion, egestion

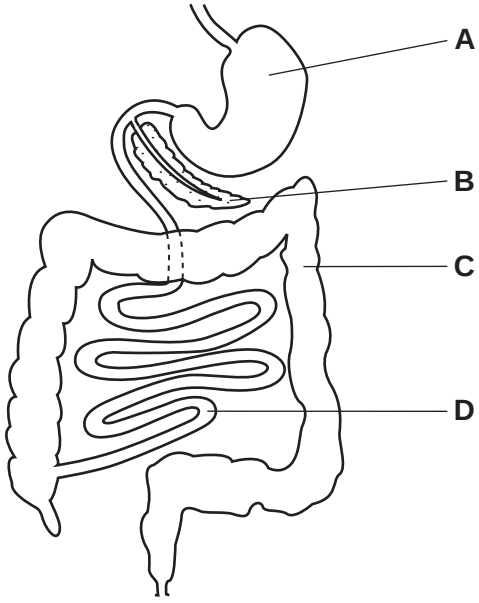
B digestion, ingestion, egestion, absorption

C egestion, digestion, absorption, ingestion

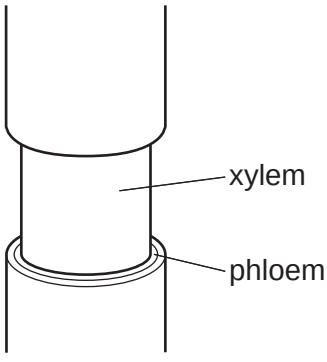
D ingestion, digestion, absorption, egestion

14 The diagram shows part of the human alimentary canal.

Which organ produces hydrochloric acid?



15 The diagram shows the stem of a plant. A strip of the outer tissue including the phloem has been removed.



How is transport in the plant affected?

A Amino acids and sugar cannot pass to the roots.

B Dissolved salts cannot pass to the leaves.

C Water cannot pass to the leaves.

D Water cannot pass to the roots.

16 After passing through the root hair cells of a plant, what is the next tissue through which water passes?

A cortex

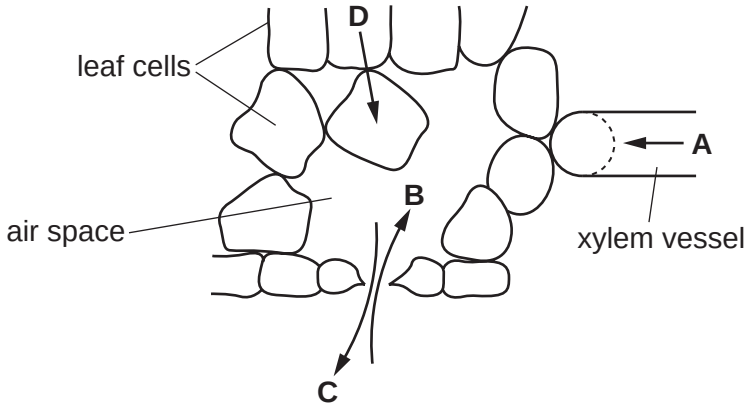
B epidermis

C mesophyll

D xylem

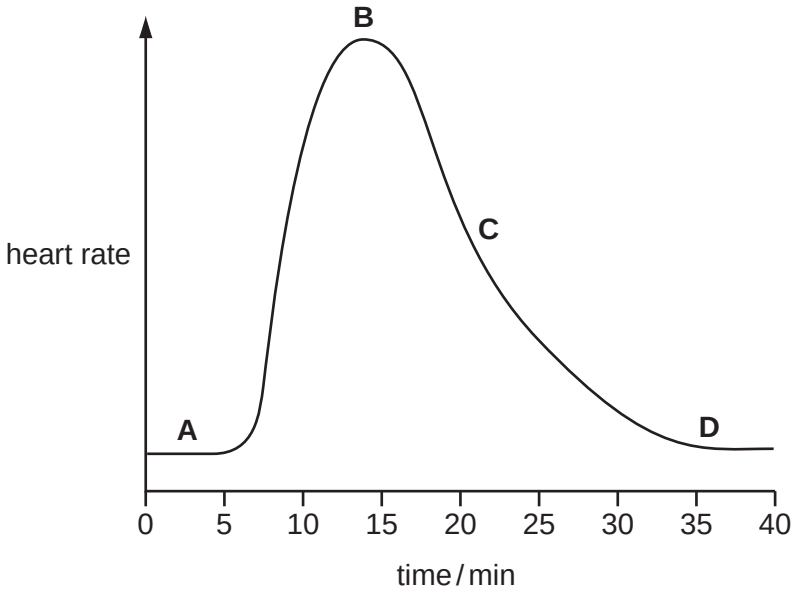
17 The diagram shows part of a cross section through a leaf.

Which arrow shows the direction of movement of water by osmosis in a leaf?



18 The graph shows the effect of several minutes of vigorous exercise on heart rate.

When does the person stop doing this exercise?



19 The aorta takes

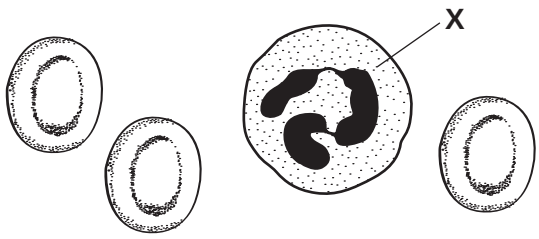
A deoxygenated blood away from the heart.

B deoxygenated blood towards the heart.

C oxygenated blood away from the heart.

D oxygenated blood towards the heart.

20 The diagram shows human blood cells, as seen under a microscope.



What is the function of cell **X**?

A to carry glucose

B to carry oxygen

C to defend against disease

D to make the blood clot

21 What are disease-causing organisms?

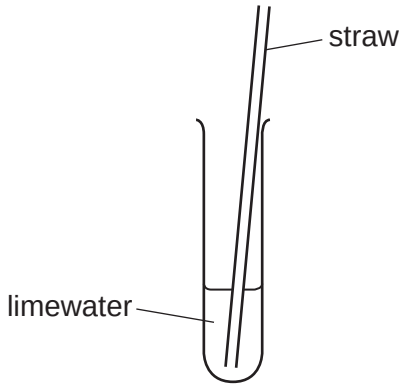
A antibodies

B pathogens

C phagocytes

D vaccines

22 A student blows through a straw into limewater.



What is the appearance of the limewater before and after blowing through the straw?

	before	after
A	blue	purple
B	brown	blue-black
C	colourless	white
D	orange	yellow

23 What is correct for aerobic respiration in muscles?

	nutrient molecule	oxygen used?
A	glucose	no
B	glucose	yes
C	lactic acid	no
D	glycogen	yes

24 To show that a green plant may absorb oxygen, in which condition must it be placed and why?

	condition	reason
A	dark	to prevent photosynthesis
B	dark	to prevent respiration
C	light	to allow photosynthesis
D	light	to allow respiration

[Turn over

25 After a meal containing large amounts of meat, urine is likely to contain

A a decreased concentration of amino acids.

B an increased amount of fat.

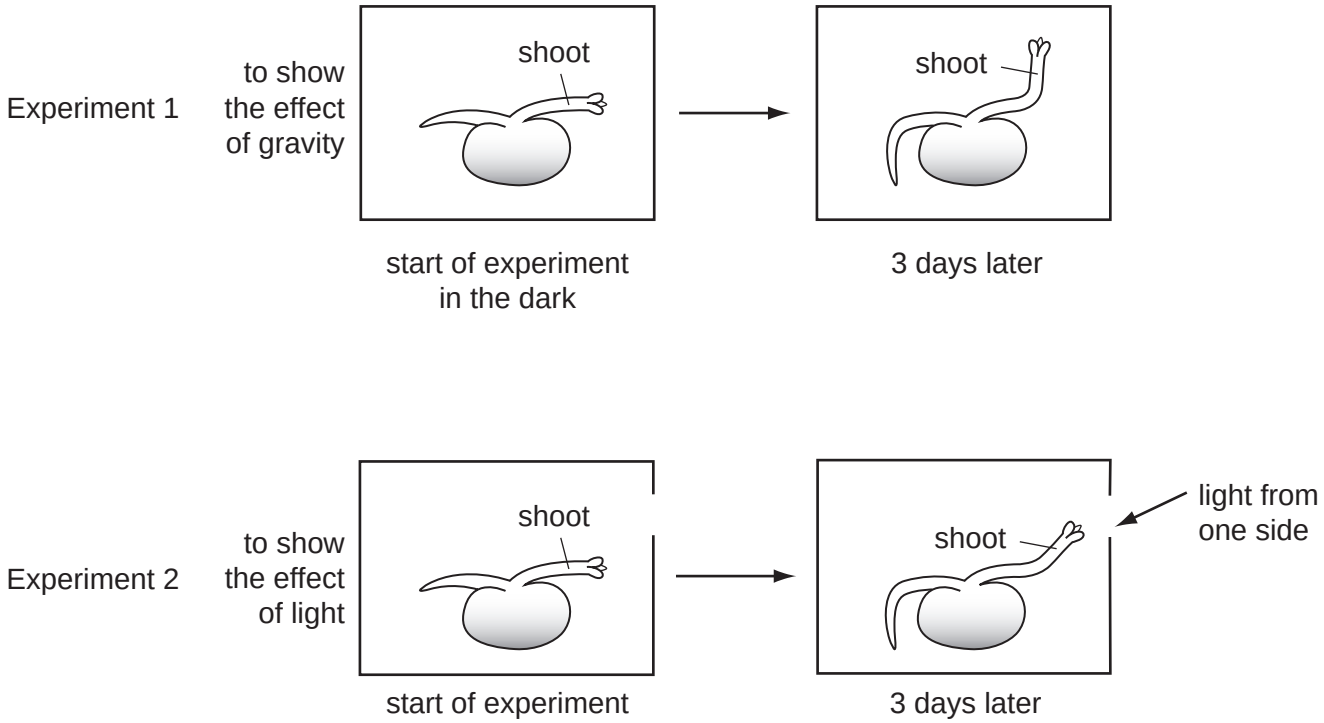
C an increased concentration of protein.

D an increased concentration of urea.

26 Which of these neurones is found in the peripheral nervous system?

	motor	sensory
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

27 The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.



How have the seedlings responded?

	to gravity	to light
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = tropic response shown

✗ = no tropic response shown

28 When does fertilisation occur in humans?

A when an egg is released

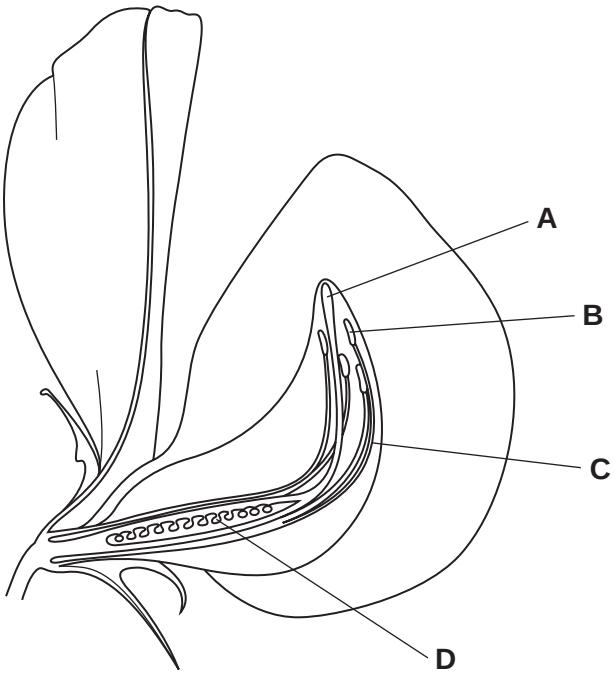
B when implantation occurs

C when sperm and egg nuclei fuse

D when sperm are released

29 The diagram shows a flower cut in half.

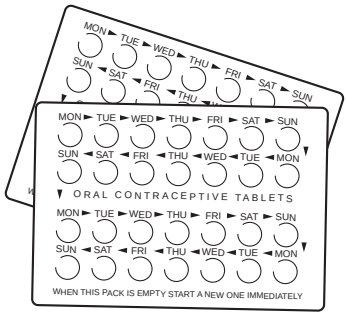
Which structure receives pollen grains during pollination?



30 The diagrams show four methods of birth control.

Which one is placed in the uterus?

A



B

C

D

31 What is defined as ‘a thread-like structure of DNA, carrying genetic information in the form of genes’?

A allele

B chromosome

C protein

D zygote

32 What is a function of meiosis?

A asexual reproduction

B producing cells for growth

C producing genetically different cells

D repairing tissues

33 In mice, the allele for black hair is dominant to the allele for brown hair.

What proportion of offspring will have black hair if a cross is made between a homozygous black mouse and a heterozygous black mouse?

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

34 Which of these human characteristics shows continuous variation?

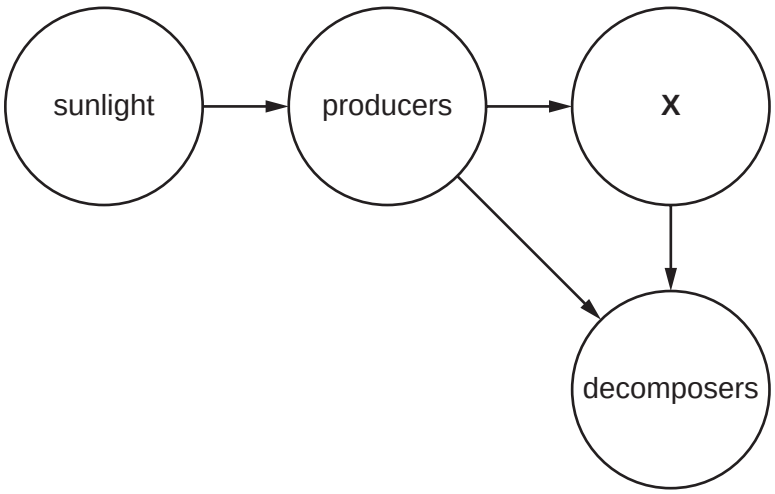
A free or attached earlobes

B sex

C tongue rolling

D weight

35 The diagram shows the flow of energy through an ecosystem.



What does **X** represent?

A carbon dioxide and water

B carnivores

C consumers

D oxygen

36 A herd of red deer live in a woodland, which contains snakes and a large variety of birds.

Which group of organisms is an example of a population?

A all the animals in the wood

B all the red deer in the wood

C all the organisms in the wood

D all the plants in the wood

37 What is **not** a reason that bacteria are widely used in biotechnology?

A They are complex organisms.

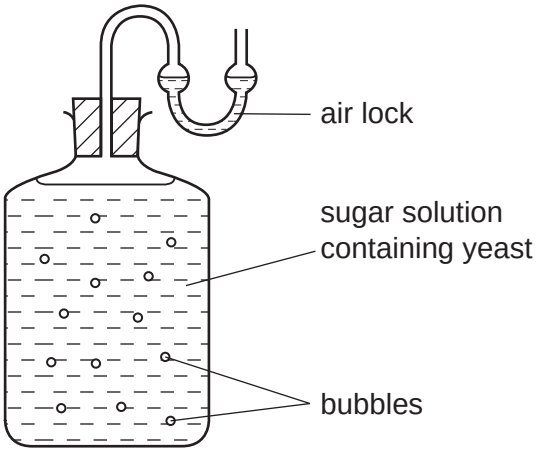
B They are made of single cells.

C They are small.

D They reproduce quickly.

38 The diagram shows how ethanol can be produced from a sugar solution containing yeast.

After five hours the mixture produced bubbles.



What is the main gas in the bubbles?

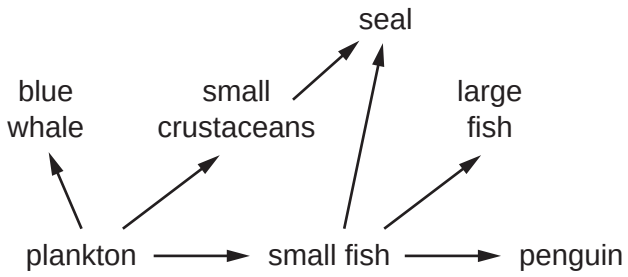
A air

B carbon dioxide

C methane

D oxygen

39 The diagram shows part of a food web.

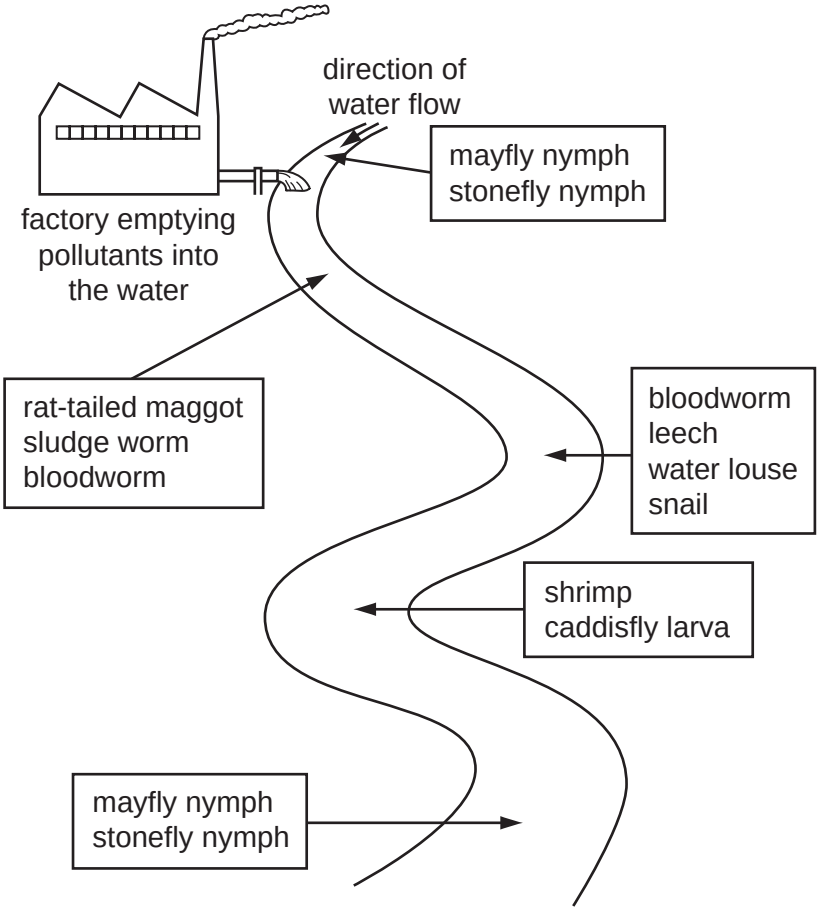


Fishermen regularly catch and remove large fish.

What is most likely to happen to the populations of penguins, small fish and seals?

	penguins	small fish	seal
A	decrease	increase	increase
B	increase	decrease	decrease
C	increase	increase	increase
D	no change	decrease	decrease

40 The diagram shows the results of a survey on the types of animals found along a stretch of river near to a factory.



Which of the following animals lives in the most polluted water?

A bloodworm

B caddisfly larva

C leech

D stonefly nymph