CAMBRIDGE INTERNATIONAL EXAMINATIONS

Joint Examination for the School Certificate and General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY 5096/1

PAPER 1 Multiple Choice

OCTOBER/NOVEMBER SESSION 2002

1 hour

Additional materials:
Multiple Choice answer sheet
Soft clean eraser
Soft pencil (Type B or HB is recommended)

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Write your name, Centre number and candidate number on the answer sheet in the spaces provided unless this has already been done for you.

There are **forty** questions in 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 very carefully the instructions on the answer sheet.

INFORMATION FOR CANDIDATES

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.

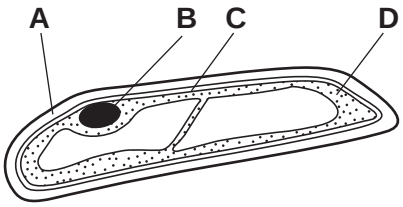
This question paper consists of 15 printed pages and 1 blank page.

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

[Turn over

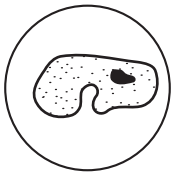
1 The diagram shows a plant (onion) cell as seen with a light microscope.

Which part is **not** present in animal cells?



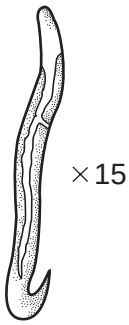
2 Which diagram shows the type of organism that causes tuberculosis?

A



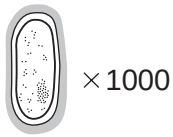
unicellular; reproduces by fission

B



multicellular; larval stages worm-like

C



unicellular; no true nucleus

D

mycelium of hyphae

3 Which feature of the liver best shows it to be one of the most active organs in the body?

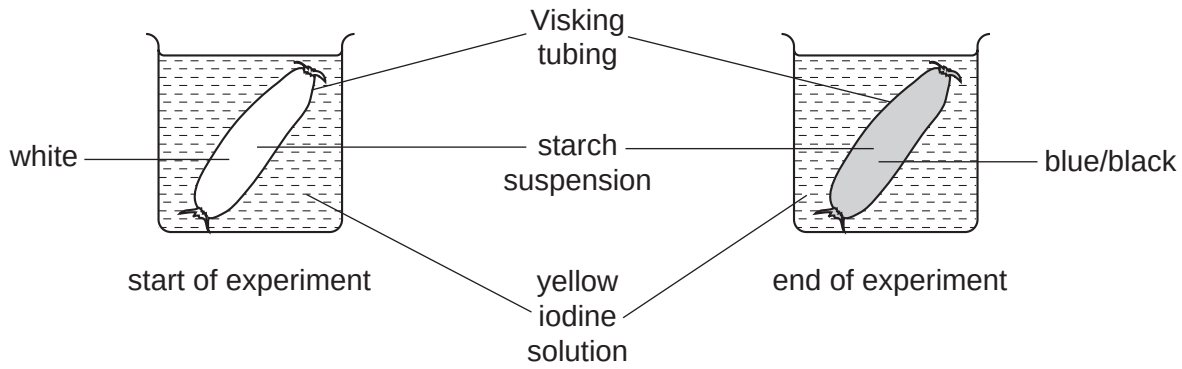
A It deaminates all surplus amino acids.

B It receives blood from two main sources.

C Its cells have large numbers of mitochondria.

D It stores large amounts of glycogen.

4 The diagrams show the start and the end result of an experiment using Visking tubing as a membrane.



Why does the starch suspension change colour?

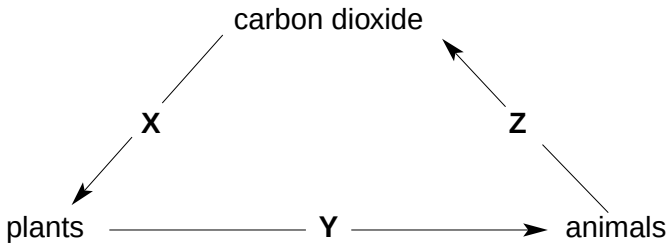
A Iodine enters the tube by osmosis, hydrolysing the starch.

B Iodine passes by diffusion into the tube and reacts with the starch.

C Starch is converted to sugar in the tube and is detected by the iodine.

D Starch passes out of the tube and reacts with the iodine.

5 The diagram shows a simple carbon cycle.



What process occurs at **X**, **Y** and **Z**?

	X	Y	Z
A	feeding	photosynthesis	respiration
B	photosynthesis	feeding	respiration
C	photosynthesis	respiration	feeding
D	respiration	photosynthesis	feeding

6 Which nutrients are needed to replace haemoglobin lost during menstruation?

A glucose and iron

B iron and protein

C protein and vitamin C

D vitamin C and glucose

7 Why must fibre be included in the diet?

A It helps form strong bones and teeth.

B It helps the action of the gut muscles.

C It is a rich source of energy.

D It is needed for growth and tissue repair.

8 Why is breast milk better than cow's milk for feeding babies?

A It contains antibodies.

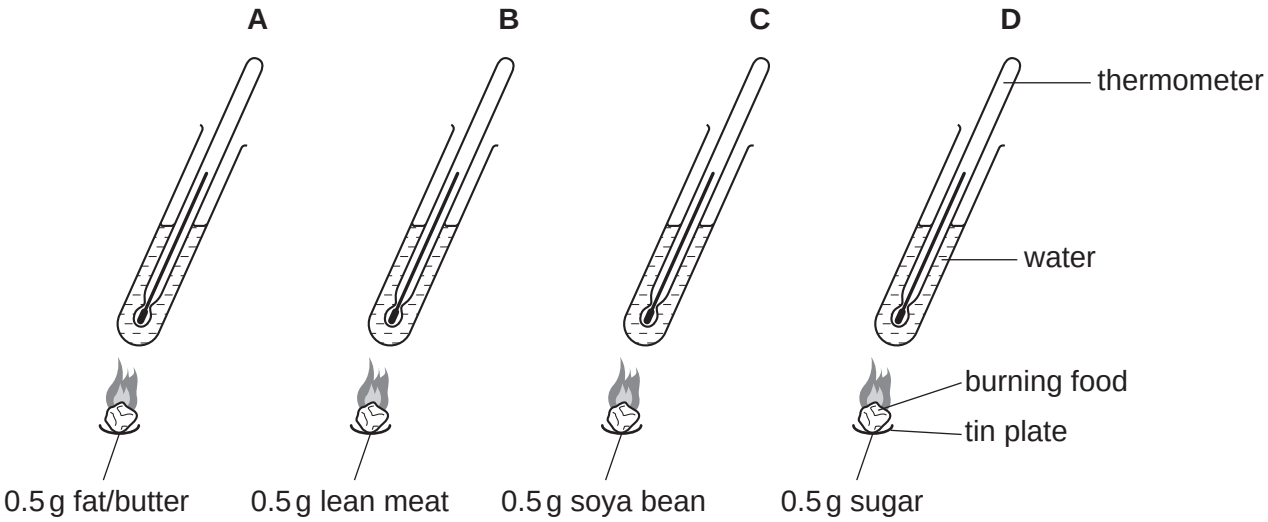
B It contains iron.

C It contains protein.

D It contains vitamin C.

9 The energy value of foods can be compared using the apparatus shown. The same mass of food is burned under each of four tubes containing water.

In which tube would the temperature of the water rise the most?



10 Diagram 1 shows a vertical section through a molar tooth.

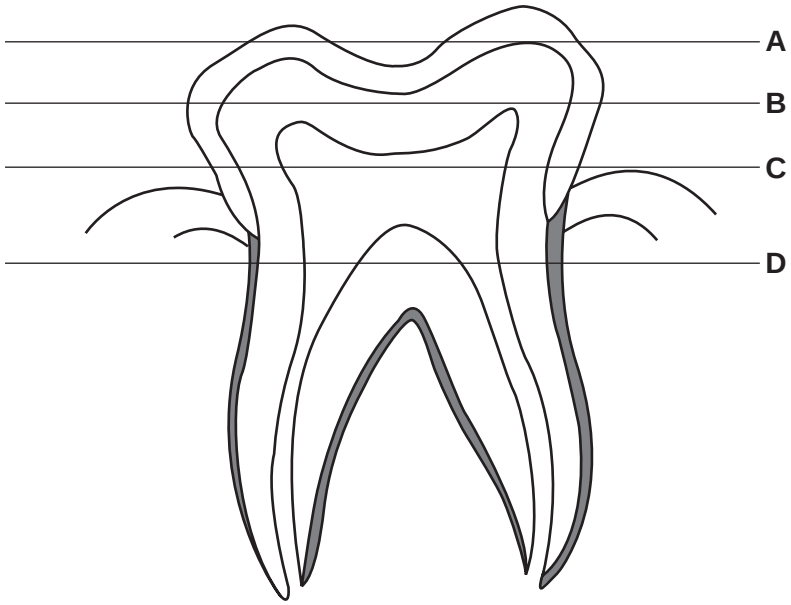
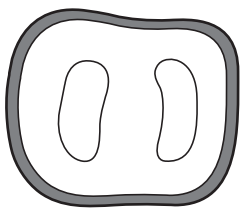


Diagram 2 shows a cross-section through the same molar tooth.



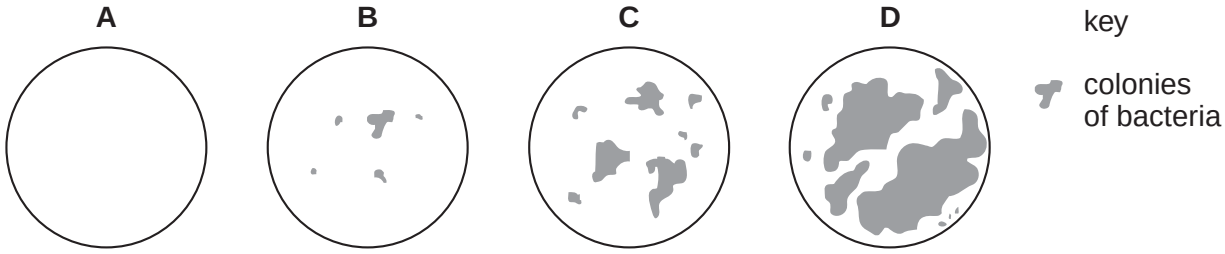
At what level was this cross-section taken?

[Turn over

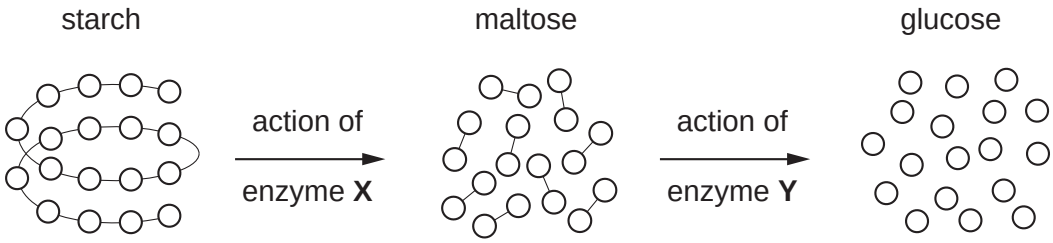
11 Scrapings were taken from the teeth of four students, one hour after the following activities. The scrapings are spread over the surface of agar plates and incubated.

student	activity
1	brushing the teeth with water
2	brushing the teeth with toothpaste
3	eating an apple
4	eating a cake

Which agar plate contains the scrapings from student 4?



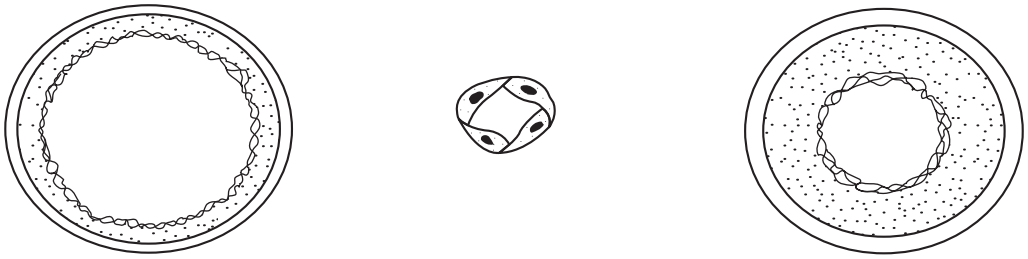
12 The diagram shows the stages in which a starch molecule is broken down to smaller molecules of glucose.



What are the correct names for **X** and **Y**?

	enzyme **X**	enzyme **Y**
A	amylase	amylase
B	amylase	maltase
C	maltase	amylase
D	maltase	maltase

13 The diagrams show three blood vessels in transverse section.



1 2 3

In which order would blood flow through these vessels in passing from the heart, through the lungs and back to the heart?

	from heart	through lungs	to heart
A	1 →	2 →	3
B	2 →	3 →	1
C	3 →	1 →	2
D	3 →	2 →	1

14 When blood clots, the following events all take place.

1 a network of fibres is formed

2 fibrinogen is changed to fibrin

3 platelets encounter torn tissue

4 red blood cells and platelets are trapped

What is the correct order of these events?

A 1 → 2 → 4 → 3

B 1 → 3 → 4 → 2

C 3 → 1 → 2 → 4

D 3 → 2 → 1 → 4

15 Where would a blood clot cause a heart attack?

A in an atrium of the heart

B in a ventricle of the heart

C in the carotid artery

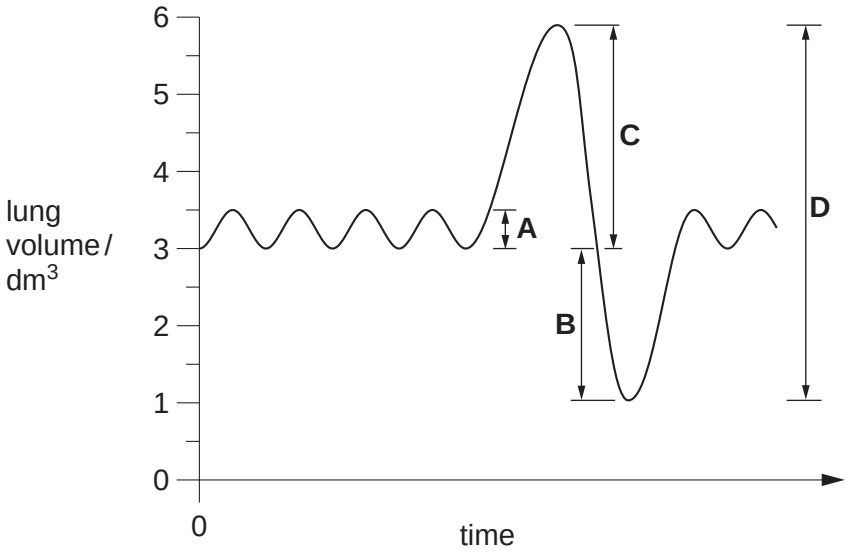
D in the coronary artery

16 What percentage of oxygen and carbon dioxide does expired air contain?

	oxygen %	carbon dioxide %
A	4.00	20.00
B	16.00	20.00
C	16.00	4.00
D	20.00	0.04

17 The graph shows changes in lung volume and rate of breathing over a period of time.

Which shows the vital capacity?



18 Which part of cigarette smoke is mainly responsible for causing cancer?

A carbon monoxide

B nicotine

C particles

D tar

19 Which material forms a flexible support in the trachea?

A bone

B cartilage

C ligament

D muscle

20 Between which bones is there a ball and socket joint?

A humerus and scapula

B humerus and ulna

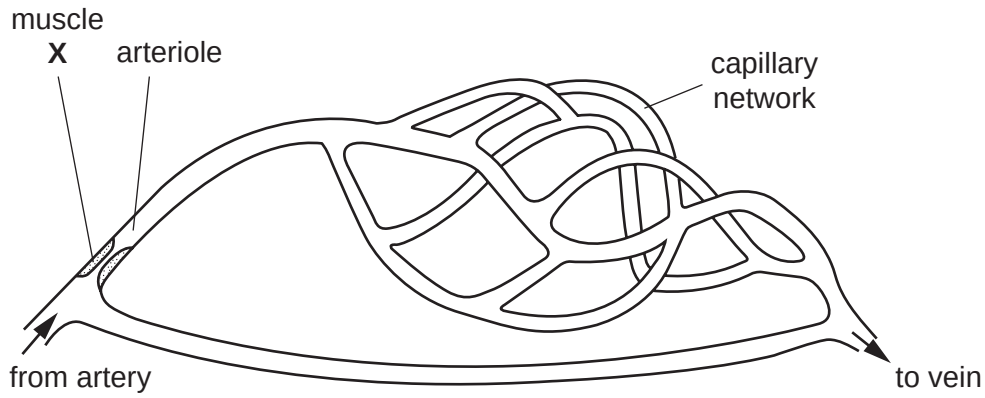
C radius and scapula

D radius and ulna

21 What is the usual effect on the volume and concentration of urine produced when a person suffers from diarrhoea?

	volume	concentration
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

22 The diagram shows a capillary network near the surface of the skin.



What happens when the muscle at **X** relaxes?

A Less blood flows through the capillaries and the body retains heat.

B More blood flows through the capillaries and the body loses heat.

C The capillaries move away from the surface and the body retains heat.

D The capillaries move nearer the surface and the body loses heat.

23 There are two regions of the nervous system.

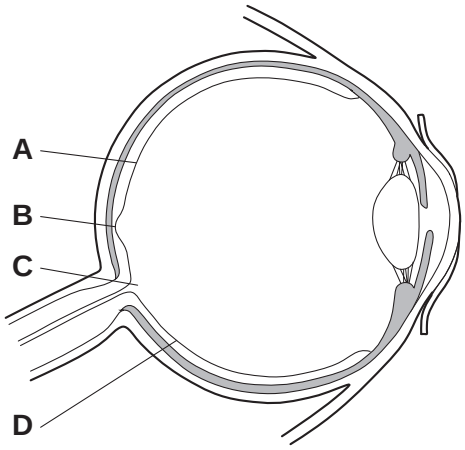
Which parts belong to each region?

	central nervous system	peripheral nervous system
A	brain and spinal cord	spinal nerves
B	brain and spinal nerves	spinal cord
C	spinal cord and spinal nerves	brain
D	spinal nerves	brain and spinal cord

24 A student draws a dot and a cross as shown.

With his right eye closed, the student looks hard at the cross with his left eye. He brings the drawing towards him until the dot disappears.

On which point inside his eye does the image of the dot fall when it disappears?



25 Which is a reflex action?

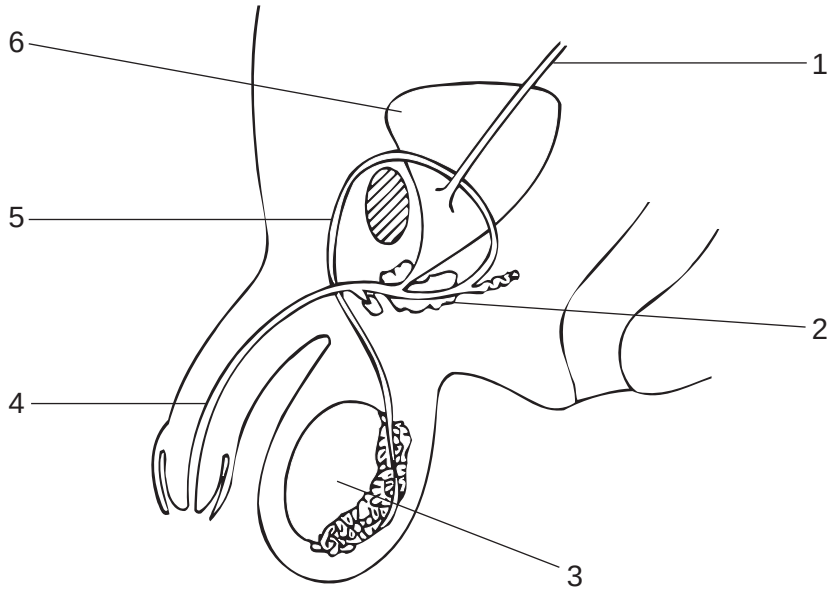
A A football goalkeeper making a save.

B A girl waving back to a boy who is waving to her.

C The hand being moved quickly after a pin prick.

D The skin becoming black and blue after a hard hit.

Questions 26 and 27 refer to the diagram, which shows the male reproductive system.



26 Which labelled structure carries sperms but **not** urine?

A 1 **B** 2 **C** 4 **D** 5

27 In which structure will cells be found showing stages in meiosis?

A 2 **B** 3 **C** 4 **D** 6

28 What would a doctor test faeces for to check that a patient is suffering from typhoid?

A bacteria

B protozoa

C viruses

D worms

29 What causes the spread of HIV?

A kissing

B sexual intercourse

C sharing cigarettes

D using soiled towels

30 A boy contracts an infectious disease by sharing a towel.

Which disease has been transmitted in this way?

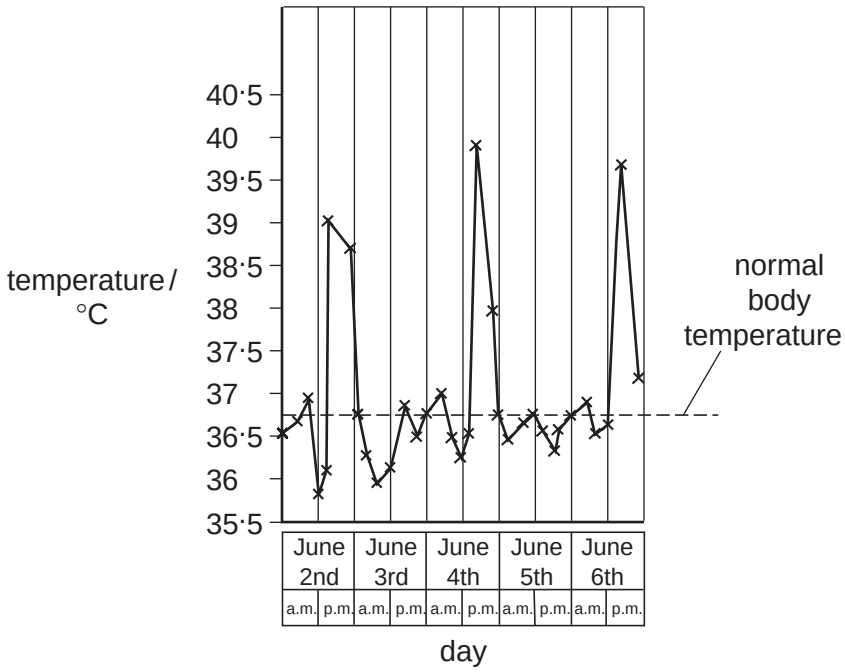
A malaria

B ringworm

C tuberculosis

D typhoid

31 The graph shows the body temperature of a patient.



From which disease is this patient suffering?

A AIDS

B cholera

C influenza

D malaria

32 Insecticides can help to reduce the number of cases of some diseases.

For which disease is this true?

A cholera

B malaria

C ringworm

D tuberculosis

33 The table shows the occurrence of certain diseases in four different regions.

Which region is likely to have poor facilities for the disposal of sewage?

	number of recorded treatments for disease per 1 million of the population			
disease	region **A**	region **B**	region **C**	region **D**
lung cancer	10	130	21	10
malaria	300	40	2	0
ringworm	24	2	5	220
typhoid	5	4	140	8

34 Which chemical, produced by a fungus, will destroy bacteria?

A an antibiotic

B an antibody

C an antigen

D an antiseptic

35 Which disease can be treated with penicillin?

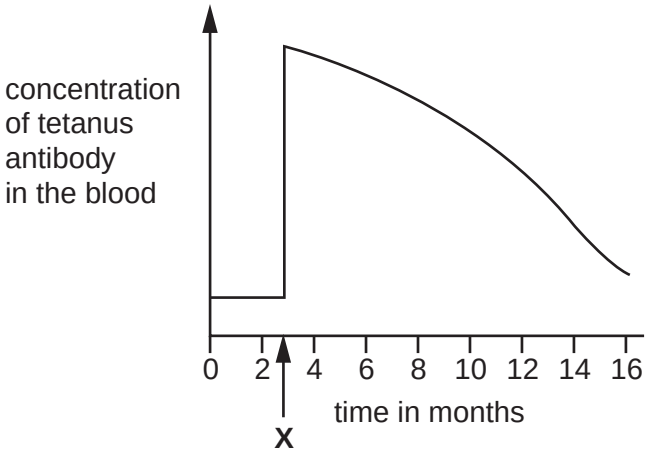
A gonorrhoea

B influenza

C malaria

D ringworm

36 The graph shows the concentration of antibody in the blood of a person at a time when immunity to tetanus occurs.



What happens at **X**?

A an immune serum is injected into the blood

B tetanus bacteria multiply rapidly in the blood

C tetanus bacteria produce antibodies to resist the infection

D vaccination has caused the blood to produce antibodies

37 Which sequence shows how water from a river is made fit to drink?

A chlorination → settling out → filtration → grid screening

B filtration → grid screening → chlorination → settling out

C grid screening → settling out → filtration → chlorination

D settling out → grid screening → chlorination → filtration

38 The disposal of household refuse involves burying the refuse.

What does this burying prevent?

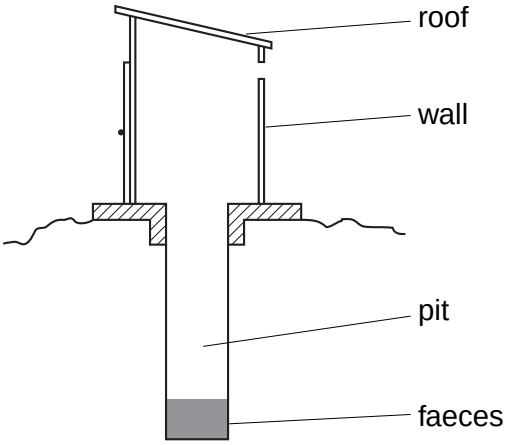
A bacterial action on waste paper

B flies laying eggs on food scraps

C food material decomposing

D the formation of methane gas

39 The diagram shows a section through a pit latrine.



Why may the disposal of faeces in this latrine be a risk to health?

A Flies can enter and leave the latrine.

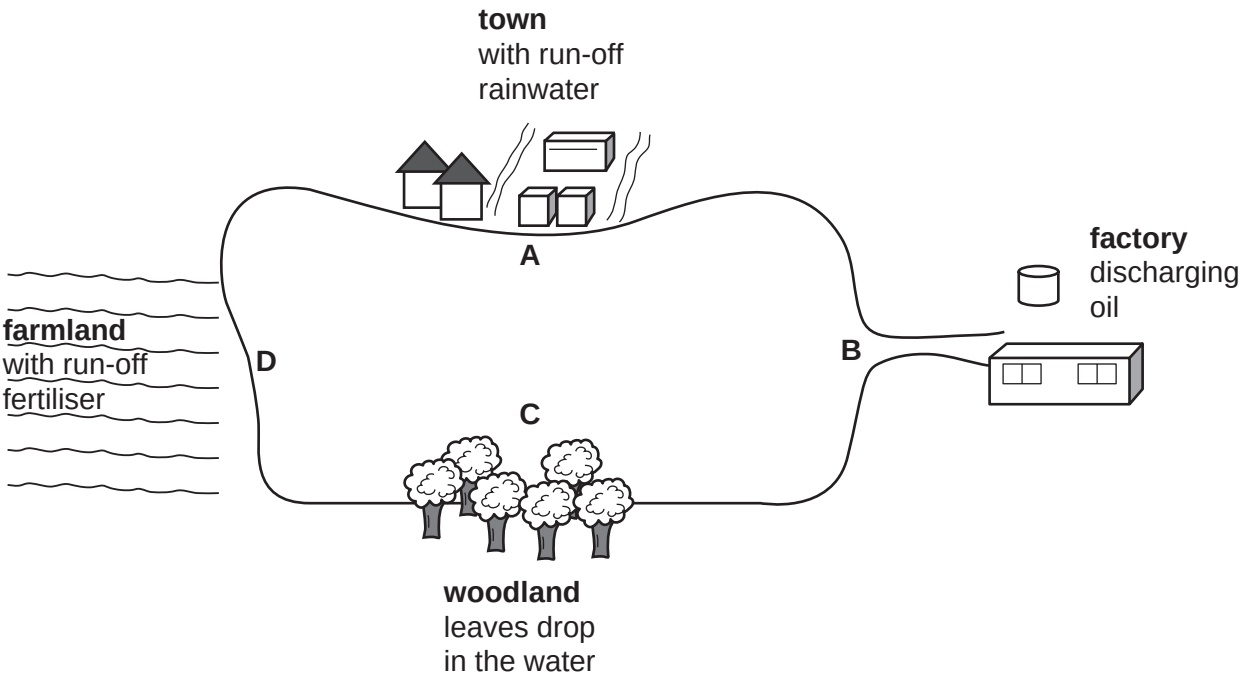
B Mosquitoes can lay their eggs in the faeces.

C The latrine gets very hot.

D Ventilation is poor.

40 The diagram shows a lake with a town, a factory, woodland and farmland on its banks.

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



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