UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY **5096/11**

Paper 1 Multiple Choice **October/November 2012**

1 hour

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, 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 **18** printed pages and **2** blank pages.

1 Which is a characteristic feature of all living things?

A breathing

B egestion

C sensitivity

D taking in food

2 Which organisms are non-cellular?

A bacteria

B fungi

C protozoa

D viruses

3 Which features are typical of protozoa?

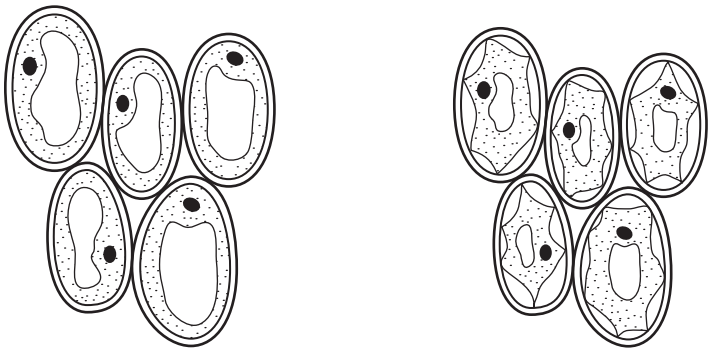
	always cause disease	have a cell wall	have a nucleus	may reproduce by mitosis	may reproduce by multiple fission
A	✓	✓	✗	✓	✗
B	✓	✗	✓	✗	✓
C	✗	✗	✓	✓	✓
D	✗	✓	✓	✗	✓

key

✓ = yes

✗ = no

4 The diagrams show plant cells before and after being placed in a concentrated sugar



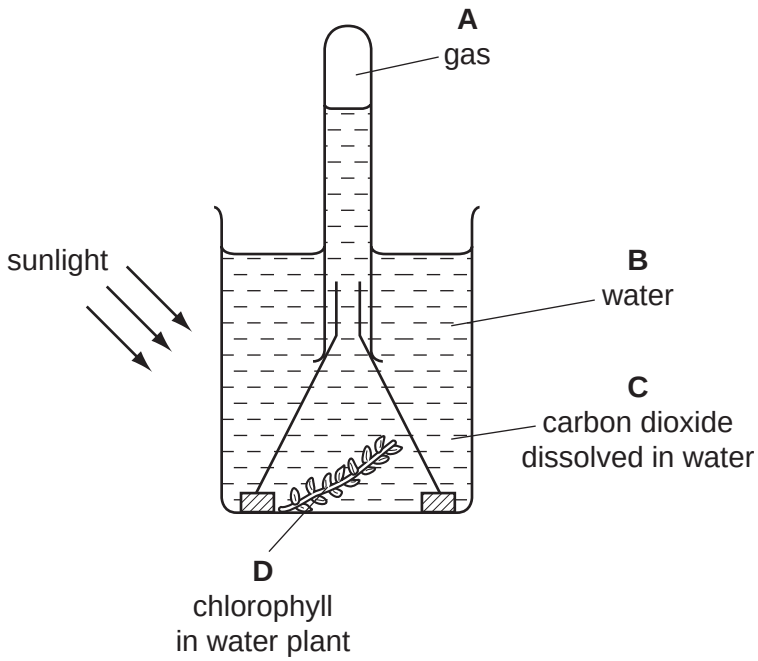
before after

What is the reason for the difference and which process has caused it?

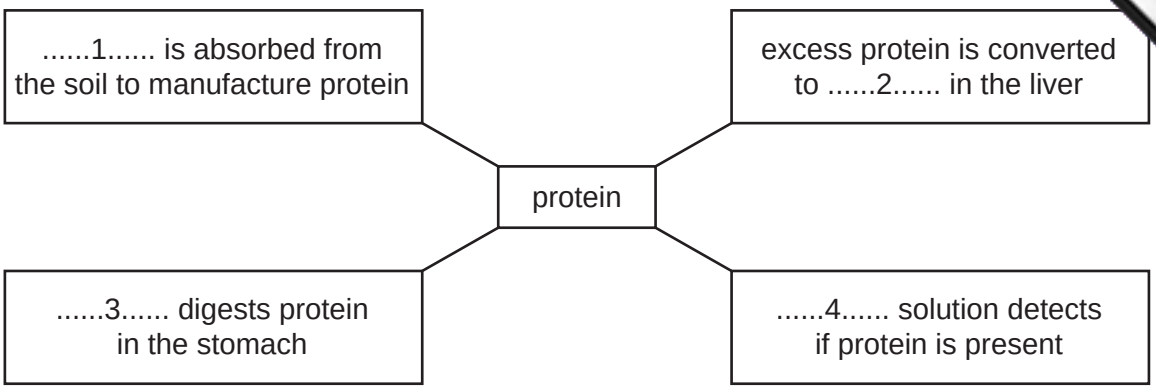
	reason	process
A	sugar passes into the cells	active transport
B	sugar passes out of the cells	active transport
C	water passes into the cells	osmosis
D	water passes out of the cells	osmosis

5 The diagram shows the apparatus used to investigate the effect of light on the rate of a process in plants that produce nutrients.

Which label indicates a waste product in this process?



6 The diagram shows activities concerned with protein.



Which words correctly complete gaps 1, 2, 3 and 4?

	1	2	3	4
A	nitrate	urea	lipase	Benedict's
B	nitrate	urea	protease	biuret
C	peptide	urine	lipase	Benedict's
D	peptide	urine	protease	biuret

7 Which nutrient is present in amylase, haemoglobin and insulin?

A carbohydrate

B fatty acids

C iron

D protein

8 Which food provides the most energy per gram?

A beans

B beef

C cheese

D milk

9 Which part of the digestive system is present in the thorax?

A liver

B oesophagus

C pancreas

D stomach

10 A dietician recommended two diets containing the nutrients in the table. These diets [illegible] women of similar age and mass.

	energy / kJ	protein / g	calcium / mg	iron / mg	vitamin C / mg
diet 1	8 600	55	500	12	40
diet 2	10 500	70	1 200	20	40

What was the likely condition of the woman recommended to follow diet 2?

A She has been diagnosed as being pregnant.

B She has damaged epithelial cells causing scurvy.

C She is recovering from a broken leg in hospital.

D She is suffering from constipation.

11 There is a lower concentration of glucose in the hepatic vein than in the hepatic portal vein after eating a meal.

What is the best explanation for this?

A Glucose molecules are stored in the liver.

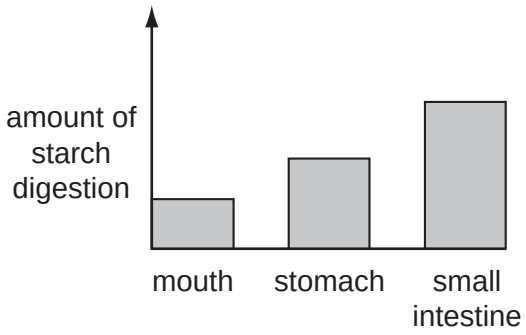
B Glucose is turned into glycogen in the liver.

C Glucose leaves the liver in the hepatic portal vein.

D Glucose is turned into urea in the liver.

12 Which bar chart shows the amount of starch digestion in the mouth, stomach and sm[illegible]?

A



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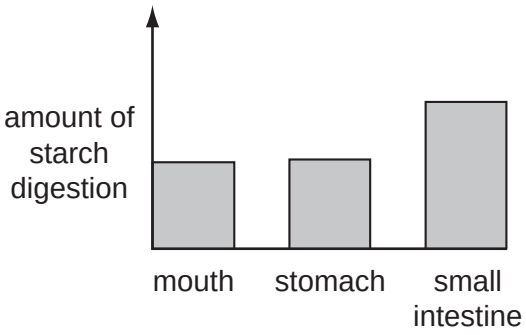

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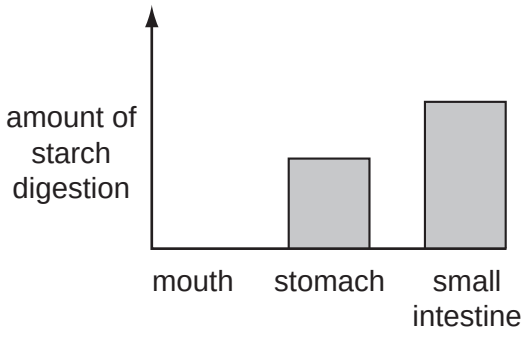
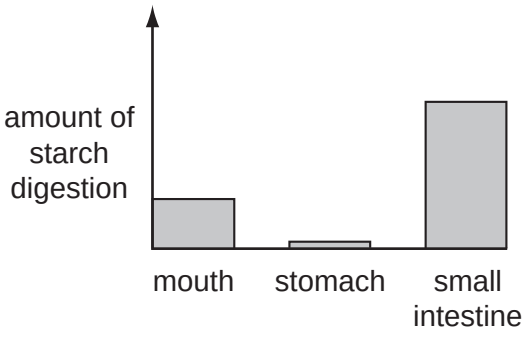
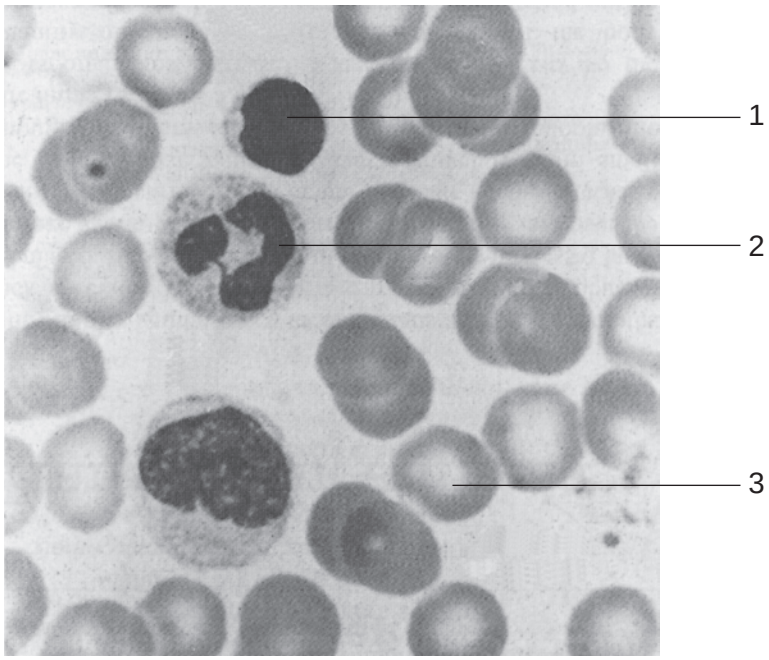


D



13 The diagram shows a photograph of blood as seen with a microscope.

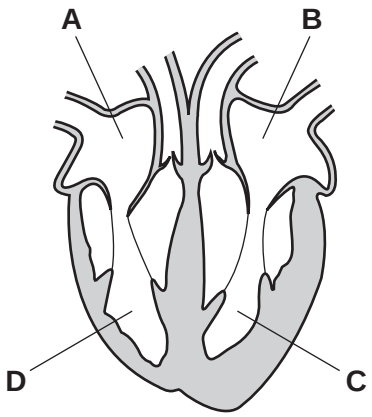


Which lines label a lymphocyte, a phagocyte and a red cell?

	lymphocyte	phagocyte	red cell
A	1	2	3
B	1	3	2
C	2	1	3
D	3	2	1

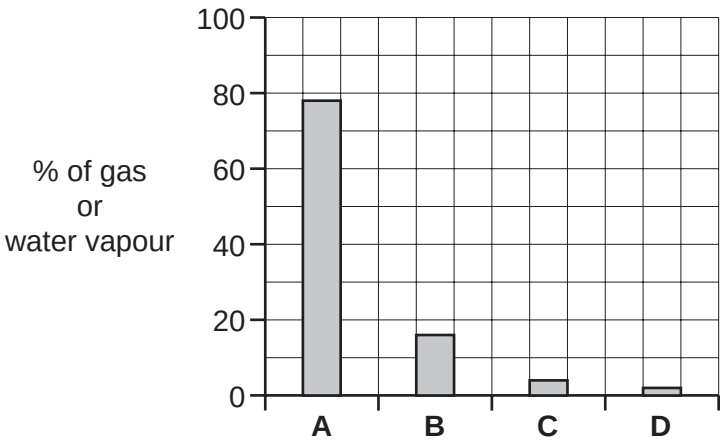
14 The diagram shows the structure of a human heart.

Which chamber of the heart first receives nicotine absorbed from cigarette smoke?

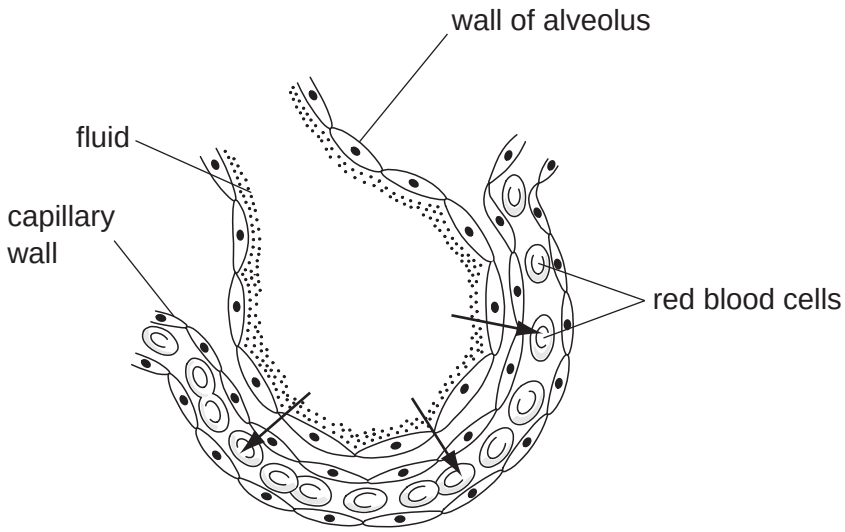


15 The bar graphs show the percentage of gases and water vapour in air breathed [illegible] exercise.

Which is carbon dioxide?



16 The diagram shows a section through an alveolus and a blood capillary.



What is diffusing in the direction shown by the arrows?

A carbon dioxide down a concentration gradient

B lymph against a concentration gradient

C oxygen down a concentration gradient

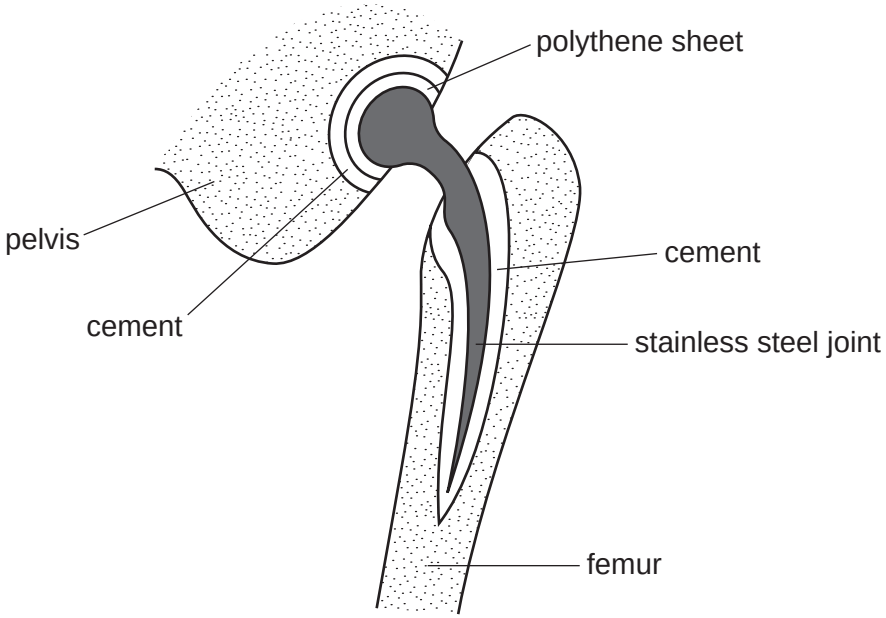
D water molecules against a concentration gradient

17 The table shows the occurrence of certain diseases in four different regions of the wo

Which region is likely to have most people smoking many cigarettes daily?

	number of recorded treatments for disease per 1 000 000 of the population			
disease	region **A**	region **B**	region **C**	region **D**
AIDs	12	8	10	70
lung cancer	10	21	30	10
malaria	300	22	40	0
typhoid	5	40	4	8

18 The diagram shows a replacement hip joint.



What is missing from this joint that would hold bones together in a normal joint?

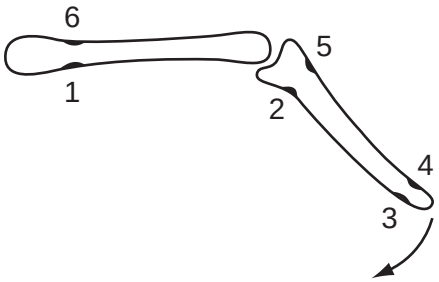
A cartilage

B ligaments

C synovial membrane

D tendons

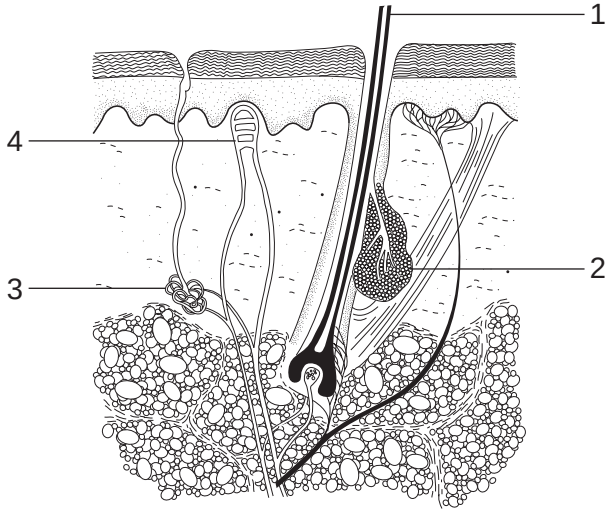
19 The diagram shows two bones as they are arranged in a limb.



Between which two points would a muscle be attached to move the lower limb in the direction of the arrow?

A 1 and 2 **B** 2 and 3 **C** 4 and 6 **D** 5 and 6

20 The diagram shows a section through the skin.



What happens during vigorous exercise?

A Part 1 is pulled over the skin surface.

B The secretions from part 2 increase.

C The secretions from part 3 decrease.

D The vessels of part 4 dilate.

21 Where are changes in blood glucose concentration detected?

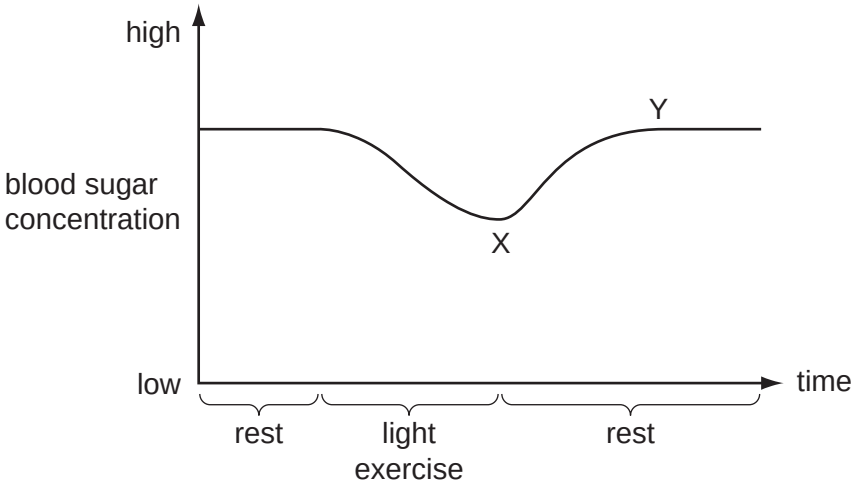
A brain

B kidney

C liver

D pancreas

22 The graph shows the changes in blood sugar concentration during periods of rest and exercise.



What causes the change in blood sugar level between X and Y?

A glucagon released by the liver

B glucose released by the liver

C glycogen released by the pancreas

D insulin released by the pancreas

23 What is **not** an example of a stimulus?

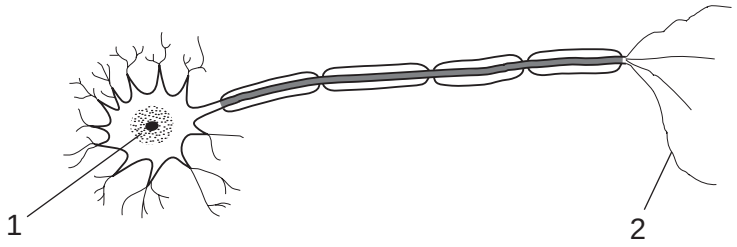
A chemicals

B seeing

C sound

D touch

24 The diagram shows a motor neurone.



Which describes the position of the parts numbered 1 and 2?

	part 1	part 2
A	central nervous system	connecting with an intermediate neurone
B	central nervous system	connecting with muscles fibres
C	connecting with a sensory neurone	connecting with an intermediate neurone
D	connecting with a sensory neurone	connecting with muscles fibres

25 What may **both** drinking alcohol and injecting heroin cause?

A cirrhosis and constipation

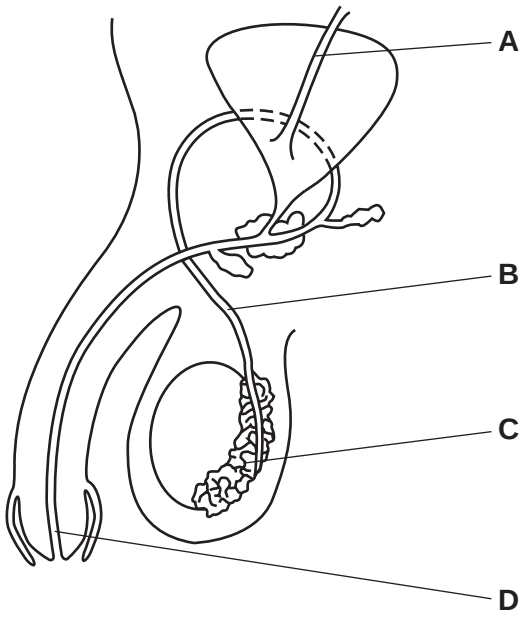
B cirrhosis and slow speed of nerve impulses

C constipation only

D slow speed of nerve impulses only

26 The diagram shows a section through the male reproductive system.

Which part is the urethra?



27 A mother who smokes cigarettes and drinks alcohol is also infected with the bacteria causing her to suffer from tuberculosis.

As a result of this, which substances may cross her placenta to harm her fetus?

A alcohol only

B alcohol and nicotine only

C nicotine and the tuberculosis bacteria only

D alcohol, nicotine and the tuberculosis bacteria

28 Which substance is **not** produced at ribosomes?

A amylase

B fibrinogen

C glycerol

D haemoglobin

29 A certain gene for eye colour occurs as two alleles. The brown eyes allele, **E**, is dominant to the blue eyes allele, **e**.

Two parents had six children. Three of the children had brown eyes and three had blue eyes.

What represents the genetic make-up of the parents?

A **EE** × **EE** **B** **EE** × **Ee** **C** **EE** × **ee** **D** **Ee** × **ee**

30 A new strain of the influenza virus, such as swine flu, often spreads very rapidly at first.

What is the best explanation for this?

A It is resistant to existing drugs.

B It is spread by a new vector.

C It takes time to develop a vaccine against the new strain.

D It will be more virulent than existing strains.

31 A patient has red scaly flakes on the head which causes itching. Scrapings from these flakes are examined under a microscope and long colourless threads can be seen.

Which organism had caused this infection?

A bacteria

B fungi

C protozoa

D viruses

32 Why can spraying oil on stagnant water help reduce the spread of malaria?

A Oil is poisonous to adult mosquitoes settling on water.

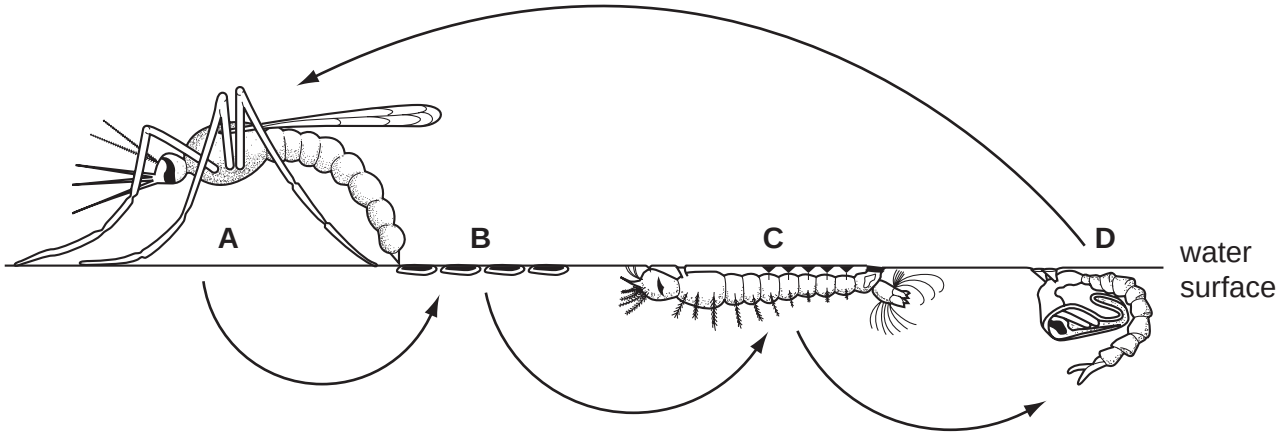
B Oil on water destroys the food of the mosquito larvae and they starve.

C Oil prevents the mosquito larvae from breathing in water.

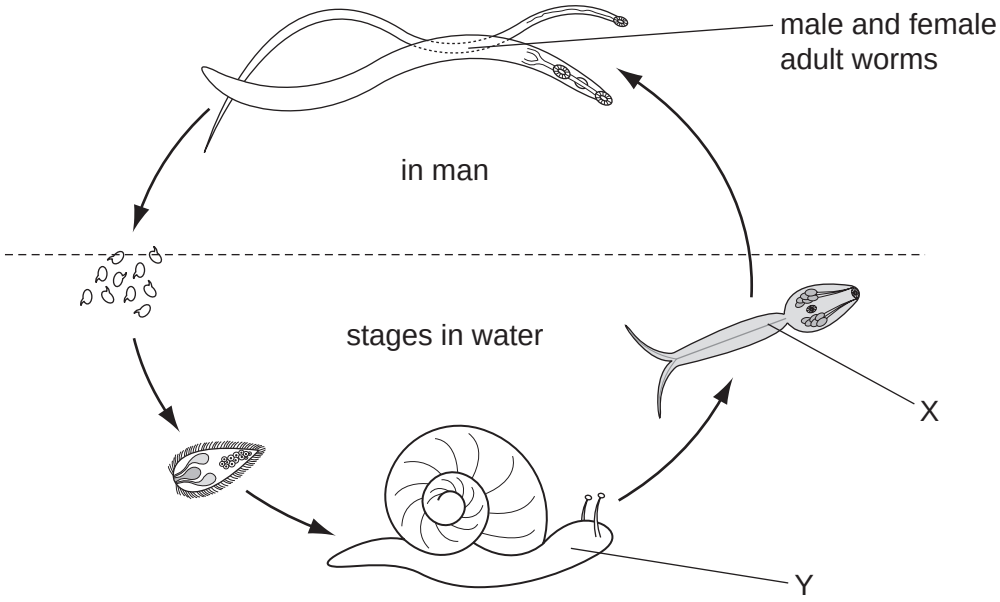
D Oil prevents adult mosquitoes laying their eggs on water.

33 The diagram shows stages in the life cycle of the *Anopheles* mosquito.

Which stage is destroyed by *Bacillus thuringiensis*?



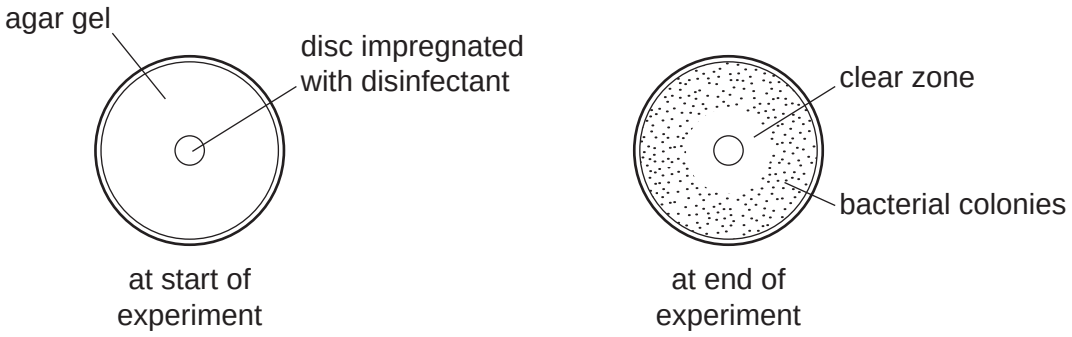
34 The diagram shows the life cycle of *Schistosoma* (causing bilharzia).



What is the secondary host and how may it be controlled?

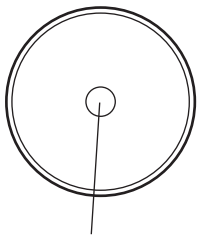
	secondary host	method of control
A	X	avoid skin contact with infected water
B	X	ingest worm killing drugs
C	Y	proper disposal of faeces
D	Y	stock water with carnivorous fish

35 An experiment is carried out to investigate the effectiveness of a disinfectant for kill[illegible] bacterium.



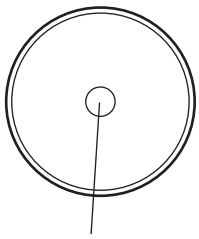
What would be the best control for this experiment?

A



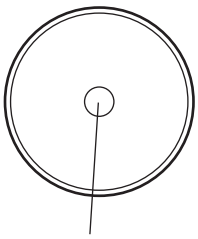
disc impregnated with boiled disinfectant

B



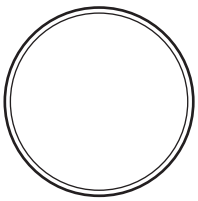
dry paper disc

C



disc impregnated with distilled water

D



no disc

36 In the absence of any other drugs, which disease would most effectively be treated by penicillin?

A cholera

B influenza

C malaria

D ringworm

37 What is an advantage of passive immunity?

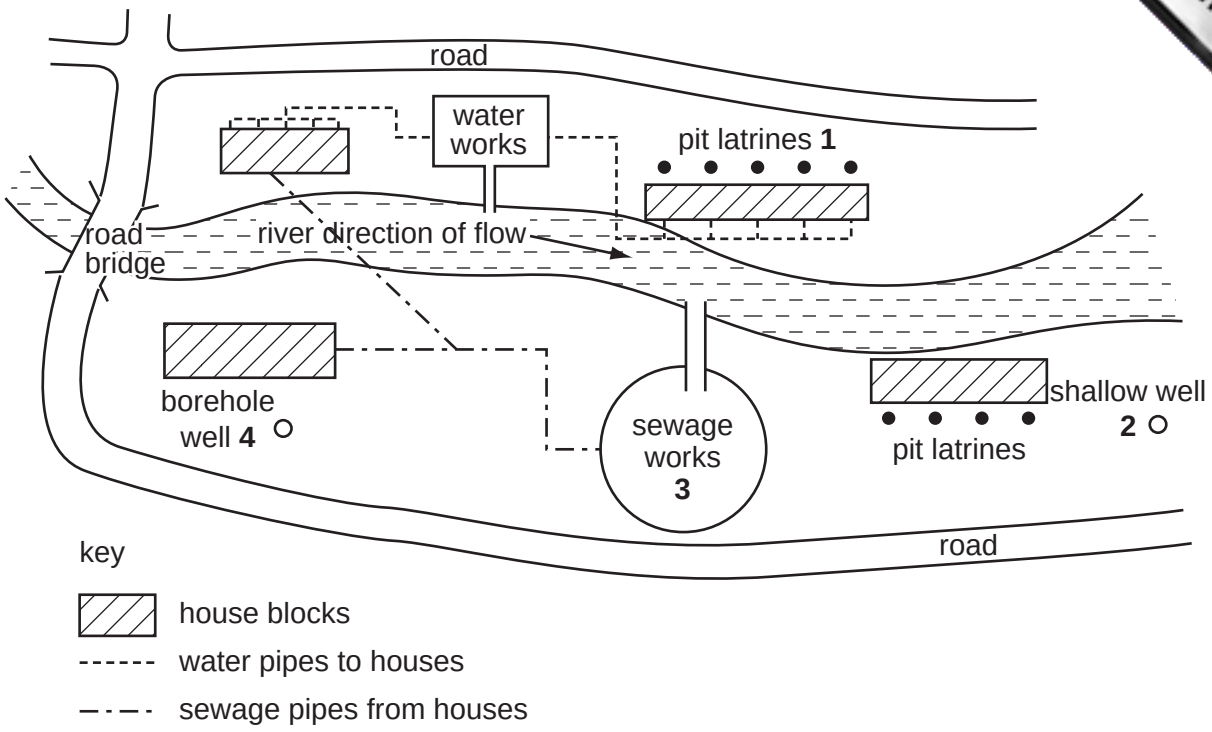
A It gives immediate protection.

B It lasts longer than active immunity.

C It makes antibodies more slowly.

D It makes the white cells produce antibodies.

38 The diagram shows a plan of a small town in which outbreaks of cholera keep occurri



Which action is most likely to be **best** to prevent further outbreaks of cholera?

A Close the pit latrines **1** and pipe sewage to the works.

B Close the shallow well **2** and supply water from the works.

C Divert the effluent from the sewage works **3** to further downstream.

D Move the borehole well **4** away from the houses.

39 Domestic waste food that builds up (accumulates) close to where people live will attract

A mice and rats.

B rats and snails.

C snails and mosquitoes.

D mosquitoes and mice.

40 Events 1 to 4 occur when fertilisers such as nitrates and phosphates are washed int[illegible] farmland.

1 massive growth of algae near the surface of the lake

2 aquatic animals die because of anaerobic conditions

3 light cut off from aquatic plants which die

4 plants decomposed by bacteria that respire and use up oxygen in the water

What is the order of these events?

	first →			last
A	1	2	3	4
B	4	2	1	3
C	1	3	4	2
D	3	4	1	2

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