Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **October/November 2019**

45 minutes

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

* 4 9 4 8 8 9 5 9 6 *

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.

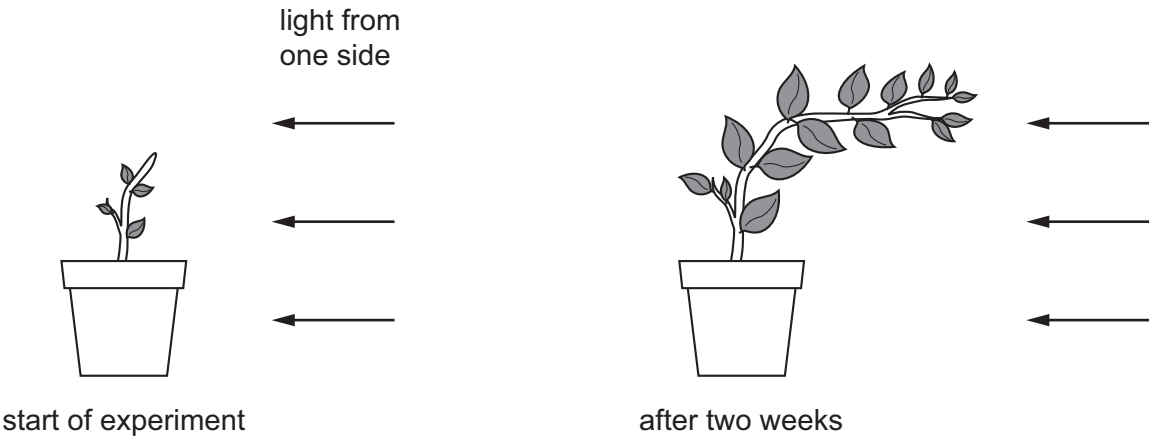
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

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

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

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1 The diagrams show a plant at the start of an experiment, and the same plant two weeks later.



Which characteristics of living organisms are demonstrated by this experiment?

A excretion, growth, movement

B excretion, movement, reproduction

C growth, movement, sensitivity

D sensitivity, growth, respiration

2 Donkeys and zebras are different species. They can breed to produce an animal called a zedonk.

Zedonks are not fertile.

Which statement is correct?

A Zedonks and donkeys are the same species.

B Zedonks and zebras are the same species.

C Zedonks are a species.

D Zedonks are not a species.

3 Which feature is characteristic only of birds?

A hair and wings

B hard-shelled eggs and feathers

C scales and soft-shelled eggs

D wings and soft-shelled eggs

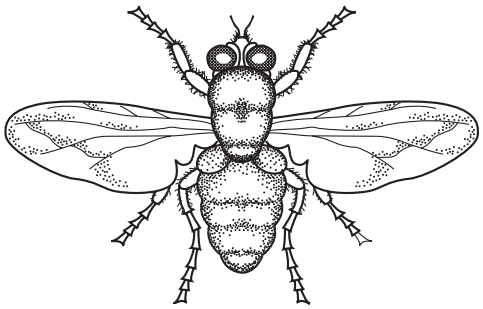
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4 Which features do animal cells share with plant cells?

	chloroplast	cytoplasm	nucleus
A	✓	✓	✓
B	✓	✗	✓
C	✗	✓	✓
D	✗	✗	✗

key
✓ = yes
✗ = no

5 The diagram shows an animal.



Use the key to identify the animal.

1 wings present ..... go to 2
wings absent ..... go to 3

2 one pair of wings visible ..... **A**
two pairs of wings visible ..... **B**

3 three pairs of legs ..... **C**
four pairs of legs ..... **D**

6 At which level of organisation is a root?

A organ

B organ system

C organism

D tissue

7 Which process requires energy from respiration?

A active transport

B diffusion

C osmosis

D transpiration

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8 Which identifies the chemical elements found in proteins?

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

key

✓ = present

✗ = absent

9 Enzyme X digests protein in the stomach.

Four test-tubes were set up, each contained the same amounts of protein and enzyme X. The test-tubes are kept at different levels of pH and temperature, as shown in the table.

In which test-tube will protein digestion be quickest?

	pH	temperature / °C
A	2	20
B	2	35
C	7	20
D	7	35

10 Which substance is used up in photosynthesis?

A chlorophyll

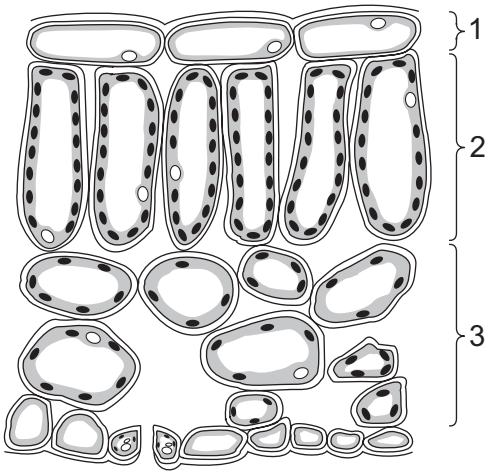
B light

C oxygen

D water

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

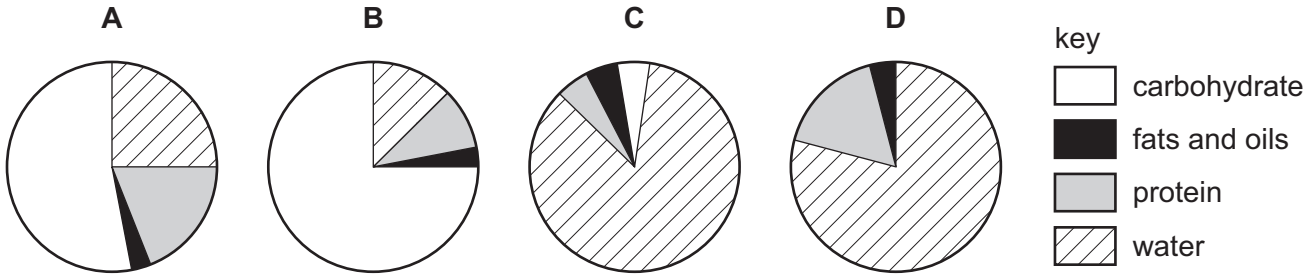


What are tissues 1, 2 and 3?

	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

12 The pie charts show the composition of 100 g of four different foods.

Which food provides the most energy?



13 In which part of the alimentary canal is most water absorbed?

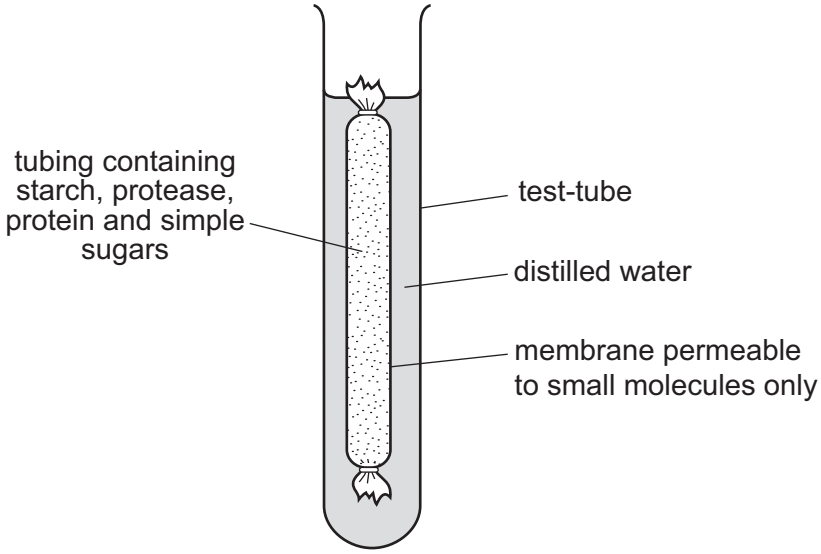
A colon

B oesophagus

C small intestine

D stomach

14 The diagram shows an experiment kept at room temperature.



What is present in the water surrounding the membrane after 45 minutes?

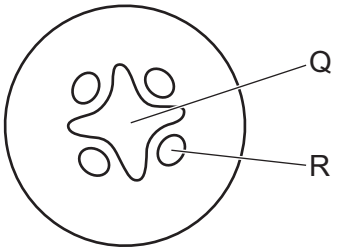
A amino acids and simple sugars

B protein and amino acids

C protein and simple sugars

D starch and simple sugars

15 The diagram shows a cross-section through a plant root.

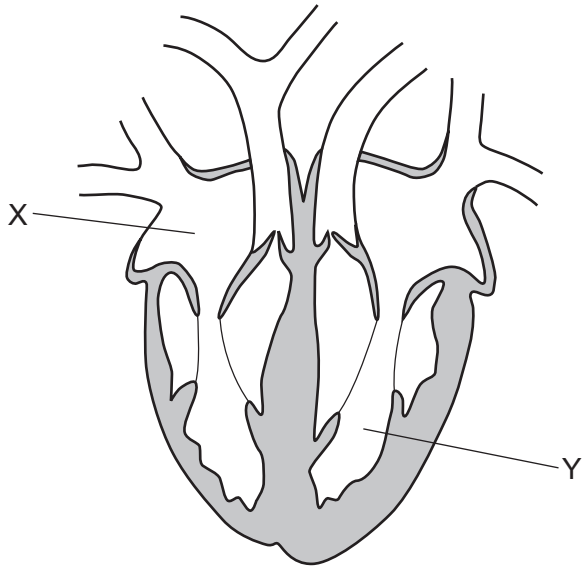


What is found at Q and R?

	Q	R
A	palisade mesophyll	spongy mesophyll
B	phloem	xylem
C	spongy mesophyll	palisade mesophyll
D	xylem	phloem

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16 The diagram shows a vertical section through a human heart.



What are X and Y?

	X	Y
A	left atrium	right ventricle
B	left ventricle	right atrium
C	right atrium	left ventricle
D	right ventricle	left atrium

17 The table shows the concentration of red blood cells, white blood cells and platelets in the blood of four patients.

Which patient is most likely to have a deficiency of iron in their diet **and** will find it difficult to form a blood clot?

	red blood cells / cells per mm^3	white blood cells / cells per mm^3	platelets / cells per mm^3
A	2 525 000	643	296 000
B	2 275 000	756	27 500
C	7 250 000	650	275 000
D	7 325 000	405	25 000

18 *Campylobacter* is a bacterium that can cause food poisoning.

Which word describes *Campylobacter*?

A antibody

B disease

C pathogen

D symptom

19 What is the sequence of structures through which a molecule of oxygen passes from the air to the blood of a person?

1 bronchiole

2 capillary

3 alveolus wall

4 larynx

A $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$

B $3 \rightarrow 2 \rightarrow 1 \rightarrow 4$

C $4 \rightarrow 1 \rightarrow 3 \rightarrow 2$

D $4 \rightarrow 2 \rightarrow 1 \rightarrow 3$

20 Which process releases heat to maintain a constant body temperature?

A excretion

B nutrition

C reproduction

D respiration

21 Which process releases the most energy from one molecule of glucose?

A aerobic respiration

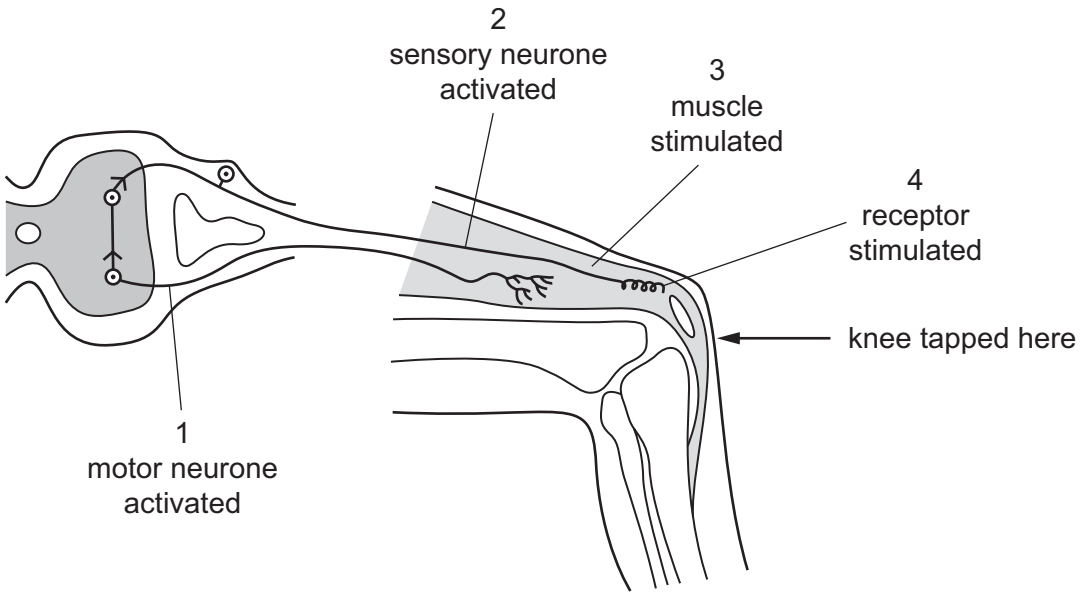
B anaerobic respiration in muscle

C anaerobic respiration in yeast

D photosynthesis

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22 The diagram shows a simple reflex arc.



What is the correct order of events after the knee is tapped?

A $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

B $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$

C $4 \rightarrow 2 \rightarrow 1 \rightarrow 3$

D $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$

23 When a bright light is shone into the eye, the diameter of the pupil decreases.

What is this an example of?

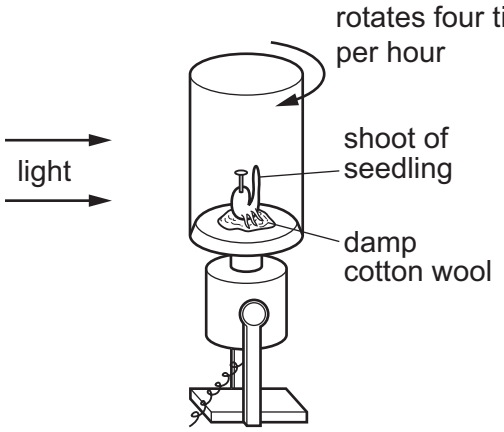
A a simple reflex

B ‘fight or flight’ response

C a synapse

D refraction

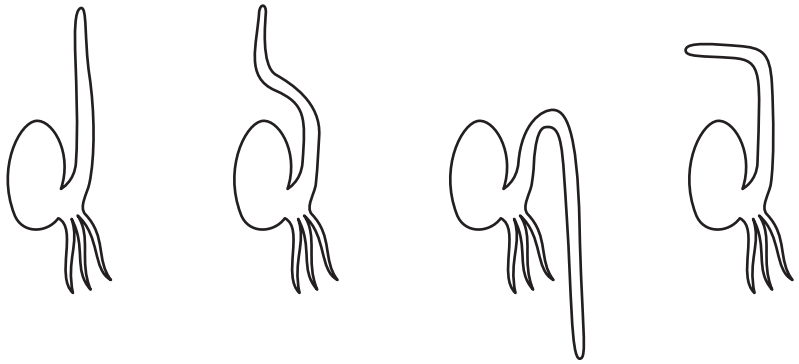
24 The diagram shows a seedling, fixed to a rotating platform. Light is directed from one side only.



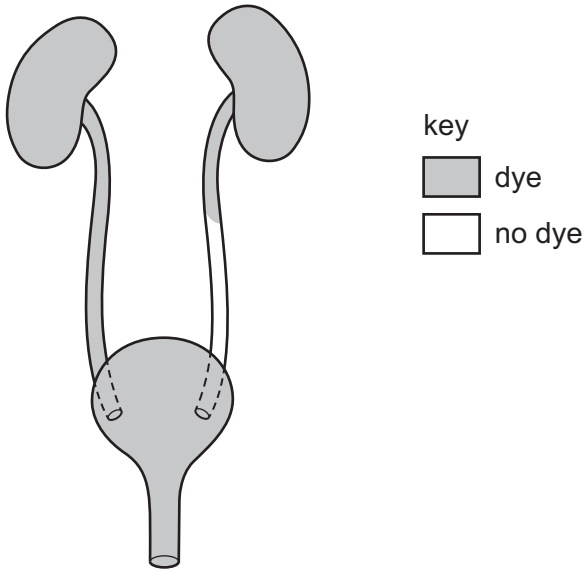
The platform was allowed to rotate for two days. It was left stationary for a further two days.

Which diagram shows the appearance of the seedling after this four-day period?

A **B** **C** **D**



25 A patient has dye injected into the blood supply to his kidneys. The dye appears in his excretory system as shown.



Which part is blocked?

A the kidney

B the ureter

C the bladder

D the urethra

26 Which organ breaks down alcohol?

A bladder

B heart

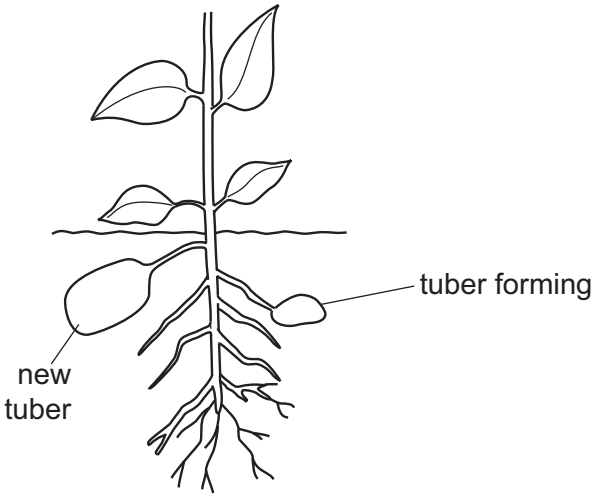
C kidney

D liver

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[Turn over

27 The diagram shows reproduction in a potato plant.



Which process is shown?

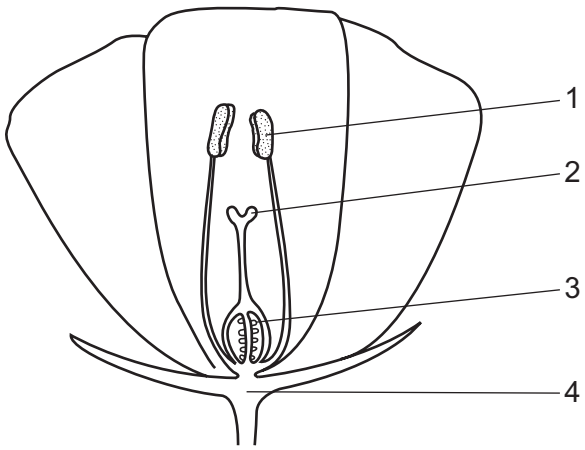
A asexual reproduction

B fertilisation

C pollination

D sexual reproduction

28 The diagram shows part of a flower.



Where does fertilisation occur and where are the ovules and pollen grains found?

	fertilisation occurs here	ovules are found here	pollen grains are found here
A	1	2	4
B	2	3	4
C	3	3	1
D	4	1	2

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29 Which method of birth control can be used as a barrier to sperm **and** sexually transmitted diseases during sexual intercourse?

A condom

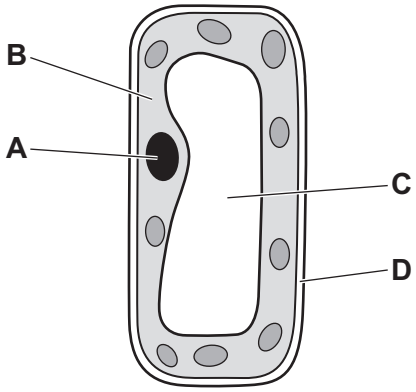
B IUD

C IUS

D surgical sterilisation

30 The diagram shows a plant cell.

Where are the chromosomes found?



31 Which statement describes human cells formed by meiosis?

A They are genetically identical gametes.

B They are genetically identical body cells.

C They are genetically different gametes.

D They are genetically different body cells.

32 Pea plants have two alleles for height. T is tall, t is short.

Two heterozygous pea plants, Tt, are crossed.

What is the phenotypic ratio of the offspring for this cross?

A all short plants

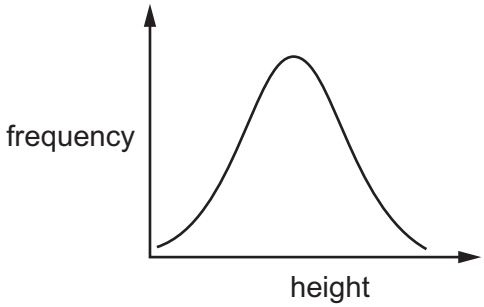
B all tall plants

C one tall plant to three short plants

D three tall plants to one short plant

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33 The graph shows the heights of humans.



Which statement is correct?

A The individuals of this population all have the same genotype.

B The individuals of this population all have the same phenotype.

C This population shows continuous variation.

D This population shows discontinuous variation.

34 What is a mutation?

A a condition caused by a dominant allele

B a genetic change

C a process used in genetic engineering

D an adaptive feature

35 Consumers take in carbon atoms from their food.

How do carbon atoms leave the consumers?

	egestion	excretion	decomposition
A	✓	✓	✓
B	✓	✗	✓
C	✓	✗	✗
D	✗	✓	✓

key

✓ = yes

✗ = no

36 Which process is part of the water cycle?

A combustion

B fossilisation

C respiration

D transpiration

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37 A gene for insulin is taken from a human cell and placed in a bacterium.

The bacterium can then make human insulin.

What is this process called?

A adaptation

B genetic engineering

C natural selection

D selective breeding

38 Some examples of how areas of land may be used are listed:

1 food crop production

2 grazing cattle

3 house building

4 tree planting.

Which uses of land will cause habitat destruction?

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

39 What are the possible effects of deforestation?

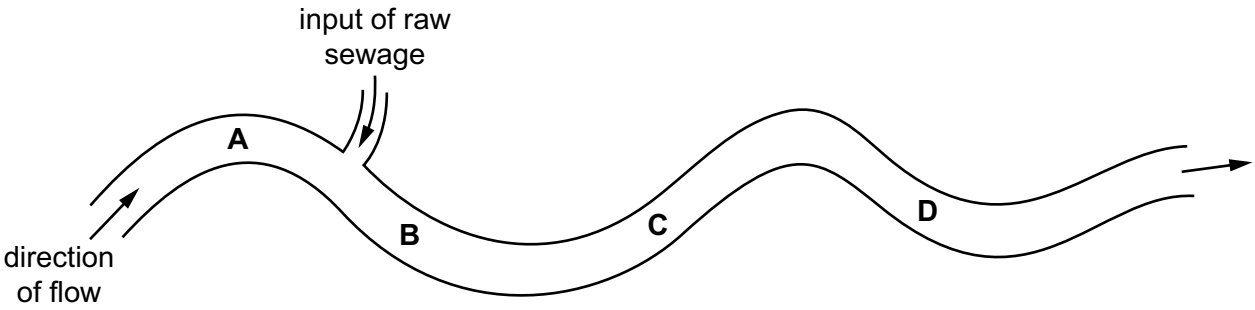
	loss of soil	flooding	decrease in atmospheric carbon dioxide
A	yes	yes	no
B	yes	no	yes
C	no	yes	no
D	no	no	yes

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40 The bloodworm is an organism that is found in heavily polluted water.

The diagram shows where raw sewage flows into a river.

Where would there be fewest bloodworms?



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