Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

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)

* 9 9 6 0 0 9 5 8 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.

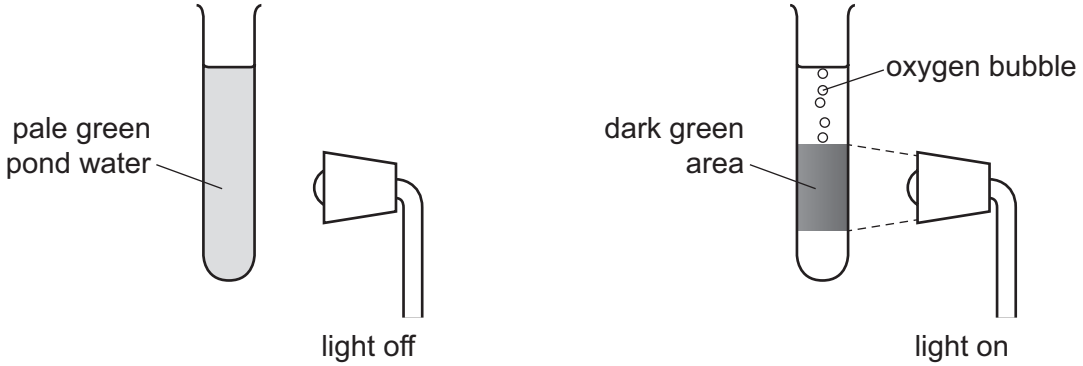
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

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 test-tube containing pond water. The green colour is caused by microorganisms that have chloroplasts.



Which characteristics of living organisms are shown?

A excretion, growth and movement

B movement, nutrition and sensitivity

C nutrition, reproduction and respiration

D reproduction, sensitivity and growth

2 Which shows an organism that has been named using the binomial system?

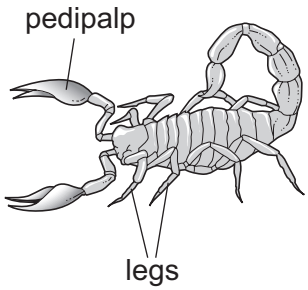
A *Brown seaweed*

B *Polar bear*

C *Red fox*

D *Vulpes vulpes*

3 The diagram shows an arthropod.



To which group does it belong?

A arachnids

B crustaceans

C insects

D myriapods

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4 Which features do animal cells share with plant cells?

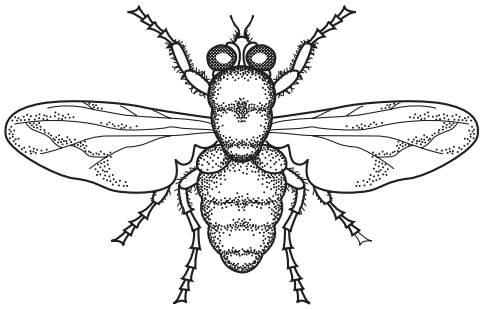
	chloroplast	cytoplasm	nucleus
A	✓	✓	✓
B	✓	✗	✓
C	✗	✓	✓
D	✗	✗	✗

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

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[Turn over

7 Some pieces of potato were placed in a very concentrated sugar solution. Other pieces of potato were placed in distilled water.

What happened to the mass of the potato pieces in the two liquids?

	mass of the potato pieces in a very concentrated sugar solution	mass of the potato pieces in distilled water
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

8 Which identifies the chemical elements found in proteins?

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

key

✓ = present

✗ = absent

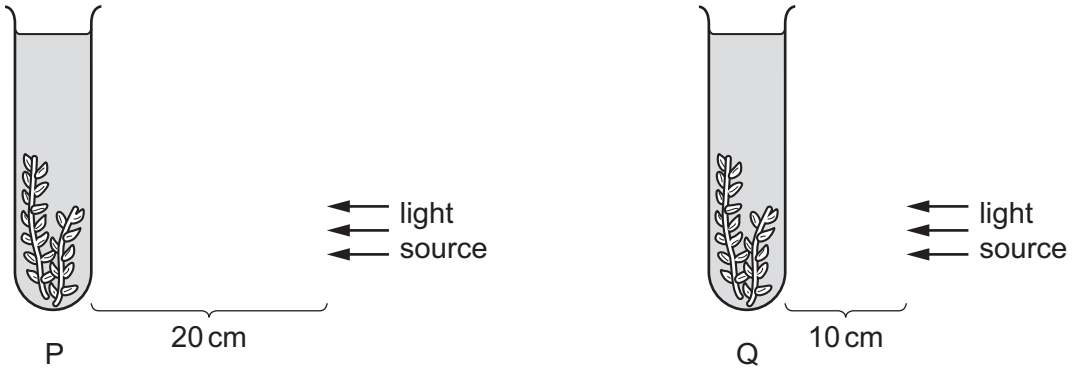
9 A student carries out a test to see whether the solution in a test-tube contains protein.

Which row shows the correct food test and a positive result?

	name of test	colour seen with a positive result
A	Benedict's test	blue-black
B	Benedict's test	purple
C	biuret test	blue-black
D	biuret test	purple

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10 The diagram shows an experiment investigating the effect of light intensity on an aquatic plant.



Photosynthesis occurred in both test-tube P and test-tube Q. Both test-tubes were kept at the same temperature. The number of bubbles produced in test-tube P was 12 bubbles per minute.

What is the most likely number of bubbles produced in one minute in test-tube Q?

A 0 **B** 3 **C** 12 **D** 48

11 In which situation would insulin secretion usually increase?

A after eating a meal

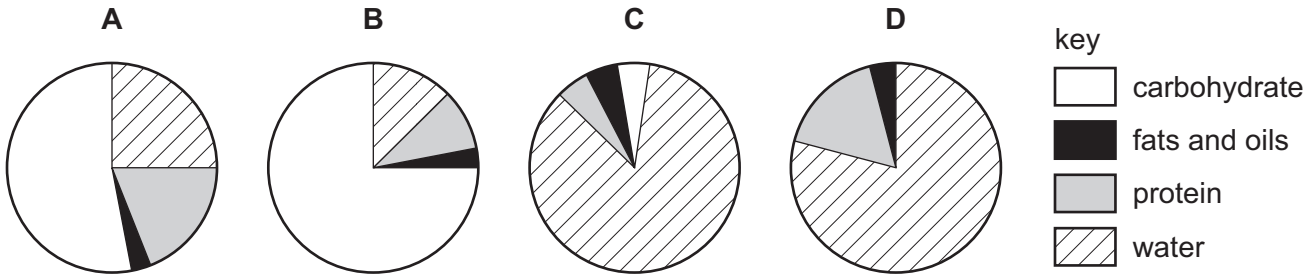
B hearing a loud bang immediately behind you

C listening to music

D reading a book

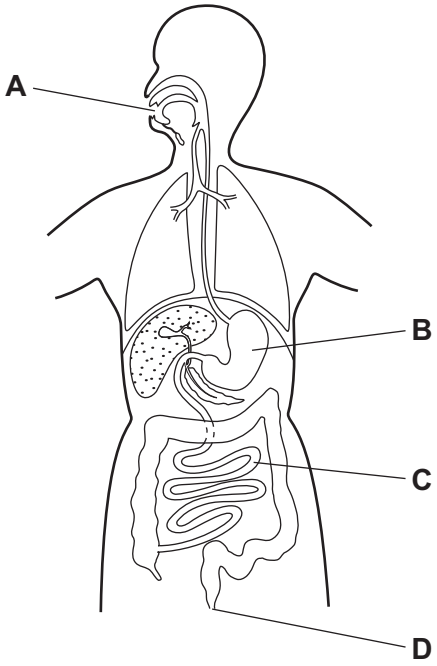
12 The pie charts show the composition of 100 g of four different foods.

Which food provides the most energy?

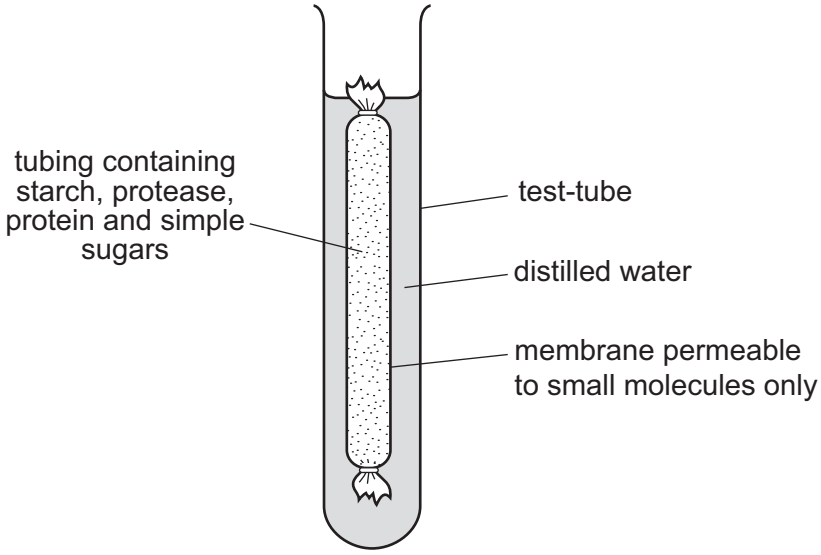


13 The diagram shows the digestive system.

Where does egestion take place?



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

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15 The diagram shows an experiment to investigate transpiration.



Plant 1 is not covered. Plant 2 and its pot are covered by a transparent plastic bag.

The mass of each plant and its pot is measured. The masses are measured again after two hours.

What is the result?

A The mass of both plants decreases by the same percentage.

B The mass of both plants stays the same.

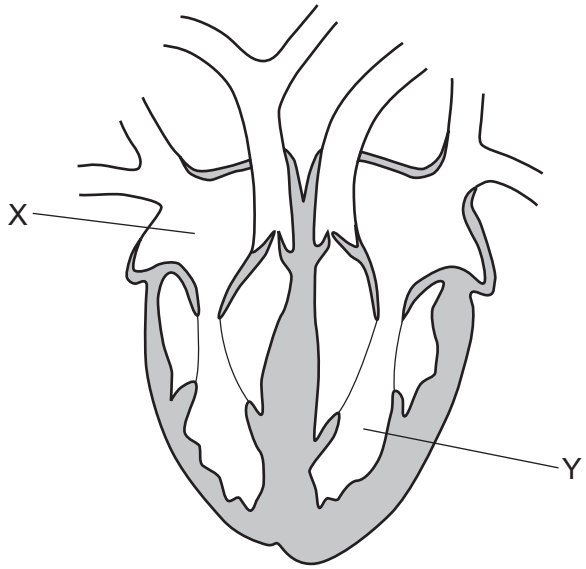
C The mass of plant 1 decreases more than the mass of plant 2.

D The mass of plant 2 decreases more than the mass of plant 1.

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[Turn over

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 Which factor increases the risk of developing coronary heart disease?

A low fat diet

B regular exercise

C relaxation

D smoking

18 The body has several defence mechanisms to protect the body against disease.

Which is a chemical barrier?

A hair in the nose

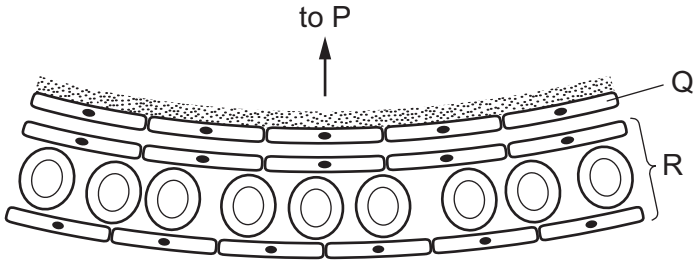
B mucus

C skin

D white blood cells

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19 The diagram shows part of the human gas exchange system.



Which row identifies P, Q and R?

	P	Q	R
A	alveolus wall	capillary wall	vein
B	bronchiole	alveolus wall	capillary
C	capillary	layer of moisture	bronchiole
D	alveolus wall	bronchiole	capillary

20 When is respiration carried out by green plants?

A at all times

B at dusk and dawn only

C during the night only

D never

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

A aerobic respiration

B anaerobic respiration in muscle

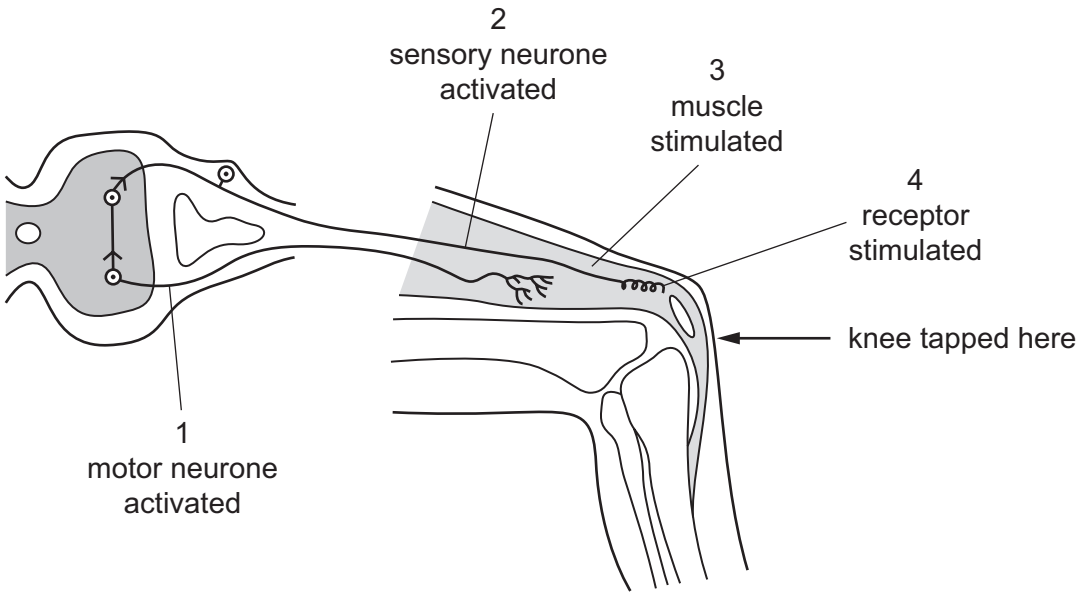
C anaerobic respiration in yeast

D photosynthesis

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[Turn over

22 The diagram shows a simple reflex arc.



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

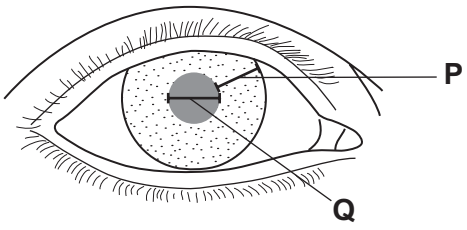
A $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

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 The diagram shows the eye of a person in a brightly-lit room.

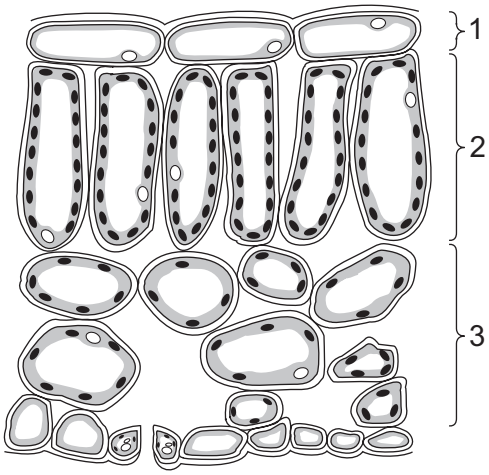


What happens to distance **P** and distance **Q** when this person moves from the brightly-lit room into a dark room?

	distance **P**	distance **Q**
A	decreases	increases
B	decreases	stays the same
C	increases	decreases
D	stays the same	increases

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



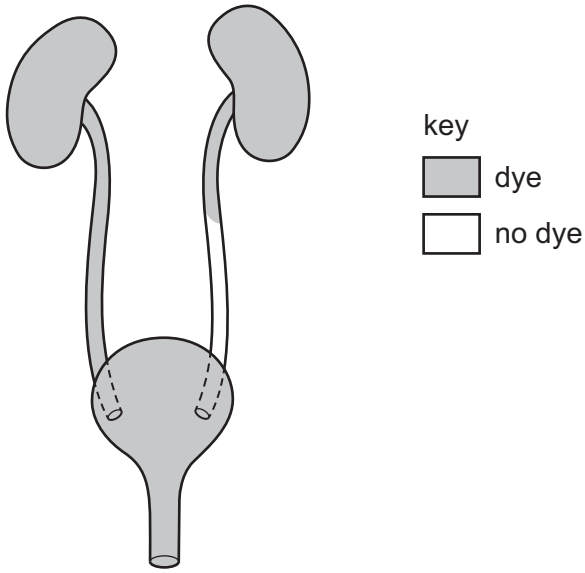
What are tissues 1, 2 and 3?

	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

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[Turn over

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 secretes amylase?

A colon

B liver

C pancreas

D stomach

27 What is essential for the germination of all seeds?

A light

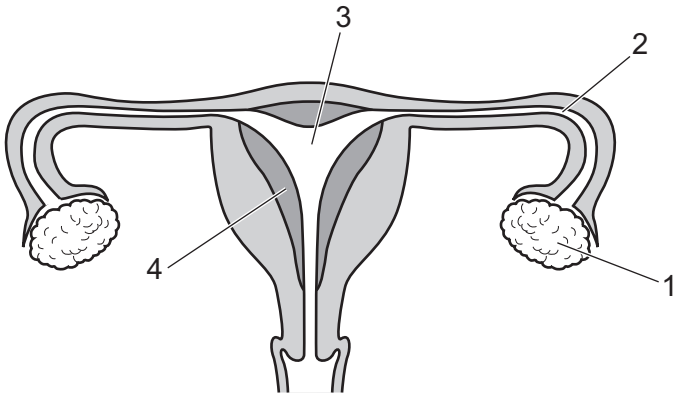
B nutrients

C water

D photosynthesis

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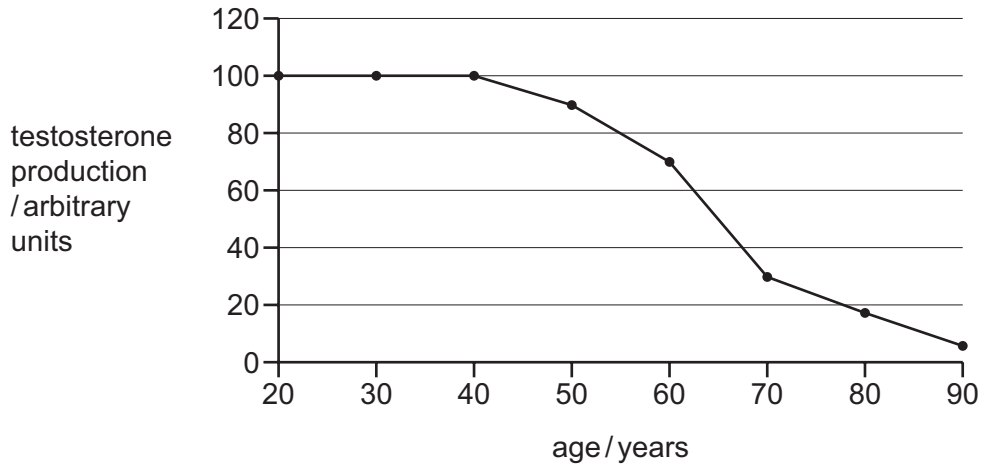
28 The diagram shows the female reproductive system.



Where does fertilisation normally occur?

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

29 The graph shows the decline in testosterone production as men get older.



Which age range shows the greatest decline in testosterone production?

A 40 to 50 years

B 50 to 60 years

C 60 to 70 years

D 70 to 80 years

30 A man has three sons.

What is the chance of his next child being a daughter?

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

31 Which statements about meiosis are correct?

	produces genetically identical cells	involved in the production of gametes
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key
✓ = yes
✗ = no

32 In a plant species, the allele for red flowers, R, is dominant to the allele for white flowers, r. Homozygous red-flowered plants, RR, are crossed with homozygous white-flowered plants, rr.

What is the colour of the flowers produced by the offspring of this cross?

A all red

B all white

C equal numbers of red and white

D three white to one red

33 Different organisms have different adaptive features. For example, the anthers of wind-pollinated flowering plants have long filaments.

What is true of this adaptive feature?

A Filament length is not affected by genes.

B It gives the plant an advantage in any environment.

C Longer filaments attract more insects.

D It makes the plant more likely to reproduce.

34 The statements describe aspects of selective breeding and natural selection.

Which statement applies **only** to selective breeding?

A Humans select individuals which have desirable features.

B Individuals pass their alleles to the next generation.

C There may be a large number of offspring produced.

D There is variation between individual offspring.

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35 Which diagram correctly shows the flow of energy?

A producers → consumers; producers → decomposers; consumers → decomposers

B consumers → producers → decomposers

C producers ← consumers; producers → decomposers; consumers → decomposers

D decomposers → consumers → producers

36 The diagram shows a food chain.

Which organism is the secondary consumer?

A		**B**		**C**		**D**
grass	→	rabbit	→	fox	→	flea

37 Which process is part of the carbon cycle?

A combustion

B evaporation

C precipitation

D transpiration

38 What is an example of genetic engineering?

A inserting genes into bacteria

B inserting insulin into bacteria

C spraying plants with herbicides

D using biological washing powders

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[Turn over

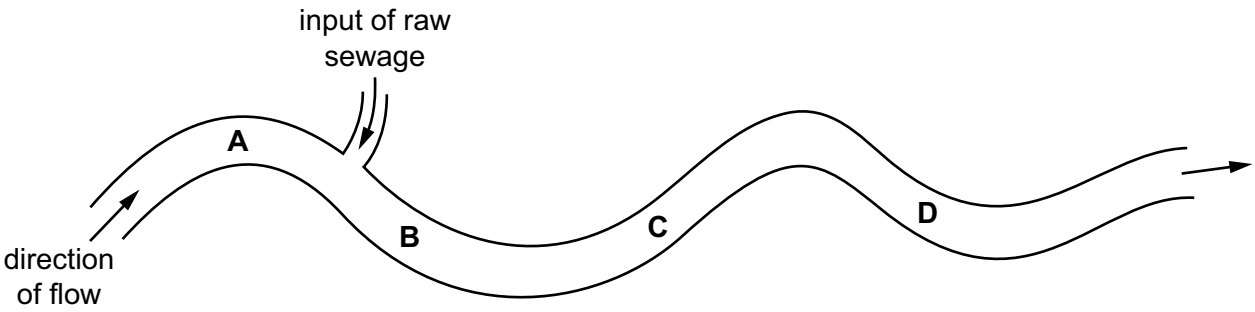
39 What are the possible effects of deforestation?

	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

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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