

CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**HUMAN AND SOCIAL BIOLOGY**

**5096/01**

Paper 1 Multiple Choice

May/June 2003

**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.

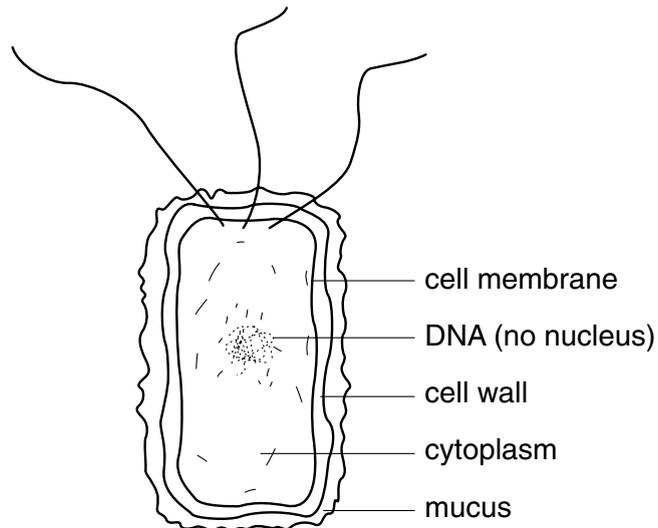
There are **forty** questions on this paper. Answer **all** questions. For each question, there are four possible answers, **A, B, C, and D**.

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.

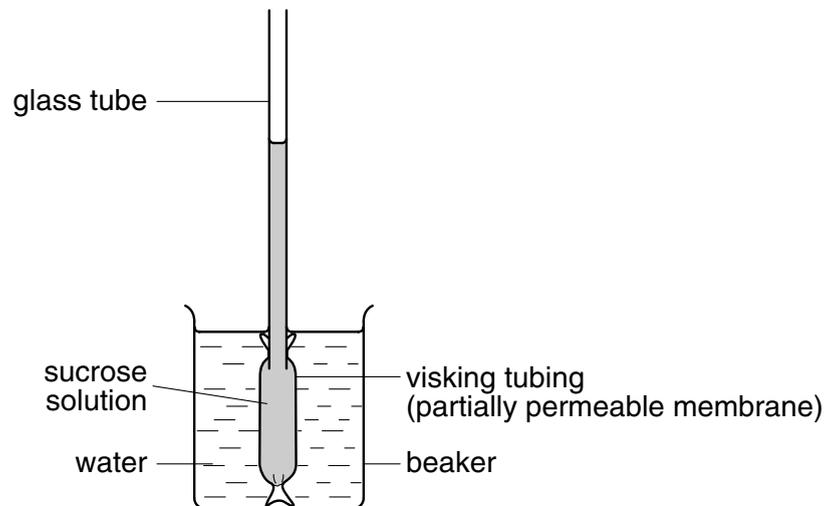
- 1 Which activities occur in **all** living organisms?
- A They excrete waste, respire and produce starch.
  - B They move, release water vapour and give out heat.
  - C They produce oxygen, give out heat and increase in size.
  - D They respire, increase in size and excrete waste.
- 2 The diagram shows a microorganism.



Which type of microorganism is this?

- A bacterium
- B fungus
- C protozoan
- D virus

- 3 The diagram shows an experiment to investigate osmosis.

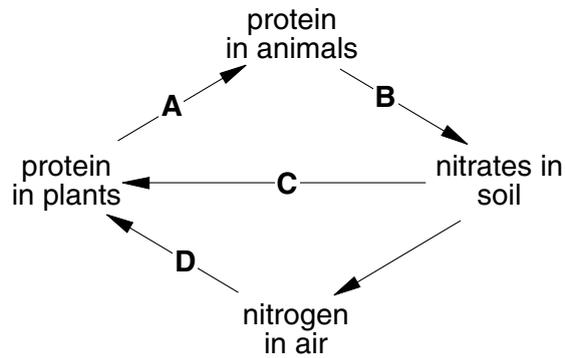


Which statement about the investigation is true?

- A** The level of liquid in the glass tube falls.
- B** The volume of the liquid in the Visking tubing decreases.
- C** The water level in the beaker falls.
- D** Water molecules move from low to high water concentration.
- 4 Which process in the cell requires energy from respiration?
- A** absorption of amino acids by active transport into a villus
- B** movement of oxygen from an alveolus into the blood
- C** passage of water by osmosis into a cell
- D** release of carbon dioxide by diffusion from a cell
- 5 Which of the following is a product of photosynthesis in green plants and a source of energy for animals?
- A** carbohydrate
- B** carbon dioxide
- C** heat
- D** oxygen

- 6 The diagram shows a simplified nitrogen cycle.

Which process is carried out by nitrogen-fixing bacteria?



- 7 How is fat used in the body?

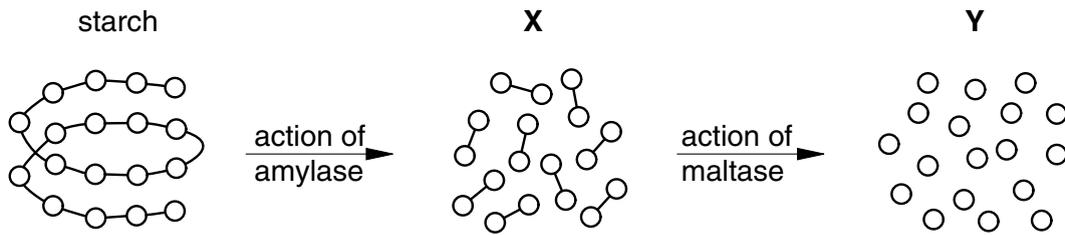
	energy source	growth and repair	make cell membranes	storage
<b>A</b>	yes	yes	yes	yes
<b>B</b>	yes	yes	no	no
<b>C</b>	yes	no	yes	yes
<b>D</b>	no	yes	yes	yes

- 8 A food gives a red colour with the Benedict's test, the blue colour remains with the biuret test and a translucent mark is left with the grease spot test.

Which nutrients are present in this food?

- A** protein and fat
- B** reducing sugar and fat
- C** reducing sugar and protein
- D** starch and fat
- 9 Which nutrient, eaten in excess, could cause obesity?
- A** calcium
- B** carbohydrate
- C** fibre
- D** vitamin D

- 10 The diagrams show how the enzymes amylase and maltase break down a starch into smaller molecules.



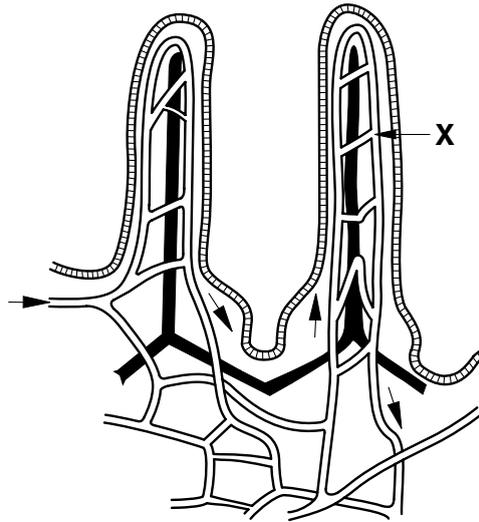
What are the molecules X and Y?

	<b>X</b>	<b>Y</b>
<b>A</b>	fatty acids	glycerol
<b>B</b>	glucose	maltose
<b>C</b>	maltose	glucose
<b>D</b>	polypeptides	amino acids

- 11 What are the functions of the pancreas and the liver?

	pancreas	liver
<b>A</b>	breaks down alcohol	changes glucose to fats
<b>B</b>	makes glucagon	makes amylase
<b>C</b>	makes insulin	changes glucose to glycogen
<b>D</b>	stores vitamin A	breaks down amino acids

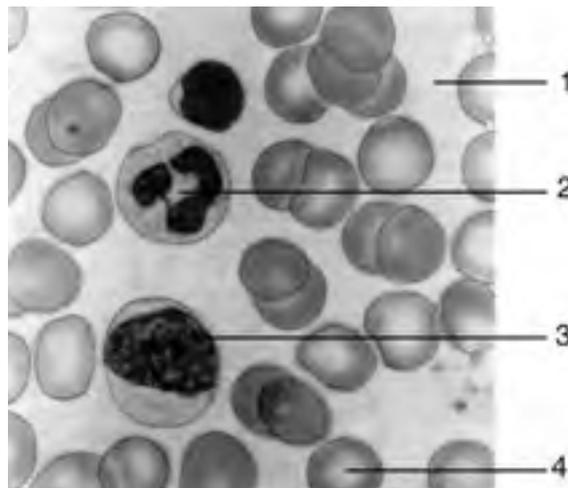
12 The diagram shows a section through the villi in the intestine.



Which substance passes in the direction shown by arrow X?

- A antibodies
- B glucose
- C oxygen
- D urea

Questions 13 and 14 refer to the diagram, which shows a photograph of parts of the blood as seen with a light microscope.



13 Which part is a phagocyte?

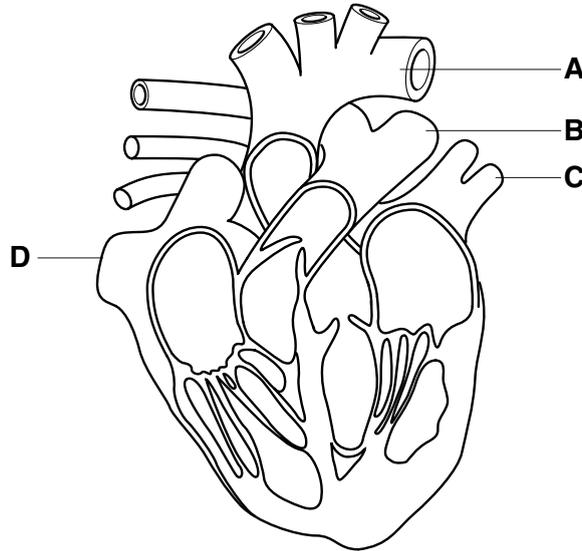
- A 1
- B 2
- C 3
- D 4

14 Which two parts transport carbon dioxide?

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

15 The diagram shows a section through the heart and its associated blood vessels.

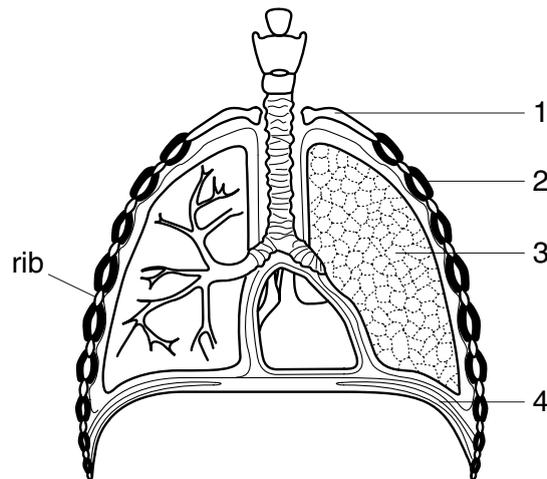
Which is the aorta?



16 Respiration is

- A** the exchange of oxygen and carbon dioxide in the alveoli.  
**B** the movement of air in and out of the lungs.  
**C** the movement of the diaphragm during breathing.  
**D** the release of energy from food substances in living cells.

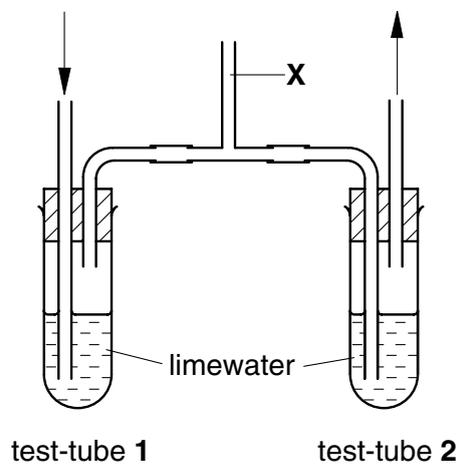
- 17 The diagram shows some of the structures in the thorax, showing the structures breathing in.



Which two structures contract when breathing in?

- A** 1 and 2      **B** 1 and 3      **C** 2 and 4      **D** 3 and 4
- 18 The apparatus is set up as shown.

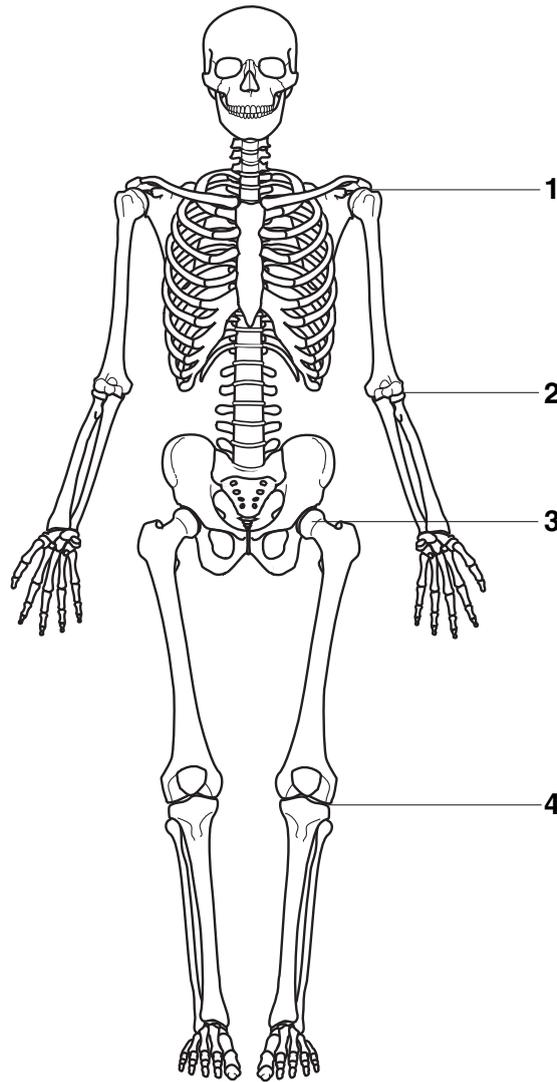
A student breathes in and out through tube X for thirty seconds.



How will the limewater appear in test-tubes 1 and 2?

	test-tube 1	test-tube 2
<b>A</b>	clear	clear
<b>B</b>	slightly cloudy	clear
<b>C</b>	slightly cloudy	very cloudy
<b>D</b>	very cloudy	slightly cloudy

19 The diagram shows a human skeleton.



In which positions are hinge joints found?

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

20 Which action involves antagonistic muscles?

- A** bending the arm  
**B** downward movement of the diaphragm  
**C** focusing the eye  
**D** vasoconstriction in the skin

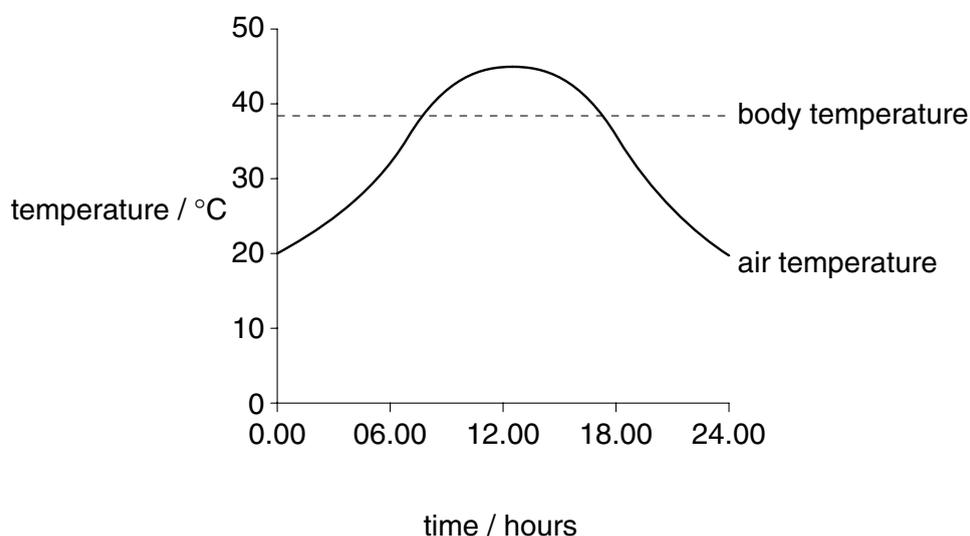
21 The table below shows substances which may be found in urine.

Which shows only the substances that are present in the urine of a healthy person?

	protein	salt	glucose	urea
<b>A</b>	✓	✓	✗	✗
<b>B</b>	✓	✗	✓	✓
<b>C</b>	✗	✓	✓	✓
<b>D</b>	✗	✓	✗	✓

✓ = present   ✗ = absent

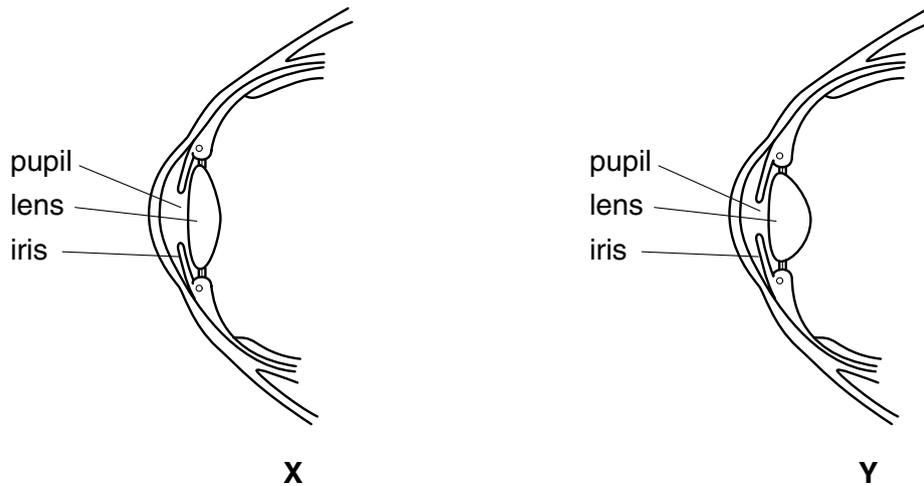
22 The graph shows the air temperature and body temperature during a 24-hour period.



Which mechanism may help to maintain the body temperature between 18.00 hours and 24.00 hours?

- A** a decrease in metabolic rate
- B** capillaries move away from skin surface
- C** evaporation of sweat
- D** vasoconstriction of arterioles to skin-surface capillaries

- 23 The drawings show the front part of two eyes in side view, each adapted to see objects at different distances from the eye, in different light intensities.



Which statement is correct?

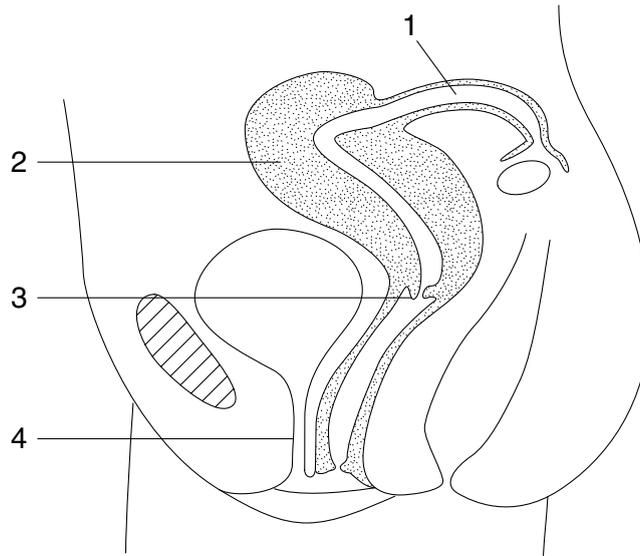
- A X is adapted to view distant objects in dim light
  - B X is adapted to view near objects in bright light
  - C Y is adapted to view near objects in dim light
  - D Y is adapted to view distant objects in bright light
- 24 Which is correct for stereoscopic vision?

	distances can be judged	each eye sees a different view of an object
A	no	no
B	no	yes
C	yes	yes
D	yes	no

- 25 Between which structures does a motor neurone transmit impulses?

- A a muscle to the brain
- B a muscle to the skin
- C a sense organ to the brain
- D the spinal cord to a muscle

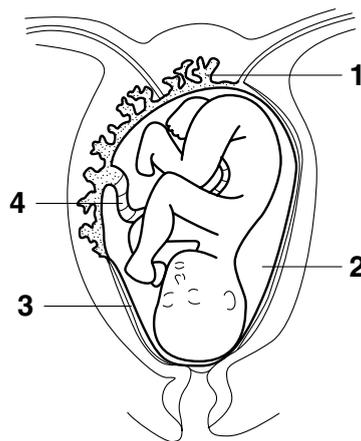
26 The diagram shows part of the female reproductive and urinary systems.



What are the numbered structures?

	cervix	oviduct	urethra	uterus
<b>A</b>	2	1	4	3
<b>B</b>	2	4	1	3
<b>C</b>	3	1	4	2
<b>D</b>	3	4	1	2

27 The diagram shows a fetus in the uterus.



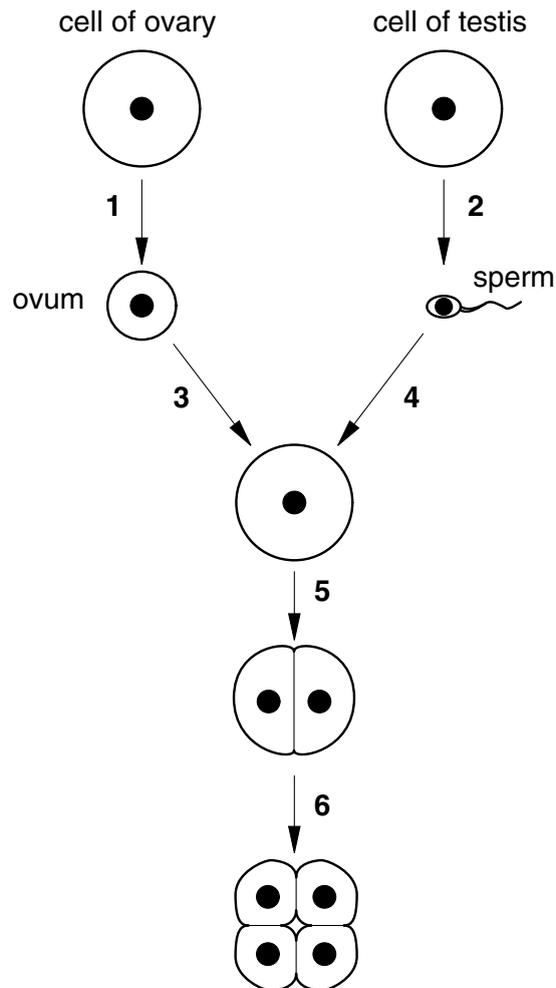
Which statement is true?

- A** The part labelled 1 prevents nicotine and alcohol from diffusing to the fetus.
- B** The part labelled 2 spreads pressure evenly around the fetus.
- C** The part labelled 3 provides oxygen and nutrients for the fetus.
- D** The part labelled 4 holds the fetus in place in the uterine

28 What is caused by a diet low in vitamin C?

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

29 The diagram represents stages in reproduction.



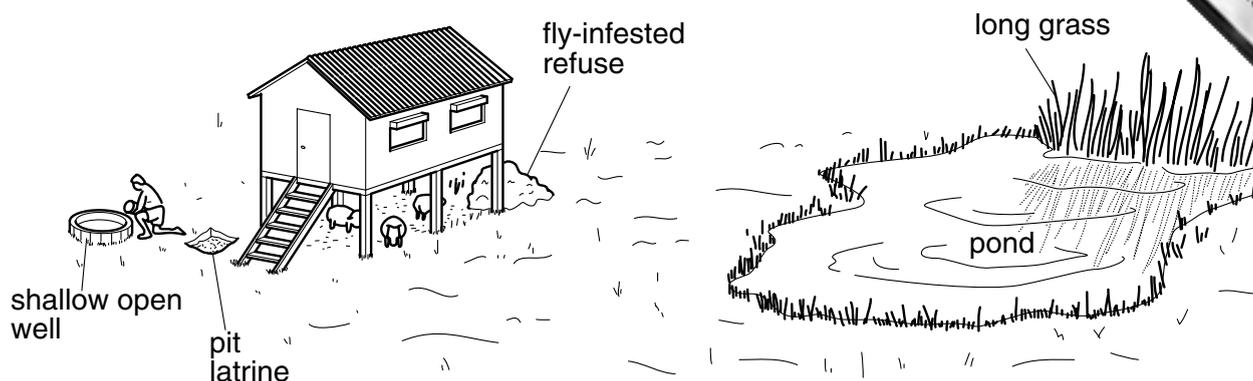
Which arrows show stages where mitosis occurs?

- A 1 and 4
- B 3 and 4
- C 3 and 5
- D 5 and 6

30 What would be examined to confirm that a person is a typhoid carrier?

- A body temperature
- B faeces sample
- C pulse rate
- D urine sample

31 The drawing 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 ringworm      influenza      typhoid  
 D typhoid      cholera      malaria

32 Which **cannot** be prevented by healthy living activities?

- A chronic heart disease  
 B rickets  
 C sickle cell anaemia  
 D tuberculosis

Questions 33 and 34 refer to the information below.

Five test-tubes containing meat broth were treated separately and maintained at the temperatures stated.

test-tube	treatment	temperature maintained / °C
1	boiled and sealed with an air-tight plug	37
2	boiled and left open	37
3	boiled and left open	0
4	not boiled and sealed with an air-tight plug	37
5	not boiled and left open	37

33 In which two test-tubes will the meat broth keep fresh for the longest period of time?

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

34 After a few days, the meat broth in test-tube 5 went bad.

Which type of organism is likely to have caused this?

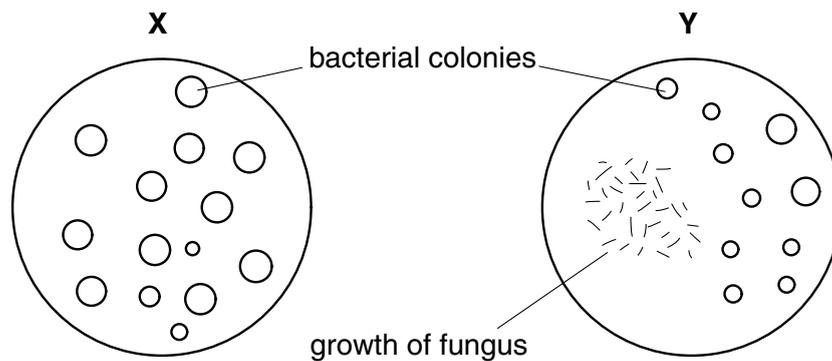
- A bacterium  
B nematode  
C protozoan  
D virus

35 Which type of organism causes schistosomiasis?

- A *Ankylostoma* or *Necator*  
B flatworm (blood fluke)  
C *Plasmodium* (protozoan)  
D vibrio (bacterium)

36 Plates X and Y were inoculated with bacteria. At the same time, plate Y was inoculated with a fungus.

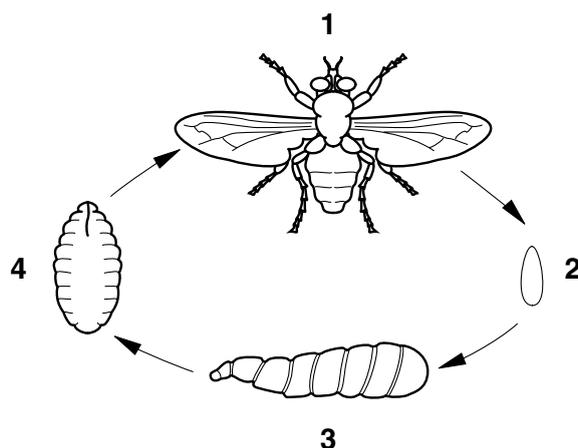
The diagram shows the plates after incubation.



What has been released by the fungus to produce this result?

- A antibiotics  
B antibodies  
C antigens  
D antisera

37 The diagram shows stages in the life cycle of the housefly.



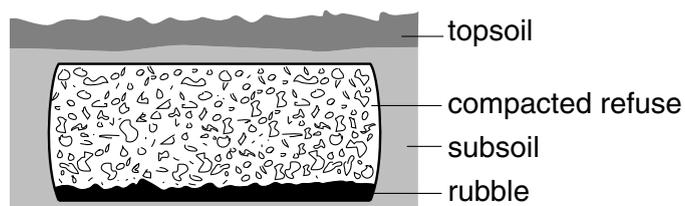
Which stages may be found in or on organic refuse?

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

38 Why is water boiled to make it safe for drinking?

- A chlorine dissolves more easily  
 B enzymes in microorganisms are destroyed  
 C malarial parasites are killed  
 D viruses are unable to reproduce

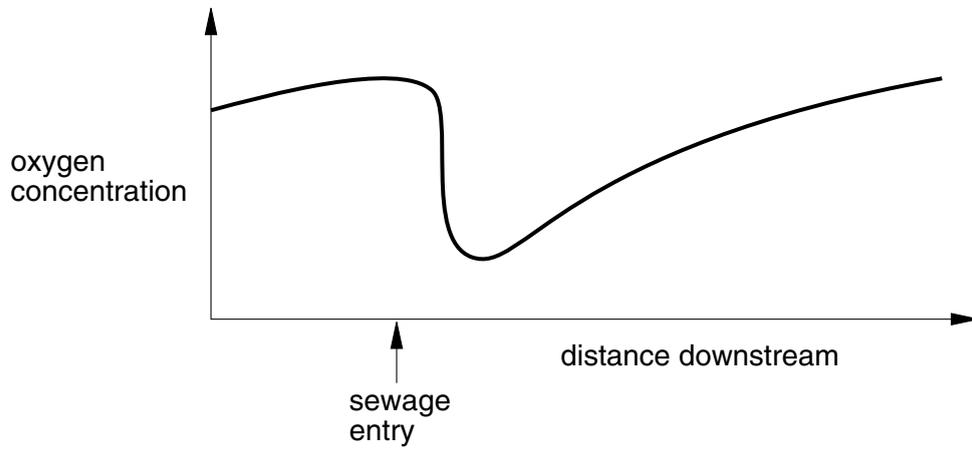
39 The diagram shows how domestic refuse is treated at a communal site.



What is the most important reason for treating the refuse as shown?

- A to prevent escape of gases  
 B to reduce entry of rainwater  
 C to reduce breeding by mosquitoes  
 D to restrict entry by rats

40 The graph shows how the oxygen concentration in a river changes when sewage enters the river.



What causes the change shown in the graph just after sewage enters the river?

- A Bacteria feed on sewage and use up oxygen.
- B Fish take in oxygen through their gills.
- C Plants produce oxygen by photosynthesis.
- D Sewage releases oxygen into the river.





