

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY

5096/01

Paper 1 Multiple Choice

October/November 2004

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.

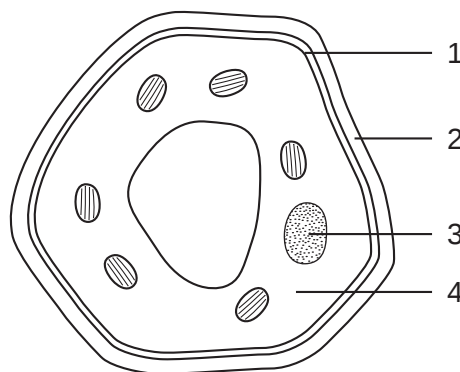
Any rough working should be done in this booklet.

This document consists of **16** printed pages.

- 1 Which characteristic activities of living organisms are similar to the burning of petrol and the release of exhaust fumes by a car?

	burning of petrol	release of exhaust fumes
A	excretion	movement
B	movement	nutrition
C	nutrition	respiration
D	respiration	excretion

- 2 The diagram shows a plant cell.

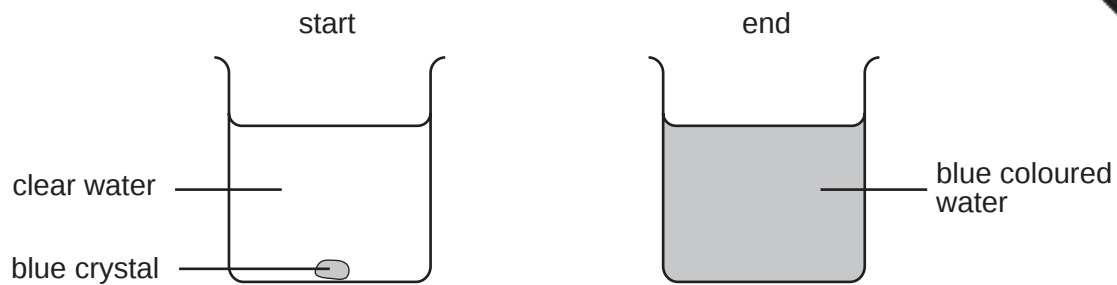


Which two parts of this cell would **not** be present in a red blood cell?

- A** 1 and 2 **B** 2 and 3 **C** 3 and 4 **D** 2 and 4
- 3 Which is a cell, a tissue and an organ?

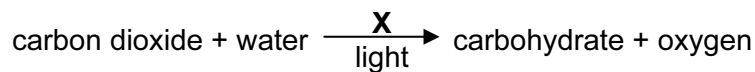
	cell	tissue	organ
A	lymphocyte	bone	eye
B	lymphocyte	cartilage	muscle
C	virus	cartilage	eye
D	virus	bone	muscle

- 4 The diagrams show the start and end of an experiment.



Which process has occurred?

- A absorption
 - B active transport
 - C diffusion
 - D osmosis
- 5 The word equation for photosynthesis is



What is X?

- A cellulose
 - B chlorophyll
 - C cytoplasm
 - D mitochondria
- 6 A liquid food was tested, with the following results.

Iodine solution test	Benedict's test
starch present	reducing sugar absent

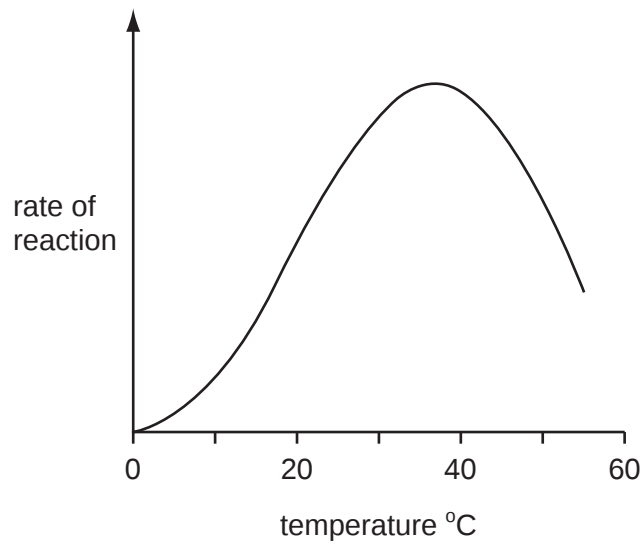
Which colours would be shown by the solutions at the end of these tests?

	iodine solution	Benedict's solution
A	blue / black	blue
B	blue / black	red
C	yellow	blue
D	yellow	red

- 7 Why is vitamin C important in the diet?
- A It helps the absorption of calcium.
 - B It helps the absorption of phosphate.
 - C It helps the healing of wounds.
 - D It helps to prevent rickets.
- 8 What is the best food to help a patient recover from anaemia?
- A butter
 - B eggs
 - C oranges
 - D rice
- 9 What is destroyed if green vegetables are cooked for too long a time?
- A calcium salts
 - B iron
 - C vitamin C
 - D vitamin D

5

- 10 The graph shows the rate of reaction of the enzyme amylase on starch over temperatures.



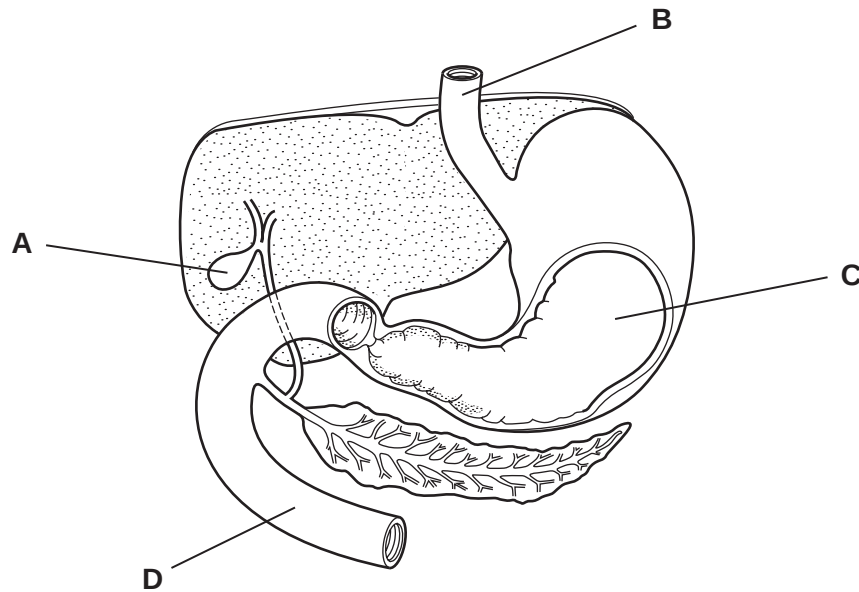
What is happening between 40°C and 50°C?

- A Accumulation of the starch stops the reaction.
 - B Glucose molecules are being hydrolysed (digested).
 - C The enzyme is being affected by a change in the pH.
 - D The enzyme is being denatured (destroyed).
- 11 Which process does **not** occur in the liver?
- A breaking down amino acids
 - B destroying alcohol
 - C forming urea
 - D producing amylase

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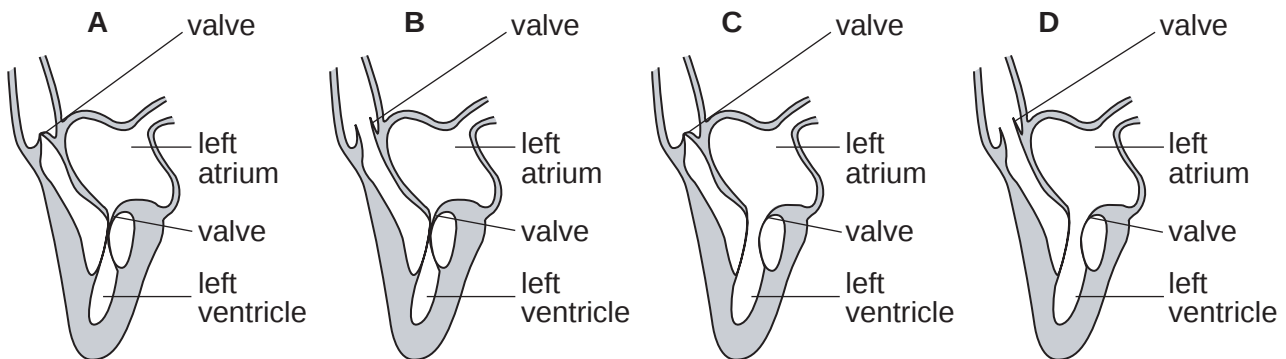
12 The diagram shows part of the digestive system.

In which part are the contents most acidic?



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

In which diagram are the valves shown correctly as open or closed during the pumping of blood out of the heart by contraction of the ventricle?



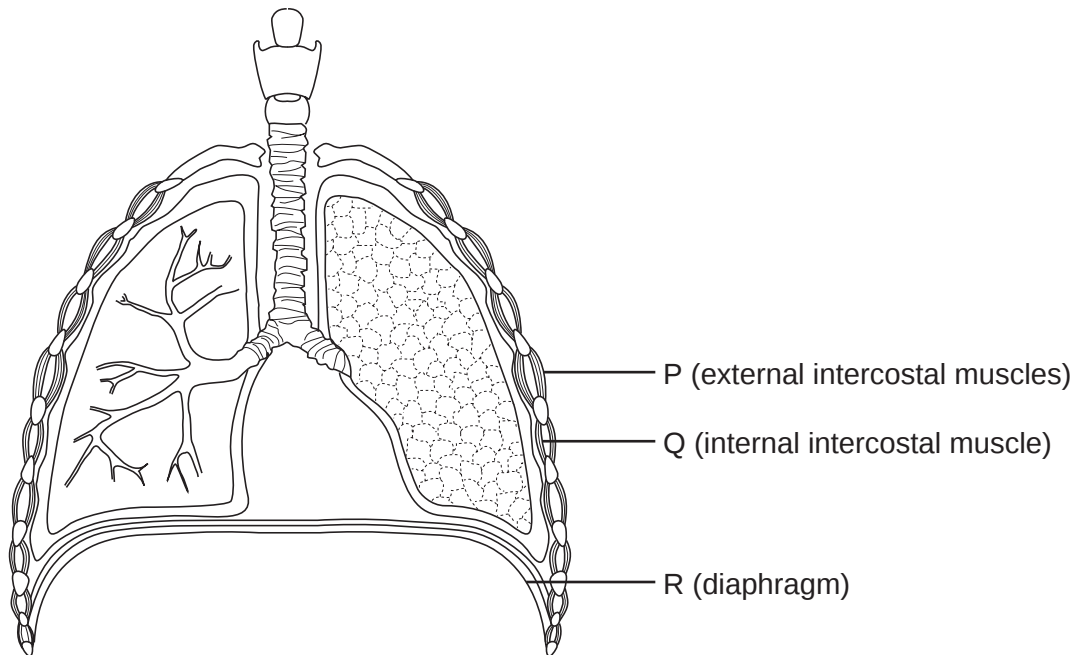
14 What do pulmonary veins carry?

- A oxygenated blood to the heart
- B oxygenated blood to the lungs
- C de-oxygenated blood to the heart
- D de-oxygenated blood from the lungs

15 Which two functions of the blood protect the body from diseases caused by pathogens?

- A carrying oxygen and making antibodies
- B making antibodies and carrying waste
- C carrying waste and phagocytosis
- D phagocytosis and clotting

16 The diagram shows the thorax with the muscles used in breathing.



Which muscles contract to cause air to enter the lungs?

- A P and R
- B P and Q
- C Q and R
- D Q only

17 Which process depends on energy transfer in the mitochondria?

- A diffusion of oxygen into tissue fluid
- B gaseous exchange in the alveoli
- C movement of water by osmosis
- D transmission of a nerve impulse

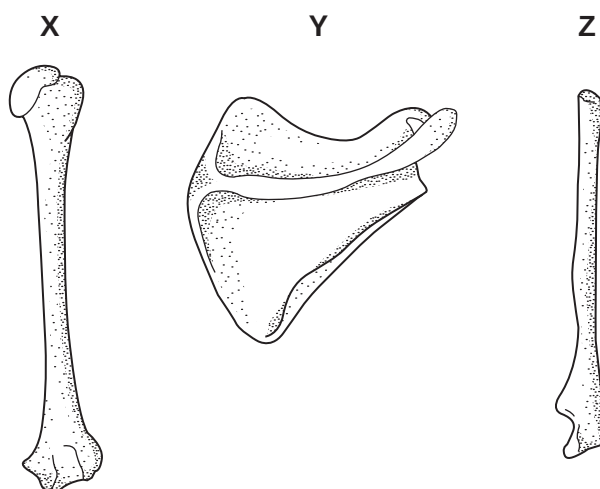
18 Which part of cigarette smoke is a carcinogen?

- A carbon dioxide
- B carbon monoxide
- C nicotine
- D tar

19 What is the function of the cartilage at a joint?

- A It allows smooth movement of a bone.
- B It holds the bones firmly together.
- C It prevents dislocation of the joint.
- D It provides attachment points for muscles.

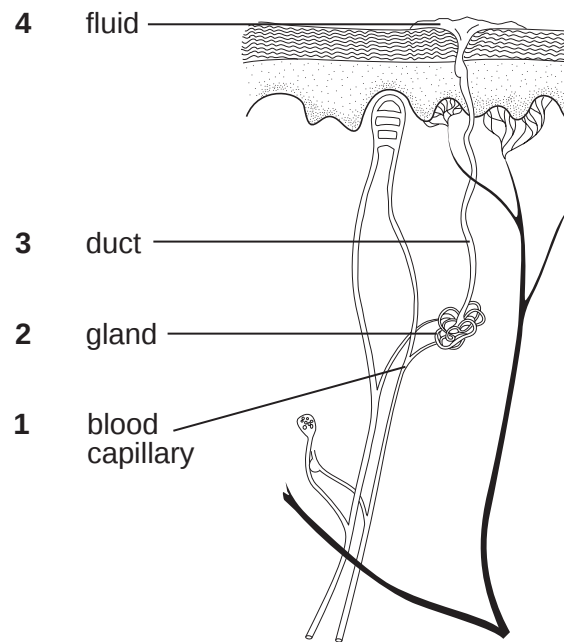
20 The diagram shows three bones from the human skeleton.



What are the names of the bones?

	bone X	bone Y	bone Z
A	humerus	scapula	ulna
B	humerus	ulna	radius
C	radius	scapula	humerus
D	scapula	ulna	humerus

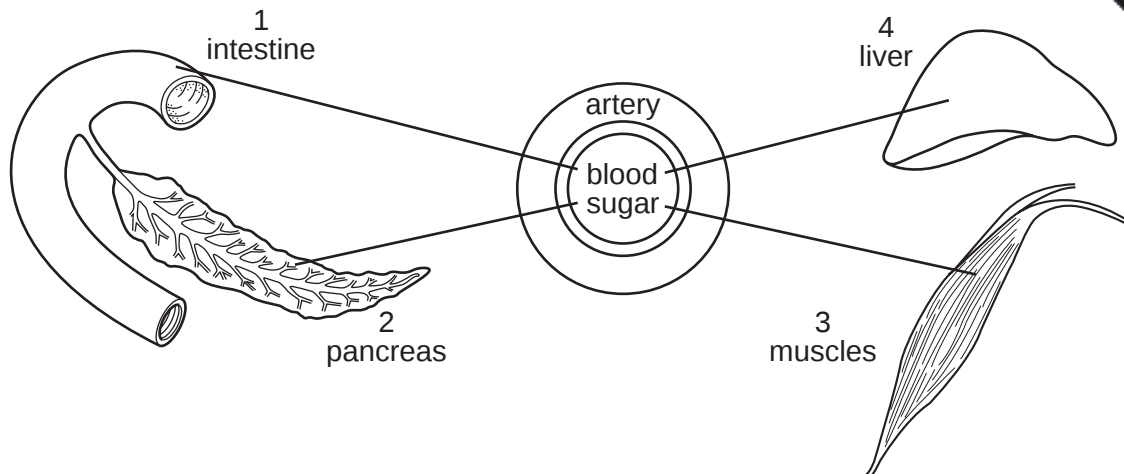
21 The diagram shows part of the skin concerned with controlling heat loss from the body.



How does heat loss occur?

- A Part 1 constricts and moves to the surface radiating heat.
- B Part 2 absorbs specific latent heat from the blood.
- C Part 3 dilates carrying the heat in sweat to the surface.
- D Part 4 uses specific latent heat to evaporate.

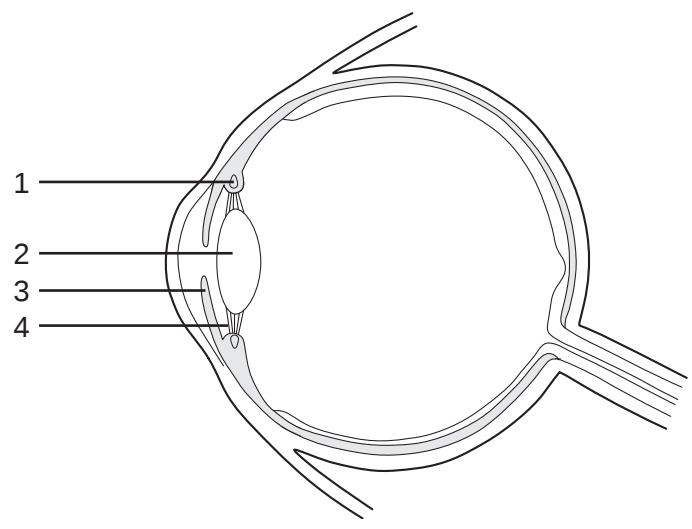
22 The diagram shows some organs that change the concentration of sugar in the blood.



Which two organs **regulate** the concentration of sugar in the blood?

- A 1 and 2
 - B 2 and 3
 - C 2 and 4
 - D 3 and 4
- 23 Which is the most likely reason for a person to produce less urine in hot weather than in cold weather?
- A The colon absorbs more water.
 - B The kidney reabsorbs more water.
 - C The person drinks more water.
 - D The skin produces less sweat.

24 The diagram shows a horizontal section through the eye.



Which two parts contain muscle?

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

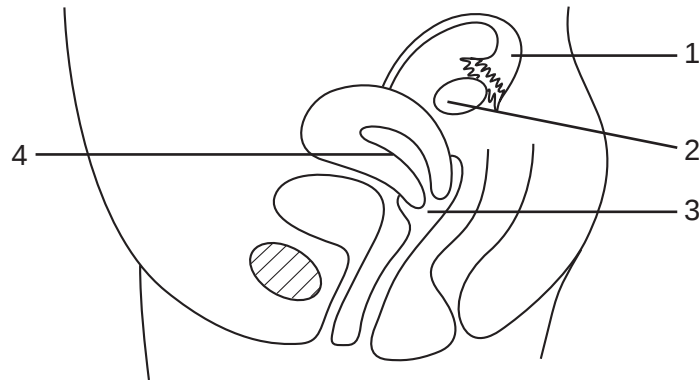
25 Which best describes control in the body by a quick acting hormone and by a slow acting hormone?

	control by quick acting hormone	control by slow acting hormone
A	blood glucose level by insulin	development of uterus wall by oestrogen
B	development of uterus wall by oestrogen	blood glucose level by insulin
C	water content of plasma by insulin	body temperature by oestrogen
D	body temperature by oestrogen	water content of plasma by insulin

26 How does drinking alcohol affect reaction time, co-ordination and ability to make sensible decisions?

	reaction time	co-ordination	ability to make sensible decisions
A	increased	reduced	reduced
B	increased	reduced	no effect
C	no effect	increased	reduced
D	reduced	no effect	increased

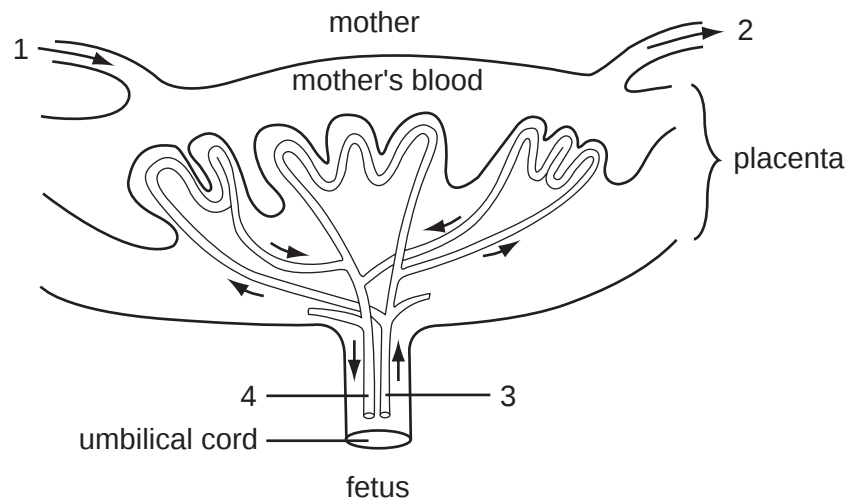
27 The diagram shows a section of the female reproductive system.



In which structures do ovulation and implantation occur?

	ovulation	implantation
A	1	2
B	1	3
C	2	3
D	2	4

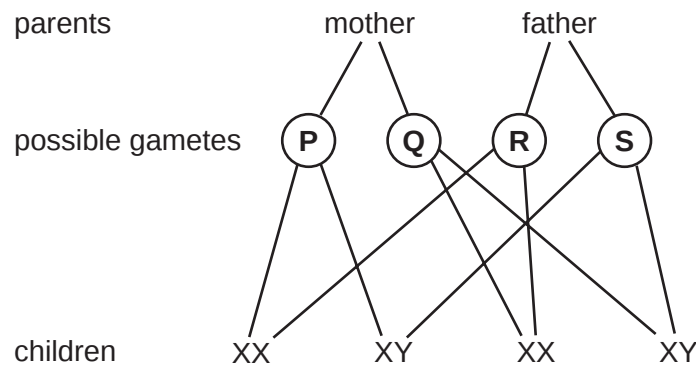
28 The diagram shows part of the placenta and its blood supply.



Which blood vessels contain the most oxygen and nutrients?

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

29 The diagram shows the inheritance of sex.



Which chromosomes are present in the gametes **P**, **Q**, **R** and **S**?

	P	Q	R	S
A	Y	X	X	X
B	X	Y	X	X
C	X	X	X	Y
D	X	X	Y	X

30 Which can be a **symptom** but is not a **sign** of a disease?

- A** a headache
- B** a skin rash
- C** high temperature
- D** sweating and shivering

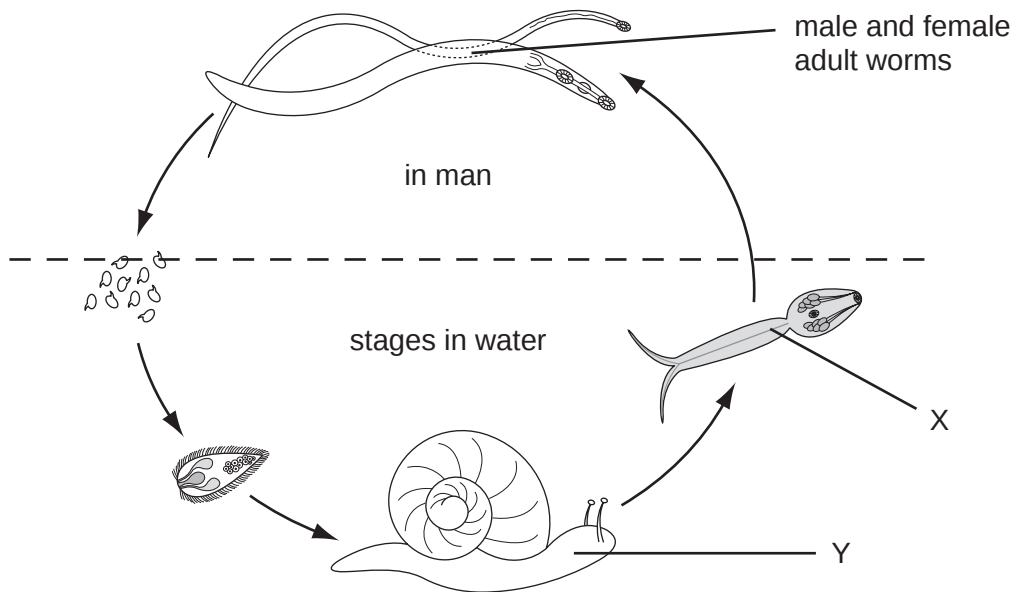
31 Which part of the body is first damaged by the pathogen, HIV?

- A** brain and sense organs
- B** immune system
- C** red blood cells
- D** reproductive organs

32 How can tuberculosis be detected?

- A** by analysing the urine
- B** by examining a blood smear
- C** by taking a chest X-ray
- D** by vaccinating with BCG

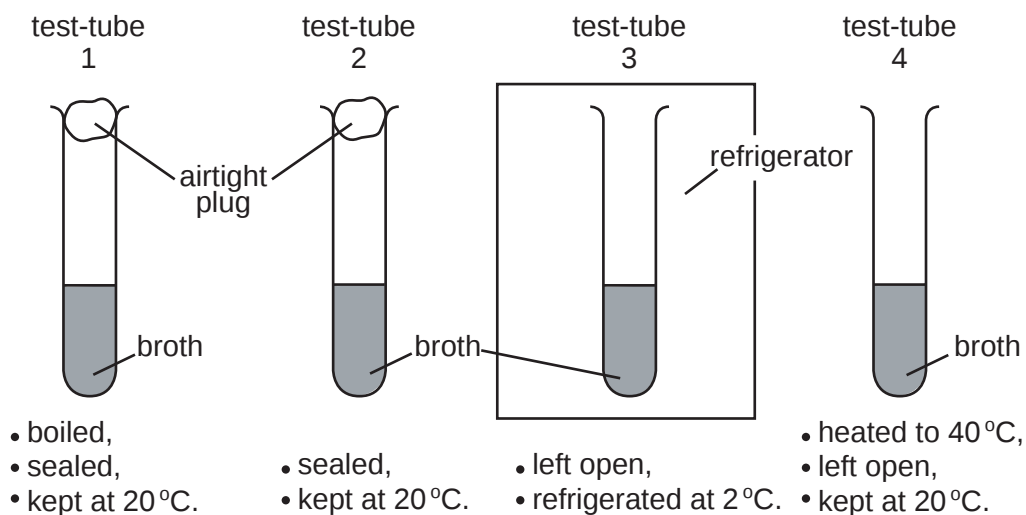
33 The diagram shows the life cycle of *Schistosoma* (bilharzia).



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

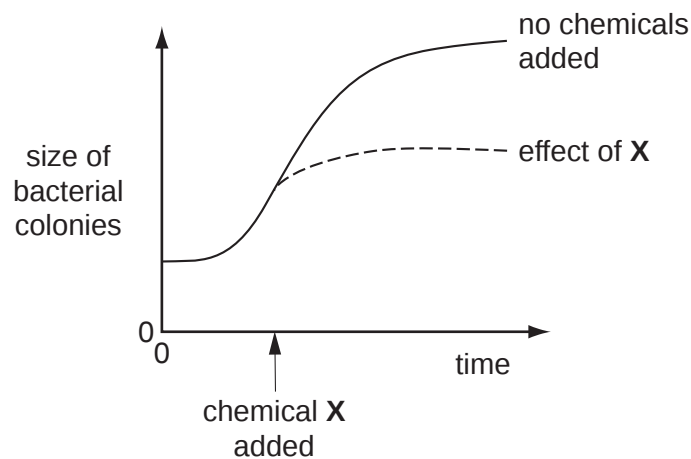
34 Fresh meat broth is placed in four test-tubes and each test-tube is treated separately, as shown.



In which two test-tubes is broth most likely to go bad within three days?

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

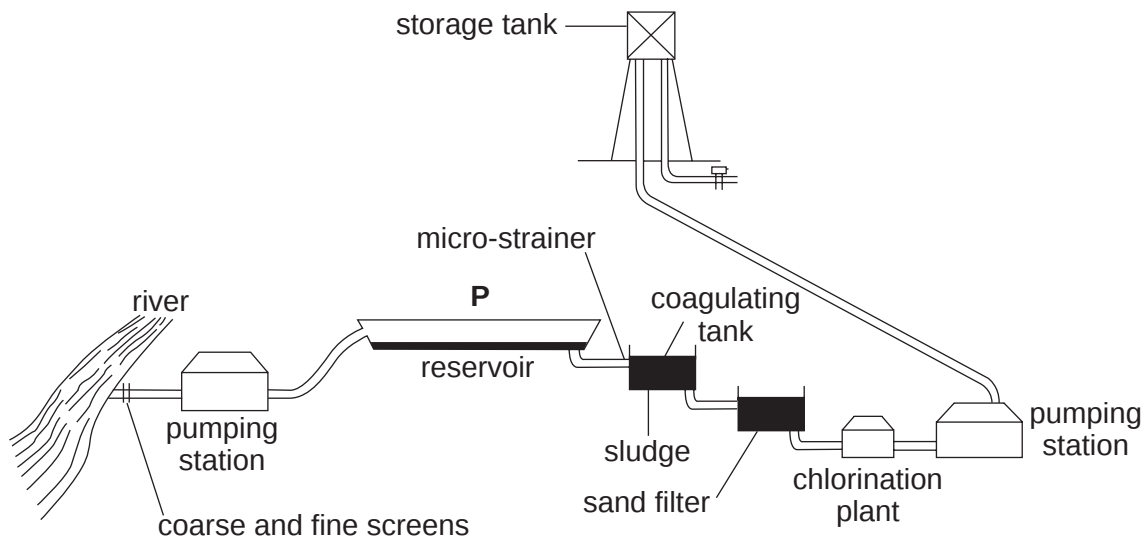
- 35 The graph shows the effect of chemical **X** on the growth of a bacterial culture.



What is chemical **X** likely to be?

- A antibiotic
 - B antigen
 - C fungicide
 - D nutrient
- 36 Passive immunity against tetanus is gained by injection with an immune serum.
- Why is this helpful to a person who might have tetanus?
- A The immune serum becomes effective very quickly.
 - B The immune serum kills many different kinds of bacteria.
 - C The effect of the immune serum is very long lasting.
 - D The immune system is stimulated to produce antibodies.
- 37 Which was an important part of the campaign used by WHO (World Health Organisation) to eliminate smallpox?
- A control of an animal vector
 - B tracing of contacts of infected people
 - C treatment with antibiotics
 - D treatment with immune serum

- 38 Which symptoms occur when children are exposed for many years to high levels of lead in the air?
- A poor learning ability and attention span
 - B diarrhoea and red patches on skin
 - C high fevers and severe anaemia
 - D diarrhoea and vomiting
- 39 The diagram shows stages in the treatment of river water to make it safe to drink.



Why is water stored in the reservoir **P**?

- A Chlorine kills bacteria.
 - B Chlorine settles fine particles.
 - C Ultraviolet light kills bacteria.
 - D Ultraviolet light settles particles.
- 40 Untreated sewage is discharged into a river.
- What effect does this have on the number of bacteria and the concentration of oxygen in the river downstream of the discharge?

	number of bacteria	concentration of oxygen
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases