



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY

5096/01

Paper 1 Multiple Choice

May/June 2008

1 hour

Additional Materials: Multiple Choice Answer Booklet
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 **15** printed pages and **1** blank page.



- 1 When fuel burns in the engine of a car, energy is released.
Which process that occurs in living organisms is most similar to this?

A excretion
B movement
C nutrition
D respiration

- 2 What do **all** viruses and bacteria have in common?

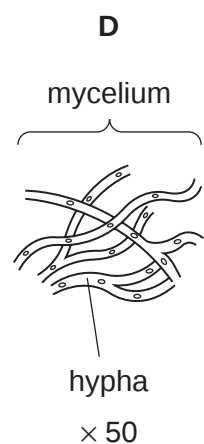
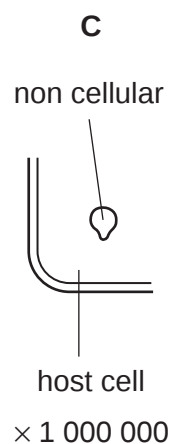
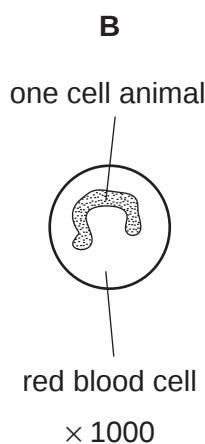
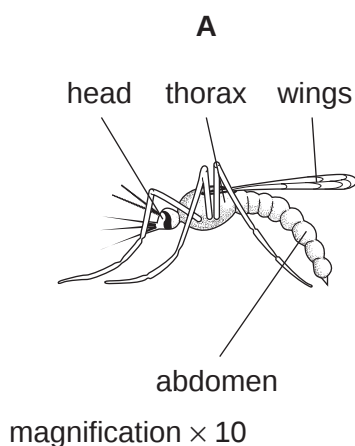
A They are parasites.
B They can exist as chemicals to later infect a host.
C They contain nucleic acid.
D They have a nucleus.

- 3 Which statement about osmosis is true?

A It is the movement of any molecules from high to low concentration.
B It is the movement of any gas molecules into a cell.
C It is the movement of water molecules from a dilute to a concentrated solution.
D It is the movement of solute molecules into a solvent.

- 4 The diagrams show four types of organisms.

Which is the vector for malaria?

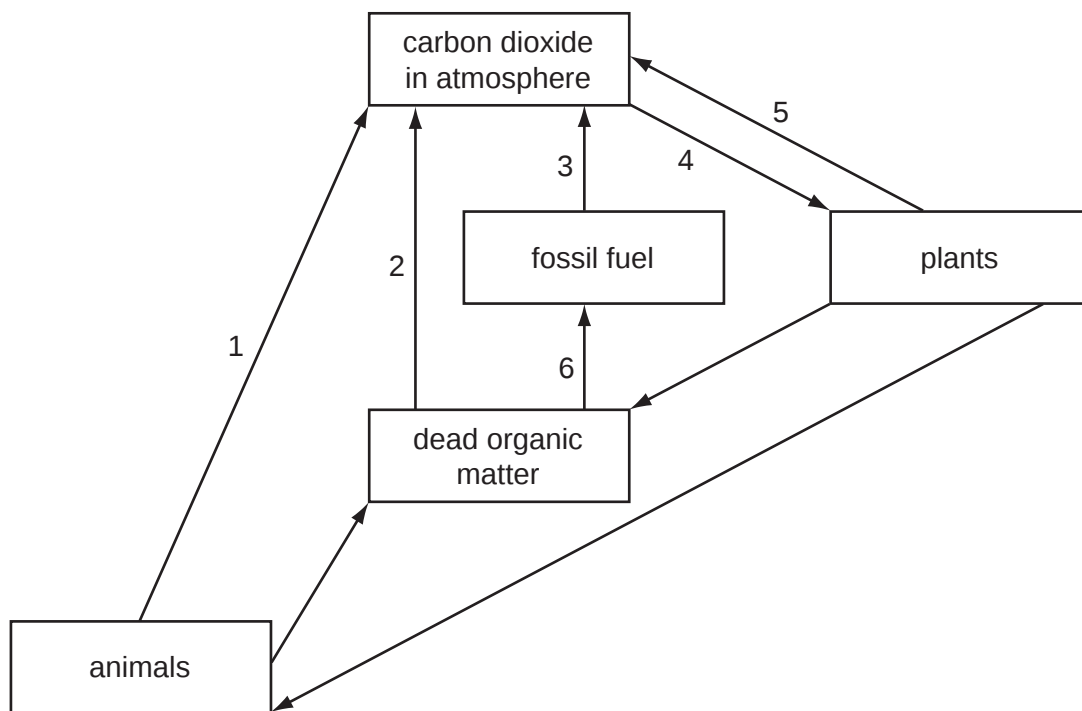


- 5 The arrows represent chemicals entering and leaving the leaf during photosynthesis.



What is chemical X?

- A carbohydrate
 - B carbon dioxide
 - C oxygen
 - D water
- 6 The diagram shows a carbon cycle.



Which arrows represent processes that cause the carbon dioxide content of the air to increase?

- A 1, 2 and 3 only
- B 3, 4 and 5 only
- C 2, 3, 4 and 5
- D 1, 2, 3 and 5

- 7 The table shows the results of tests carried out on a food sample.

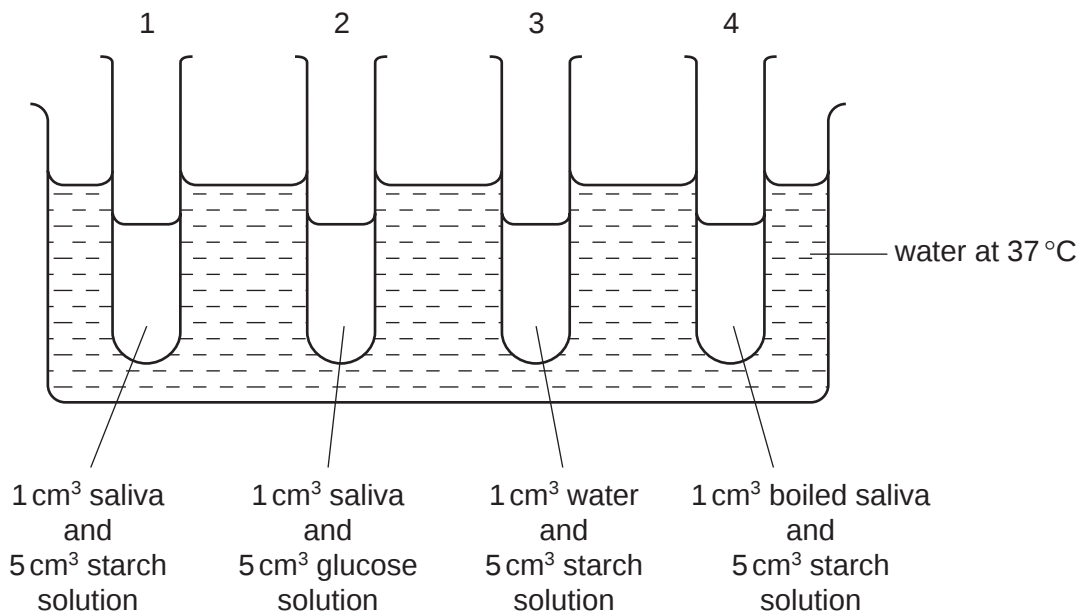
test	result
biuret	positive
iodine	positive
Benedict's	negative
grease spot	negative

What does the food sample contain?

- A** fat and reducing sugar
 - B** fat and starch
 - C** protein and reducing sugar
 - D** protein and starch
- 8 A baby fed on cow's milk should also be given orange juice and cod liver oil to provide sufficient
- A** calcium and iron.
 - B** calcium and vitamin C.
 - C** iron and vitamin D.
 - D** vitamin C and vitamin D.
- 9 Why should iron be included in the diet of a pregnant woman?
- A** for development of strong bones
 - B** for formation of the baby's red blood cells
 - C** so that the mother's epidermal cells stay healthy
 - D** to prevent dental decay in the mother

- 10 The diagram shows an experiment to investigate the action of salivary amylase.

The contents of the tubes were tested with iodine solution after one hour.

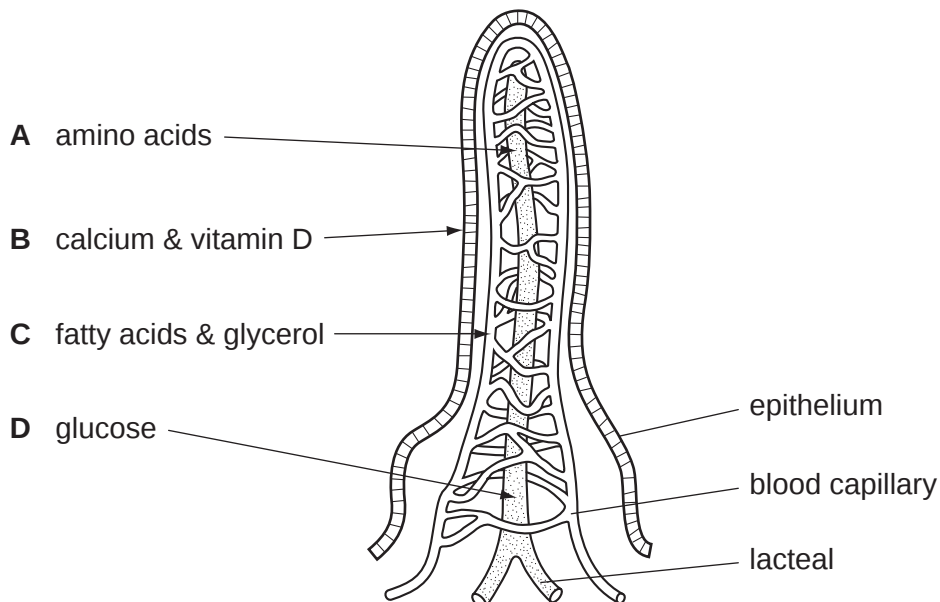


The contents of which tubes will show a brown colour as a result of this test?

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

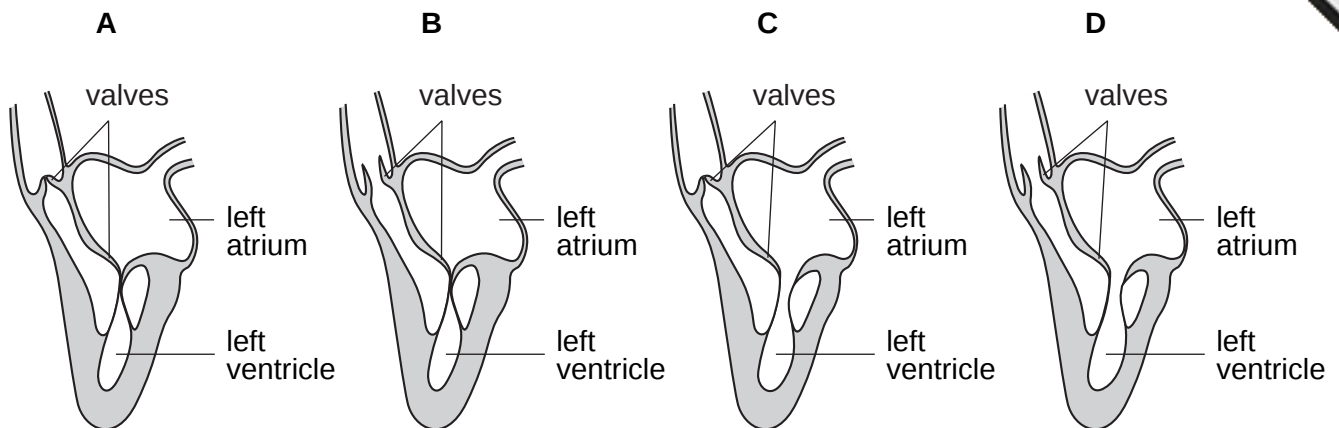
- 11 The diagram shows a section through a villus in the small intestine.

Which arrow shows the site of absorption for the named substances?

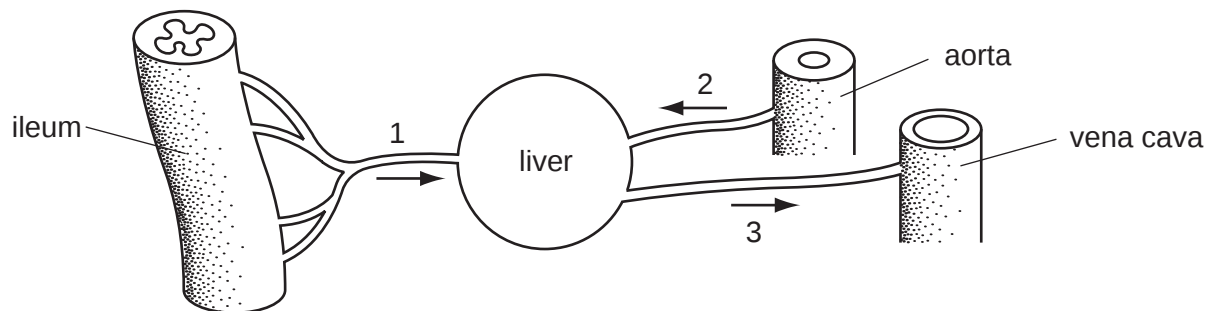


12 The diagrams show sections through the left side of the heart.

In which diagram are the valves shown as they are during the pumping of blood out of the ventricle by contraction of the ventricle?



13 The diagram shows the blood supply of the liver.



What are blood vessels 1, 2 and 3?

	1	2	3
A	hepatic artery	hepatic portal vein	hepatic vein
B	hepatic artery	hepatic vein	hepatic portal vein
C	hepatic portal vein	hepatic artery	hepatic vein
D	hepatic portal vein	hepatic vein	hepatic artery

- 14 The table shows the composition of blood as it leaves some organs of the body.

Which row in the table represents blood leaving the liver?

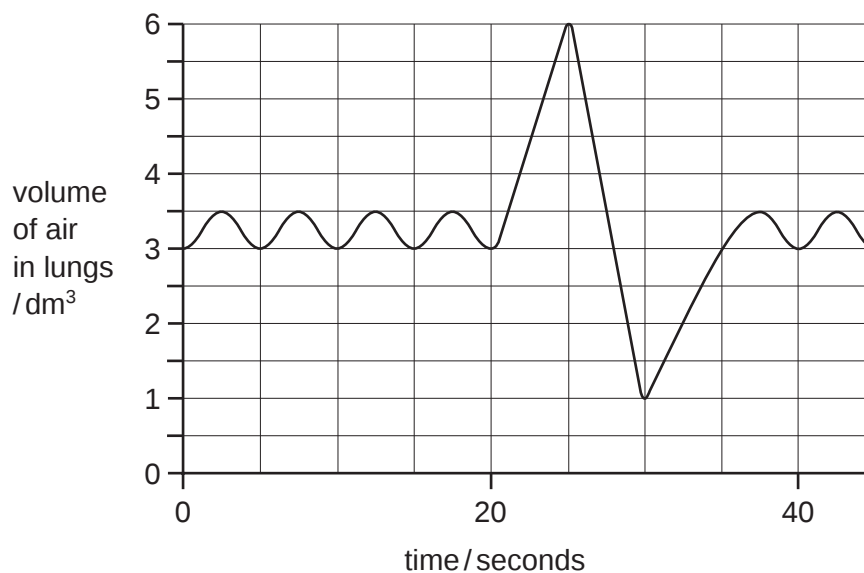
	carbon dioxide concentration	oxygen concentration	urea concentration
A	low	high	high
B	high	low	low
C	high	low	high
D	low	high	low

- 15 What changes cause inspiration (breathing in) to take place?

	diaphragm muscle	volume of thorax	pressure in thorax
A	contracts	decreases	increases
B	contracts	increases	decreases
C	relaxes	decreases	increases
D	relaxes	increases	decreases

- 16 A student breathes normally, then takes the deepest possible breath in and then breathes out as much as possible before resuming normal breathing.

The graph shows the volume of air breathed into and out of the lungs of this student.

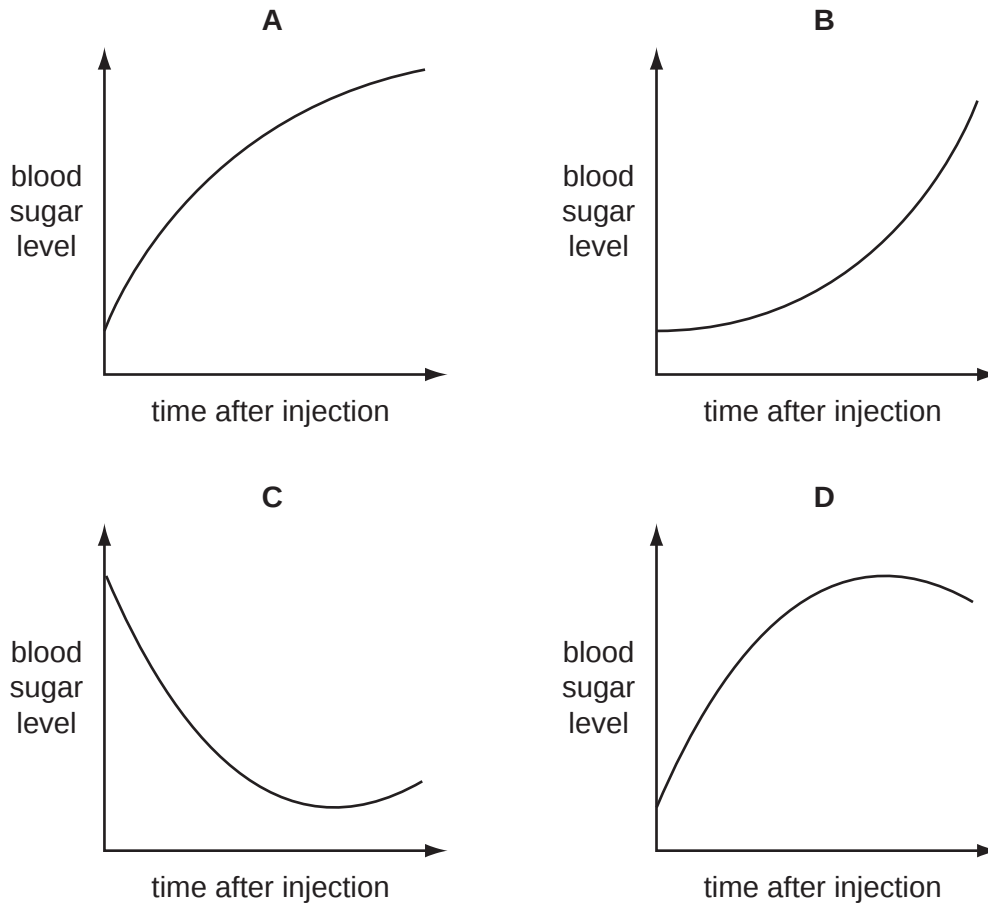


What is the vital capacity of the lungs?

- A** 0.5 dm^3 **B** 2.5 dm^3 **C** 3.0 dm^3 **D** 5.0 dm^3

- 17 What is mainly responsible for the hardness of bone matrix?
- A calcium phosphate
 - B collagen fibres
 - C iron compounds
 - D protein molecules
- 18 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
- 19 What **cannot** pass from the glomerulus into the Bowman's capsule in the kidney of a healthy person?
- A glucose
 - B protein
 - C salt
 - D urea

20 Which graph shows the blood sugar level in a diabetic who received an insulin injection?



21 What makes the skin sensitive to temperature changes?

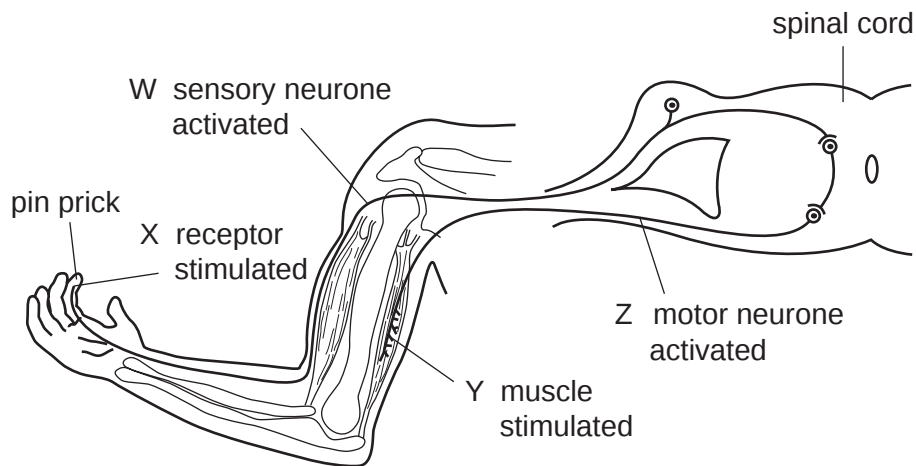
- A blood capillaries
- B outer epidermis
- C receptor cells
- D sweat glands

22 A student is looking at a lorry coming towards him.

Which changes occur in his eyes as the lorry gets closer?

	tension in suspensory ligaments	ciliary muscle	lens becomes
A	decreases	contracts	thicker
B	decreases	relaxes	thinner
C	increases	contracts	thicker
D	increases	relaxes	thinner

23 The diagram shows a simple reflex arc.



What is the order of events?

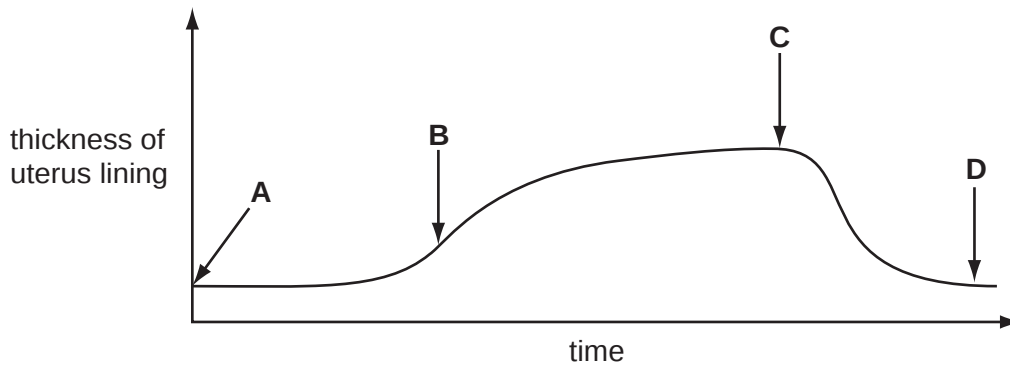
	first	→	last
A	X	W	Z Y
B	X	W	Y Z
C	Y	Z	W X
D	Y	Z	X W

24 Which correctly shows what happens during drug dependence?

	amount of drug required for person to feel well	effect of drug on metabolism of body	craving for drug when it has not been taken for a while
A	decreases	decreases	decreases
B	decreases	increases	increases
C	increases	increases	increases
D	increases	increases	decreases

- 25 The diagram shows variations in the thickness of the lining of the uterus during the menstrual cycle.

At which point does menstruation start?



- 26 What is passed through the placenta from the mother to the fetus?
- A amniotic fluid
 - B antibodies
 - C fibrin
 - D glycogen
- 27 A contraceptive pill contains the hormones progesterone and oestrogen.
- How does this pill prevent conception?
- A changing the length of the menstrual cycle
 - B inhibiting menstruation
 - C preventing the release of eggs
 - D stopping implantation of the embryo
- 28 Why is coronary heart disease described as a degenerative disease?
- A It is made worse by a vitamin deficiency.
 - B It is transmitted by a vector.
 - C It becomes worse with time.
 - D It is the result of a genetic disorder.

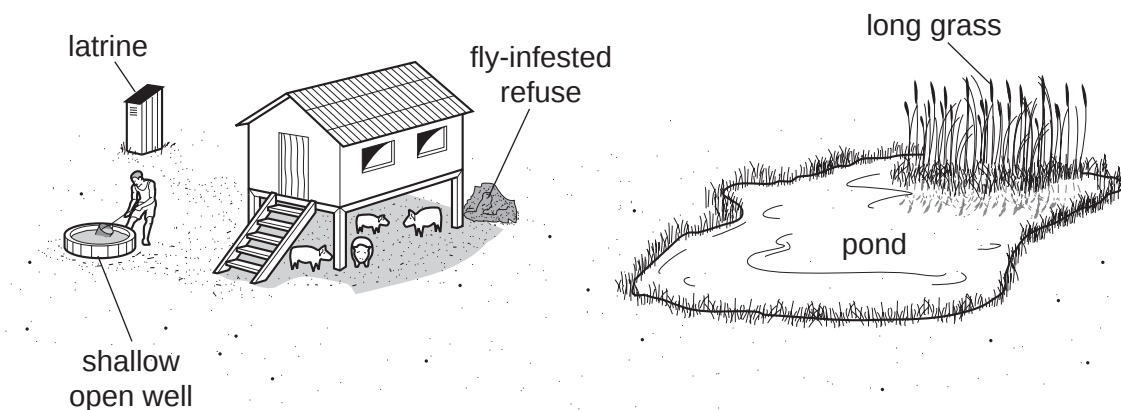
29 What is caused by a diet low in vitamin D?

- A Blood clots more slowly.
- B Calcium ions are not absorbed from the gut.
- C Children develop sickle cell anaemia.
- D Wounds heal more slowly.

30 How are carriers of typhoid best identified?

- A Examine their skin for signs of a rash.
- B Examine their urine for the presence of bacteria.
- C Take their core temperature to see if they have a fever.
- D Test their faeces for the presence of bacteria.

31 The diagram shows a house in a tropical region.



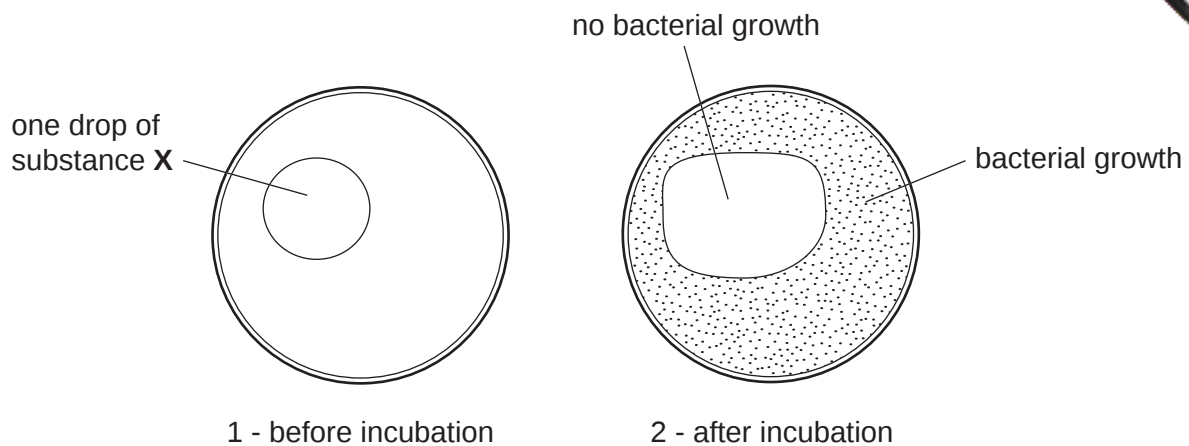
Which diseases are the people living in this house **most** at risk from as a result of the features shown?

- | | | | |
|---|--------------|-----------|----------|
| A | cholera | malaria | ringworm |
| B | malaria | influenza | cholera |
| C | tuberculosis | typhoid | cholera |
| D | typhoid | cholera | malaria |

32 Which is a fungal infection?

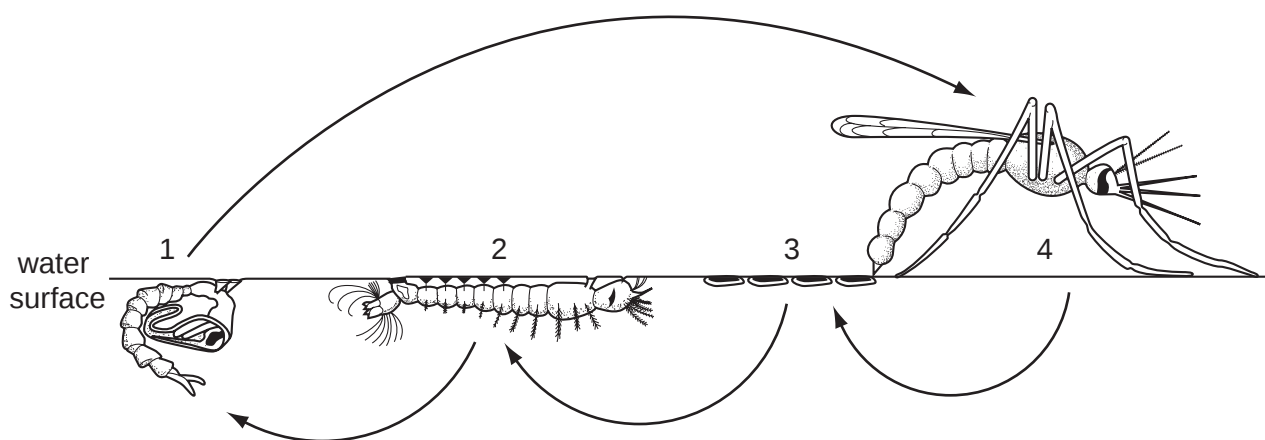
- A cholera
- B influenza
- C malaria
- D ringworm

- 33 A culture dish containing nutrient agar was inoculated with bacteria. At the same time, one drop of substance X was placed on the plate as shown in diagram 1.



What is substance X most likely to contain?

- A antibiotic
 - B antibody
 - C antiserum
 - D bacterial culture
- 34 Which statement is true for *Bacillus thuringiensis*?
- A It breeds inside filter-feeding larvae and kills them.
 - B It is a fish that eats the aquatic stages of the mosquito.
 - C It is a protozoan that causes a disease in humans.
 - D It is used to kill malarial parasites in their host.
- 35 The diagram shows stages in the life cycle of the mosquito.



At which stages would insecticide be effective in controlling the numbers of mosquitoes?

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

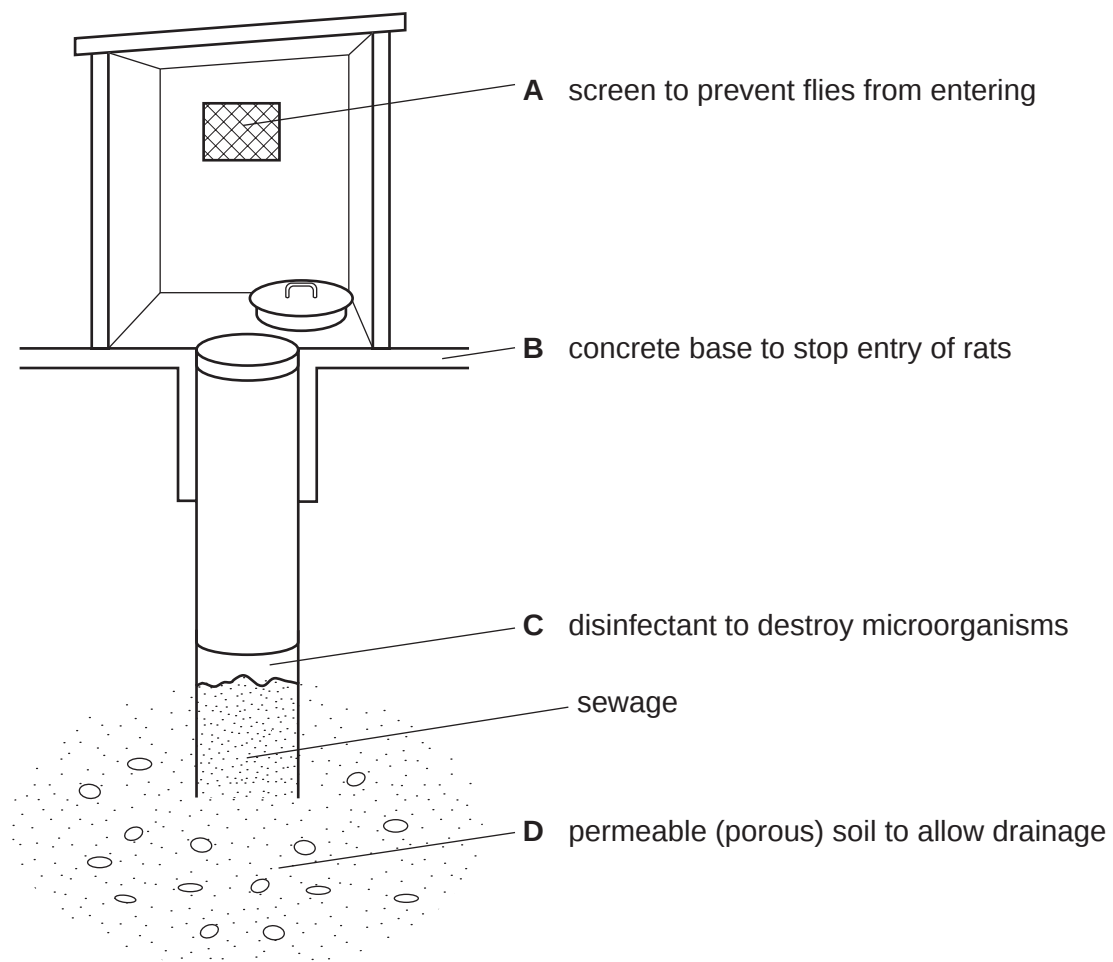
36 What helped to eliminate smallpox worldwide by vaccination?

- 1 people were willing to be vaccinated
- 2 each person received several vaccinations (boosters)
- 3 smallpox did **not** infect any other animals

	1	2	3
A	✓	✓	✓
B	✓	x	✓
C	x	✓	✓
D	✓	✓	x

37 The diagram shows a pit latrine.

What prevents the latrine from working properly?



38 What is **not** used in sewage disposal?

- A chlorination
- B filtration
- C screening
- D sedimentation

39 The disposal of household refuse involves burying the refuse.

What does this burying prevent?

- A bacterial action on organic waste
- B flies laying eggs on food scraps
- C food material decomposing
- D the formation of methane gas

40 Events 1 to 4 occur when fertilisers such as nitrates and phosphates are washed into lakes from 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	

