UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY **5096/12**

Paper 1 Multiple Choice **May/June 2011**

1 hour

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

3010528041

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, highlighters, 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.

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.

This document consists of **17** printed pages and **3** blank pages.

1 What is the source of energy for making food in plants?

A carbon dioxide

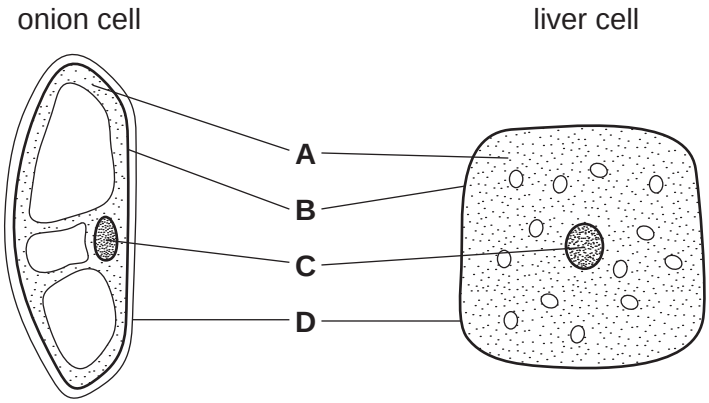
B chlorophyll

C glucose

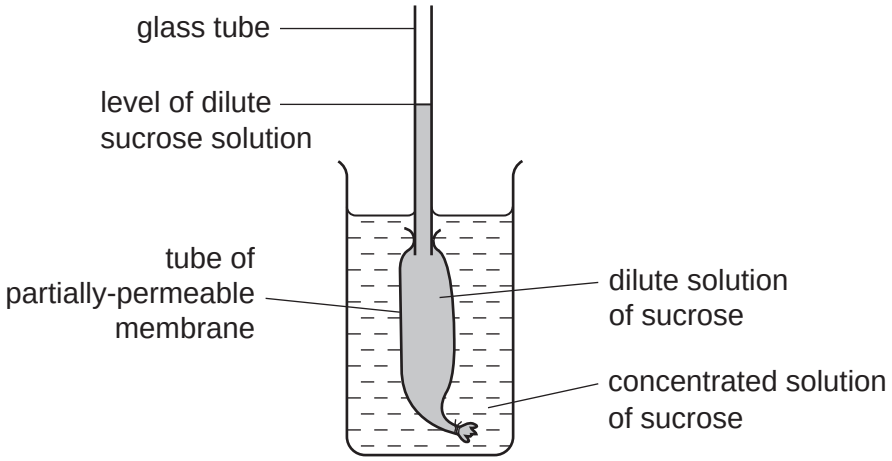
D light

2 The diagrams show a cell from an onion and a cell from the liver.

Which guideline does **not** point to the same named structure on both diagrams?



3 The diagram shows an apparatus used to investigate osmosis.



The apparatus was set up and left for an hour.

What is the result and explanation for this investigation?

	level of liquid in glass tube	explanation
A	falls	sucrose molecules move out of the partially-permeable membrane tube into the beaker
B	falls	water molecules move out of the partially-permeable membrane tube into the beaker
C	rises	sucrose molecules move from the beaker into the partially-permeable membrane tube
D	rises	water molecules move from the beaker into the partially-permeable membrane tube

4 Which activity is **not** carried out by all types of organisms?

A nutrition

B photosynthesis

C respiration

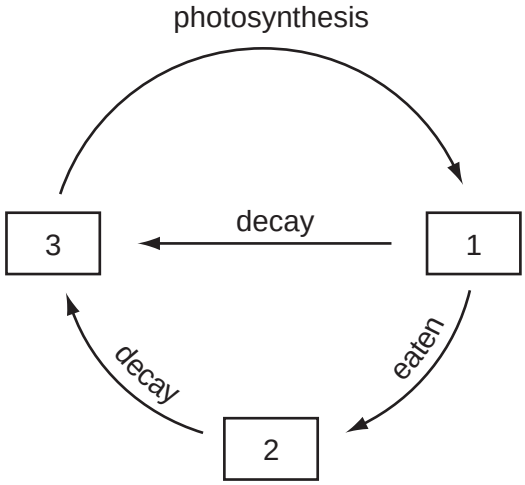
D sensitivity

5 Which describes the malarial parasite *Plasmodium*?

	unicellular	has a nucleus	reproduces by fission
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✓
D	✗	✗	✗

key
✓ = present
✗ = absent

6 The diagram represents part of the carbon cycle.



What does box 3 represent?

A animals

B carbon dioxide

C plants

D oxygen

7 The symptoms of a particular disease include slow healing of wounds and loose teeth.

Which nutrient should be included in the diet to prevent this disease?

A calcium

B iron

C vitamin C

D vitamin D

8 The table shows some parts of the daily intake in four diets.

Which diet is most suitable for a pregnant woman?

	energy / kJ	protein / g	fat / g	calcium / mg	iron / mg
A	14 500	53	80	500	2
B	10 500	69	78	1 000	27
C	10 000	62	120	500	30
D	5 000	156	47	700	12

9 Benedict's reagent turns red when boiled with a certain food. The same food leaves a mark on filter paper in the grease spot test.

What does the food contain?

A fat and protein

B protein and starch

C reducing sugar and fat

D starch and reducing sugar

10 Astronauts who work at zero gravity (weightlessness) can develop problems with their skeletal system on return to Earth.

What most likely occurs to cause this?

A Bones lose calcium becoming more brittle.

B Iron deposits in bones make them more dense.

C Muscle contraction fails to move the bones.

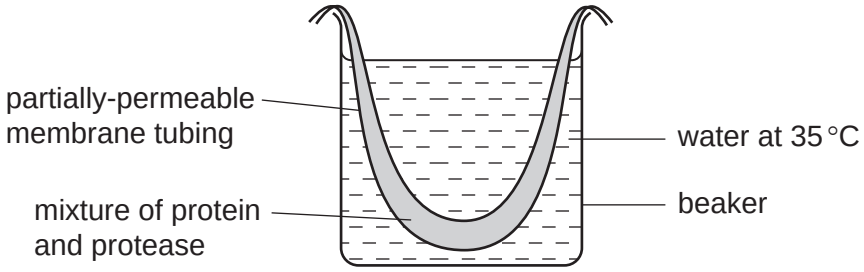
D Vitamin C is not absorbed in space.

11 What are the functions of the epithelium of villi?

	secrete mucus	allow passage of glycerol	allow passage of glucose	allow passage of amino acids
A	yes	yes	yes	yes
B	yes	yes	no	yes
C	yes	no	yes	yes
D	no	yes	yes	no

[Turn over

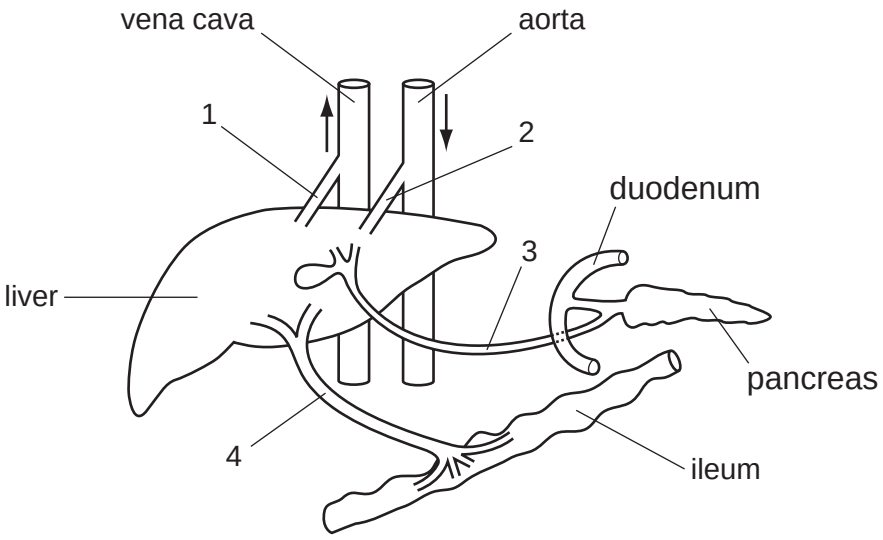
12 The diagram shows an apparatus at the start of an experiment to investigate digestion in the stomach.



What will be in the contents of the beaker and in the tubing after complete digestion?

	contents of beaker		contents of tubing	
	protein	amino acids	protein	amino acids
A	absent	absent	present	absent
B	absent	present	absent	present
C	absent	present	present	absent
D	present	absent	absent	present

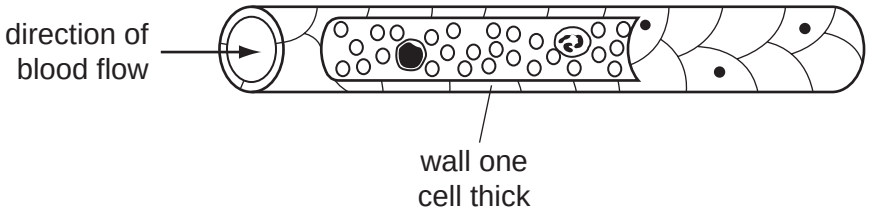
13 The diagram represents the liver and some of the vessels through which fluids enter or leave it.



Which two vessels carry fluids into the liver?

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

14 The diagram shows a blood vessel partly cut open to show its contents.



What type of blood vessel is this?

A a capillary

B a vein

C an arteriole

D an artery

15 Which lists toxic parts of cigarette smoke?

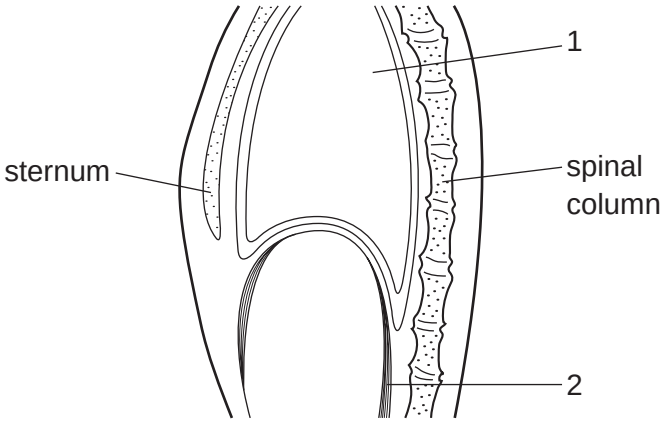
	particles	carbon monoxide	lead	nicotine	sulfur dioxide	tar
A	✗	✓	✓	✓	✗	✗
B	✓	✗	✗	✗	✓	✓
C	✓	✓	✗	✓	✗	✓
D	✗	✓	✓	✗	✓	✗

key

✓ = yes

✗ = no

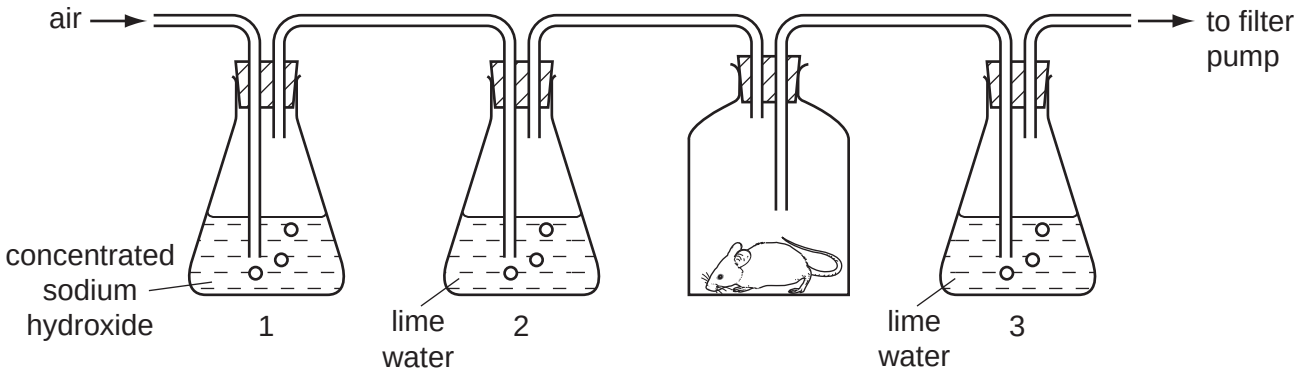
16 The diagram shows a section through the thorax.



What changes occur in structures 1 and 2 when breathing in?

	structure 1	structure 2
A	pressure decreases	contracts
B	pressure increases	contracts
C	volume decreases	relaxes
D	volume increases	relaxes

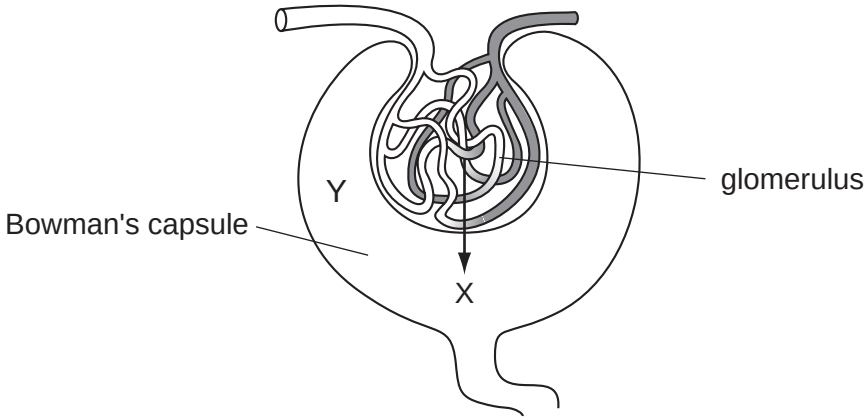
17 The diagram shows an apparatus to investigate differences between the inspired and expired air of a small mammal.



Which shows the appearance of the liquids in the three flasks after 20 minutes?

	flask 1	flask 2	flask 3
A	clear	clear	cloudy
B	clear	slightly cloudy	clear
C	slightly cloudy	clear	cloudy
D	cloudy	clear	cloudy

The following diagram should be used to answer questions **18** and **19**.



18 Which process is mainly responsible for the movement of fluid as shown by arrow X?

A active transport

B blood pressure

C diffusion

D osmosis

19 In addition to water, what is present in the fluid at Y?

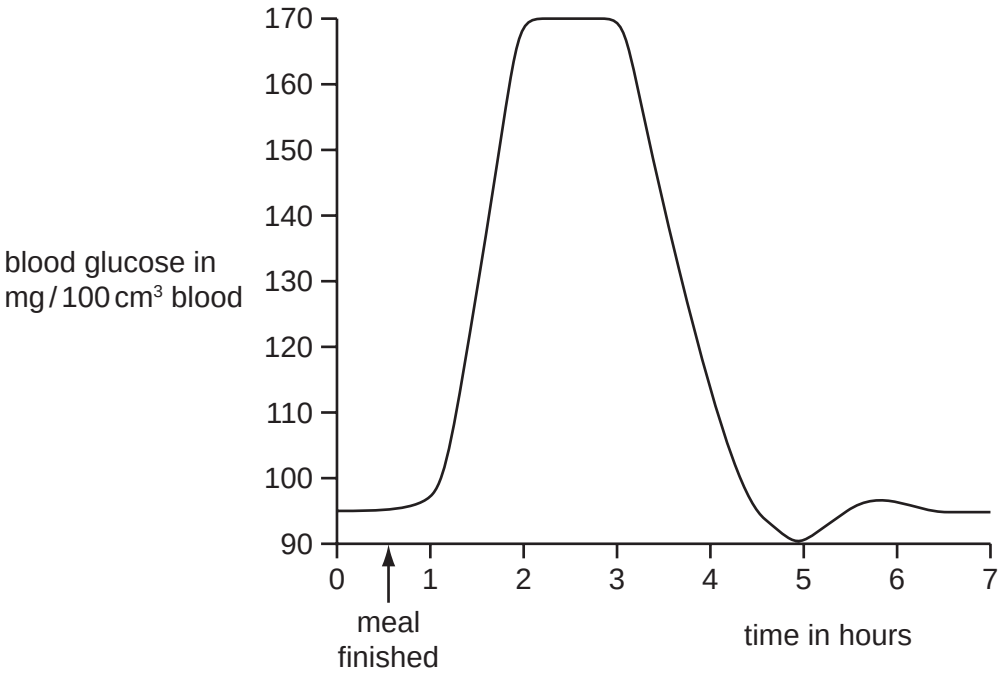
	glucose	mineral salts	protein	urea
A	✓	✓	✓	✗
B	✗	✓	✗	✓
C	✓	✗	✓	✓
D	✓	✓	✗	✓

key

✓ = present

✗ = absent

20 The graph shows the blood glucose concentration of a person after a meal rich in starch.



During which period after the meal would the secretion of glucagon begin to rise?

A 0.5 – 1.5 hours

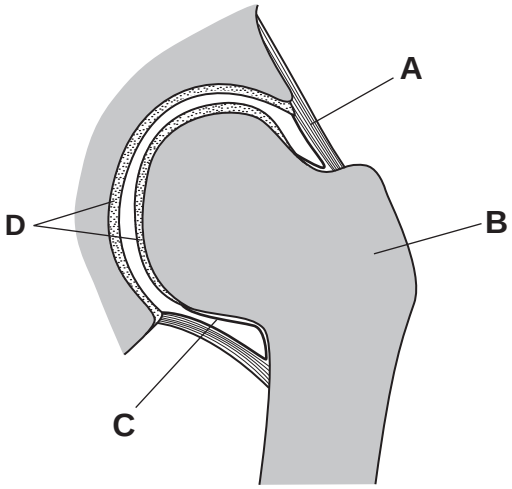
B 1.5 – 2.5 hours

C 4.5 – 5.5 hours

D 5.5 – 6.5 hours

21 The diagram shows a section through a joint.

Which labelled part prevents dislocation of the joint?



22 Which bone has a ball and socket joint at one end, and a hinge joint at the other end?

A humerus

B radius

C scapula

D ulna

23 Which shows the physical and social effects of taking heroin?

	physical effects	social effects
A	analgesic (pain killer)	become dependent on it
B	causes dependency	may neglect family
C	may lose job	lose appetite and become malnourished
D	veins may collapse	infection from injecting

24 Which stimuli are detected by receptors present in the mouth?

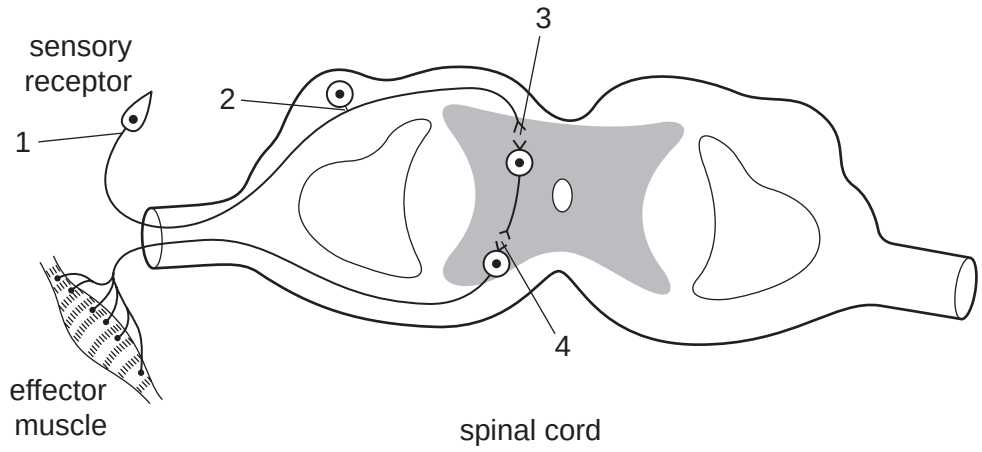
A smell, taste, touch

B taste, smell, chemicals

C taste, temperature, pressure

D touch, temperature change, chemicals

25 The diagram shows the nerve pathway of a spinal reflex arc.

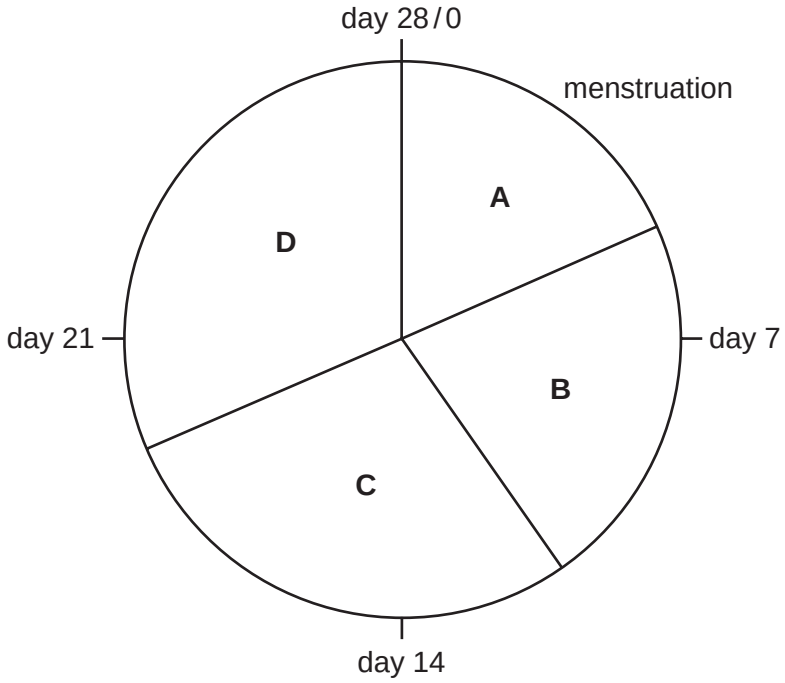


At which places are chemical molecules (not just ions) used to transmit the impulse?

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

26 The diagram shows a 28 day menstrual cycle of a human female.

During which part of the cycle is a large decrease in the production of progesterone **most** likely to happen?



27 A couple have given birth to three boys.

What are the chances of their next child being a boy?

A 25 % **B** 50 % **C** 75 % **D** 100 %

28 What is the function of the prostate gland?

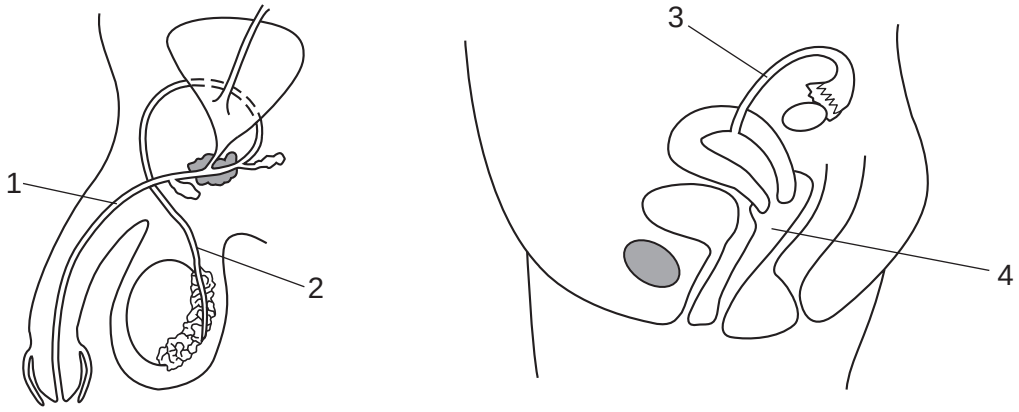
A nourishing sperm while they are developing in the testis

B secreting a fluid that helps the sperms to swim

C secreting the hormone testosterone

D transporting sperm from the testes along the sperm duct

29 The diagrams show sections through the male and female reproductive systems.



Sterilisation for family planning can be made by tying parts in the reproductive systems to prevent the passage of gametes.

Which two parts would be tied in the male and female systems?

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

30 What are the primary and secondary hosts of *Schistosoma mansoni*?

	primary host	secondary host
A	human	rat
B	human	snail
C	rat	human
D	snail	human

31 Which two organisms include one that feeds **on** red blood cells and one that can live **in** red blood cells?

	feeds on red blood cells	lives in red blood cells
A	anopheline mosquito	*Plasmodium* protozoan
B	human immune deficiency virus (HIV)	anopheline mosquito
C	*Plasmodium* protozoan	typhoid bacterium
D	typhoid bacterium	human immune deficiency virus (HIV)

32 What **cannot** be prevented by healthy living?

A chronic heart disease

B gonorrhoea

C sickle cell anaemia

D tuberculosis

33 Why is a cholera patient given injections of salt solution?

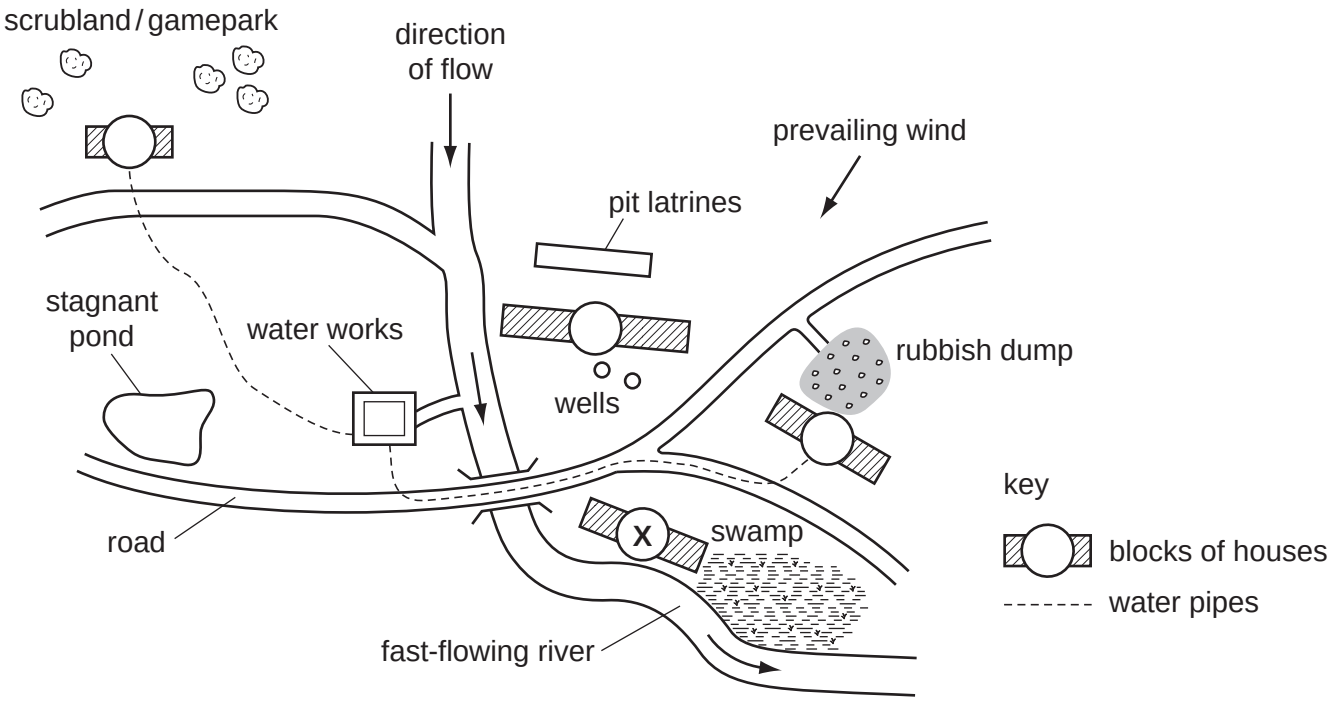
A to help prevent dehydration of the body

B to increase antibody production

C to prevent the cholera bacteria from multiplying

D to remove the cholera bacteria from the intestines

34 The map shows a small town.



Many people living in block **X** suffered from malaria.

Which method of control would be **most** effective?

A spraying oil on the river

B spraying the houses with insecticide

C stocking the river with fish

D supplying piped water from the works

35 A wound is contaminated with soil. A doctor gives the patient an 'anti-tetanus' injection to deal with possible infection.

What does the injection contain?

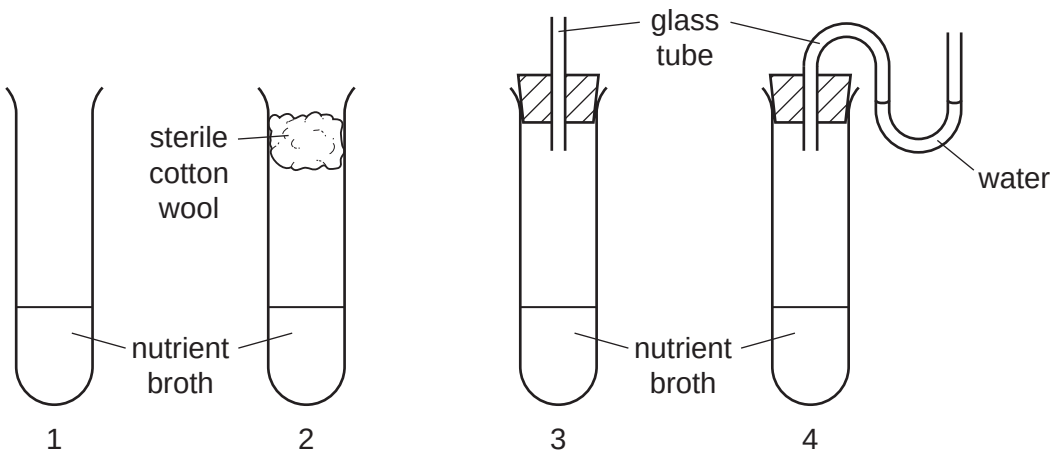
A dead tetanus bacteria

B live but weakened tetanus bacteria

C tetanus antibodies

D tetanus antigens

36 The diagram shows the apparatus used to investigate the infection of a nutrient broth in different situations, by microorganisms.



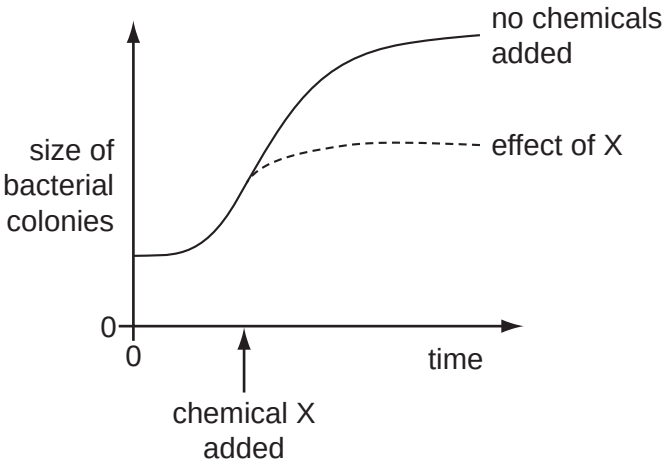
The tubes with broth were sterilised, then cooled and left for a week at 25 °C. If microorganisms were present in the nutrient broth, it would go cloudy.

Which shows the results of the investigation?

	tube 1 broth	tube 2 broth	tube 3 broth	tube 4 broth
A	goes cloudy	stays clear	goes cloudy	stays clear
B	goes cloudy	stays clear	stays clear	goes cloudy
C	stays clear	goes cloudy	goes cloudy	stays clear
D	stays clear	stays clear	goes cloudy	goes cloudy

[Turn over

37 The graph shows the effect of chemical X on the growth of a bacterial culture.



What is chemical X likely to be?

A antibiotic

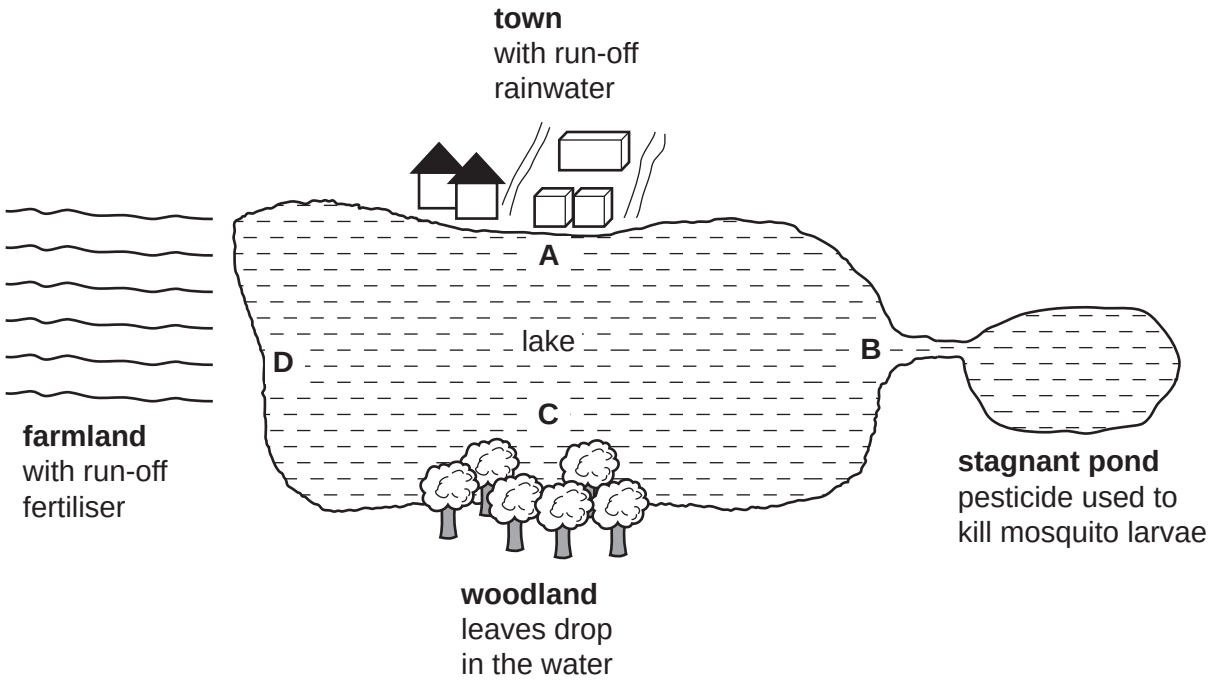
B antigen

C fungicide

D glucose

38 The diagram shows a lake with a town, a stagnant pond, woodland and farmland on its banks.

In which part of the lake would large numbers of water plants be most likely to grow?



39 How do microorganisms make sewage harmless?

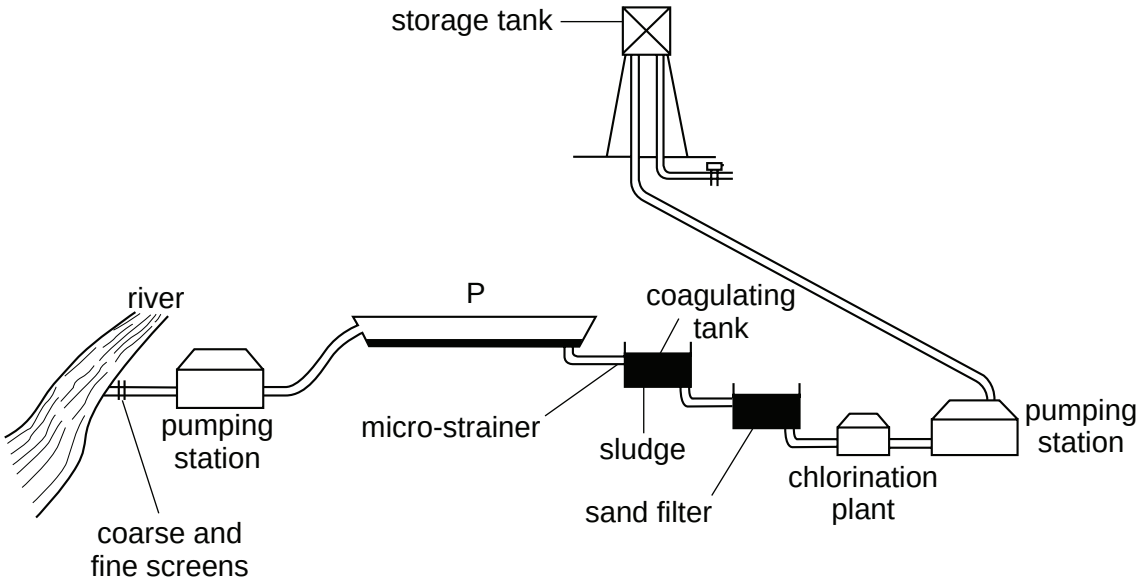
A They decompose organic matter.

B They ingest insect larvae.

C They make poisons harmless.

D They produce a supply of oxygen.

40 The diagram shows stages in the treatment of river water to make it safe to drink.



Why is water stored at P?

A Chlorine kills bacteria.

B Chlorine settles fine particles.

C Ultraviolet light kills bacteria.

D Ultraviolet light settles particles.

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