

CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**HUMAN AND SOCIAL BIOLOGY**

**5096/01**

Paper 1 Multiple Choice

October/November 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.**

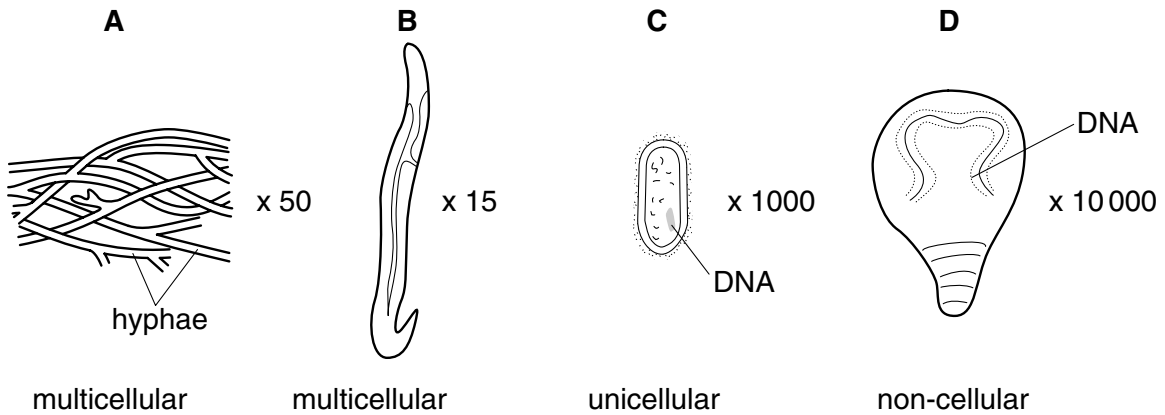
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.  
Any rough working should be done in this booklet.

This document consists of **15** printed pages and **1** blank page.



- 1 The diagrams show four pathogenic organisms.

Which of these is a fungus?



- 2 What is the function of mitochondria?

- A** to make glucose
- B** to produce protein
- C** to release energy
- D** to store fat

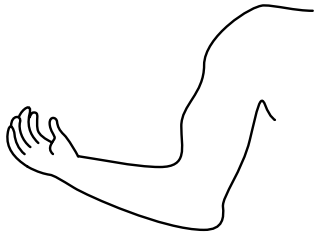
- 3 What happens to cells of onion epidermis when they are placed in a concentrated sugar solution?

- A** they gain sugar
- B** they lose sugar
- C** they lose water
- D** they swell and burst

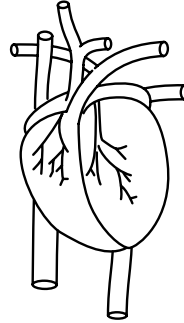
- 4 The diagrams show four organs, not drawn to scale.

Which contains bone, cartilage, muscle and fibrous tissue?

**A**



**B**



**C**



**D**

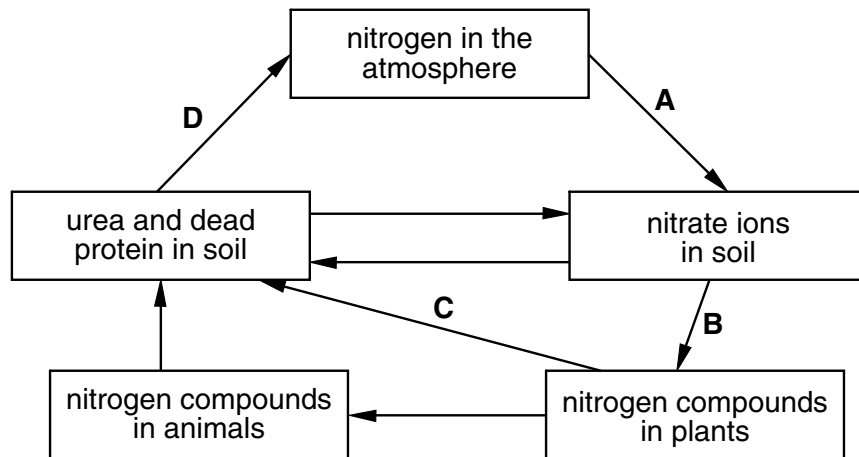


- 5 Where does the energy come from that is stored in a carbohydrate molecule formed during photosynthesis?

- A** carbon dioxide
- B** chlorophyll
- C** oxygen
- D** sunlight

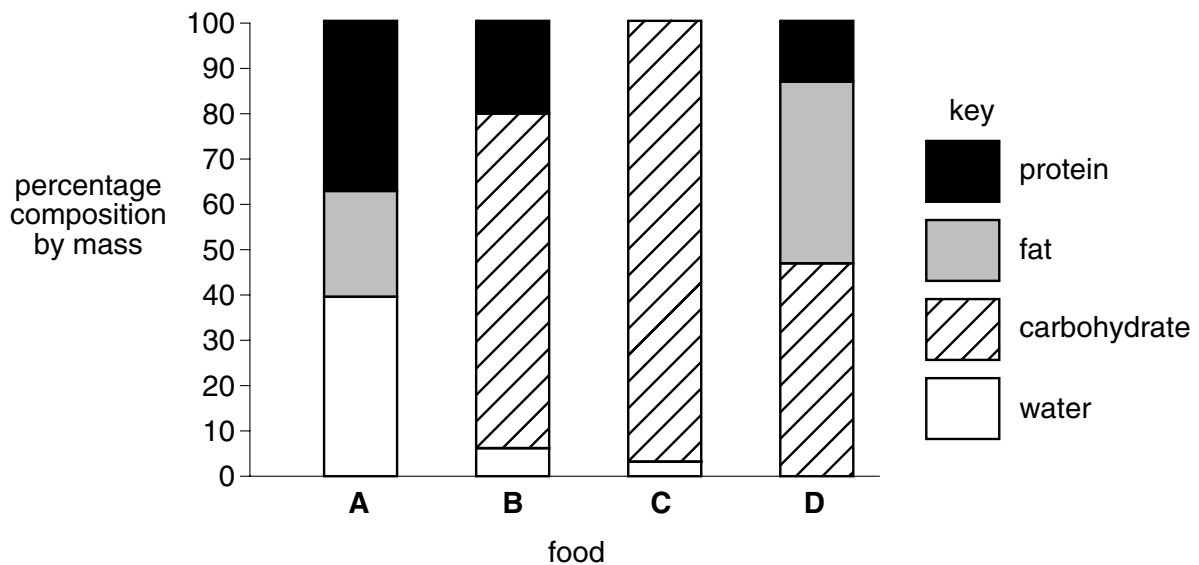
- 6 This is a simplified diagram of the nitrogen cycle.

At which stage are nitrogen-fixing bacteria involved?



- 7 The bar chart shows the composition of four foods.

Which food could be sugar?



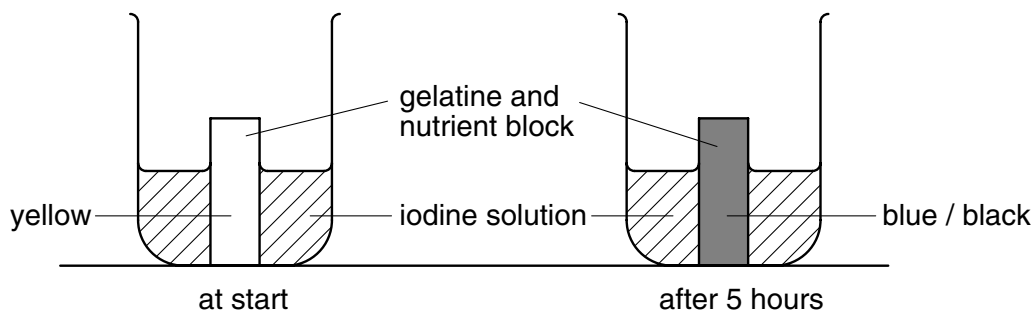
8 Which of the following are uses of fat in the body?

- 1 allowing protein to be used for energy
- 2 increasing calcium absorption from the gut
- 3 providing an energy store
- 4 acting as a solvent for vitamins A and D
- 5 forming cell membranes

- A**     1       2       5  
**B**     1       3       4  
**C**     2       3       4  
**D**     3       4       5

9 In an experiment, a block of gelatine containing a nutrient is placed in a beaker with iodine solution and left for 5 hours.

The diagrams show the experiment at the start and after 5 hours.



Which nutrient is in the gelatine block?

- A** fat  
**B** glucose  
**C** glycogen  
**D** starch

10 Why does measles rarely occur in babies that are being breast fed?

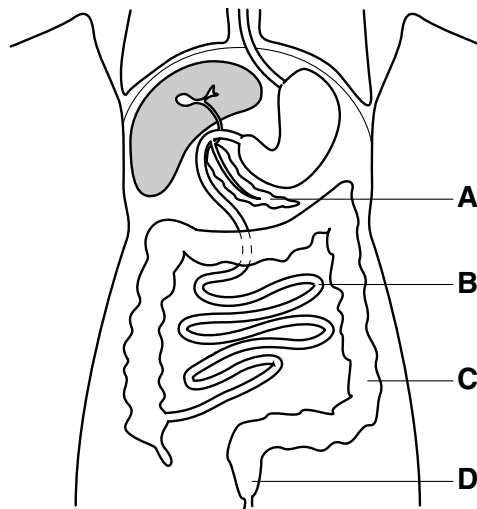
- A** Babies gain artificial immunity to the measles virus.  
**B** Breast milk contains measles pathogens.  
**C** Breast milk gives passive immunity to the baby.  
**D** Breast milk is rich in vitamin C.

**11** Why does bread taste sweet after lengthy chewing in the mouth?

- A** Amylase in saliva changes the starch to maltose.
- B** Chewing breaks down the bread into sugar.
- C** Saliva converts the starch into glucose.
- D** Water in saliva hydrolyses the bread to amino acids.

**12** The diagram shows part of the digestive system.

Which part makes both digestive juices and hormones?

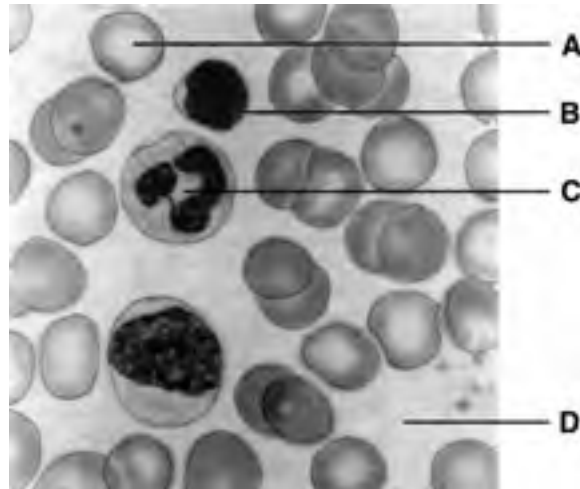


**13** Where is most water absorbed from digested food?

- A** colon
- B** duodenum
- C** kidney
- D** oesophagus

- 14 The diagram shows a photograph of parts of the blood as seen with a light microscope.

Which part is a lymphocyte?

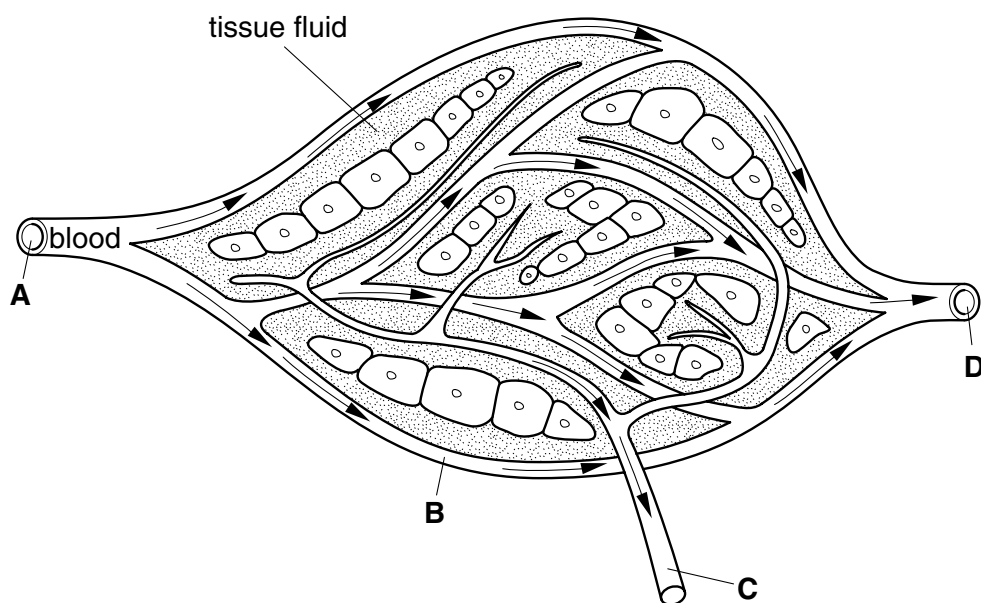


- 15 What is the function of platelets in wound healing?

- A breakdown of insoluble threads
- B conversion of insoluble fibrin to soluble fibrinogen
- C conversion of soluble fibrinogen to insoluble fibrin
- D creation of soluble threads

- 16 The diagram shows a capillary network, tissue cells and a lymph vessel.

Which structure is a lymph vessel?



17 What happens to the diaphragm, rib cage and pressure in the thorax when breathing in?

	diaphragm	rib cage	pressure in the thorax
<b>A</b>	lowered	moves down and in	decreases
<b>B</b>	lowered	moves up and out	decreases
<b>C</b>	raised	moves down and in	increases
<b>D</b>	raised	moves up and out	increases

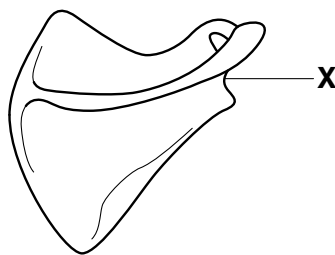
18 Which path is taken by air breathed out of the lungs?

- A** alveoli → bronchi → bronchioles → trachea
- B** alveoli → bronchioles → bronchi → trachea
- C** trachea → bronchi → bronchioles → alveoli
- D** trachea → bronchioles → bronchi → alveoli

19 Which part of cigarette smoke is addictive?

- A** carbon monoxide
- B** nicotine
- C** smoke particles
- D** tar

20 The diagram shows a bone in the shoulder.



Which **other** bone forms a joint at the point labelled **X**?

- A** humerus
- B** radius
- C** scapula
- D** ulna

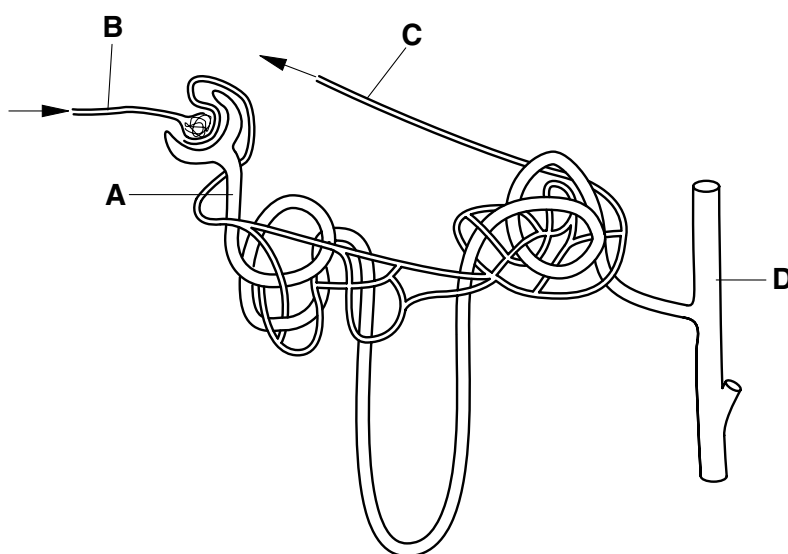


21 Which is a function of cartilage?

- A to attach a bone to another bone
- B to attach muscle to bone
- C to attach the diaphragm to the ribs
- D to protect the ends of bones in a joint

22 The diagram shows a kidney tubule and its blood supply.

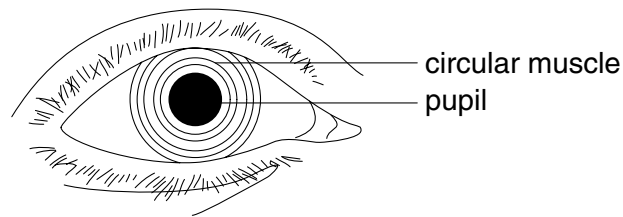
Where is the concentration of urea highest?



23 When blood glucose concentration drops,

- A more adrenaline is secreted and insulin secretion is inhibited.
- B both more insulin and more adrenaline are secreted.
- C both insulin and adrenaline secretion are inhibited.
- D more insulin is secreted and adrenaline secretion is inhibited.

- 24 The diagram shows the front view of an eye of a person in a dark room.



What happens to the pupil, iris and circular muscles when the person walks from the dark room into a brightly lit room?

	pupil	iris	circular muscles
<b>A</b>	enlarges	enlarges	relax
<b>B</b>	enlarges	gets smaller	contract
<b>C</b>	gets smaller	enlarges	contract
<b>D</b>	gets smaller	gets smaller	relax

- 25 What are hormones, where are they made and how are they transported?

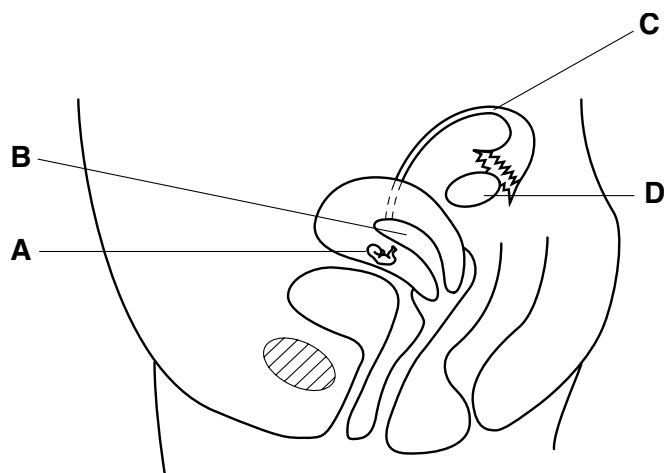
	hormones	where made	how transported
<b>A</b>	chemicals	spinal cord	by nerves
<b>B</b>	chemicals	glands	in blood
<b>C</b>	impulses	spinal cord	in blood
<b>D</b>	impulses	glands	by nerves

- 26 Why is it dangerous to drink alcohol and then drive a car?

- A** Alcohol affects the liver.
- B** Alcohol can be addictive.
- C** Alcohol slows reaction times.
- D** Alcohol speeds up nerve impulses.

**27** The diagram shows a side view of the female reproductive system with a developing embryo.

In which part is fertilisation likely to have taken place?



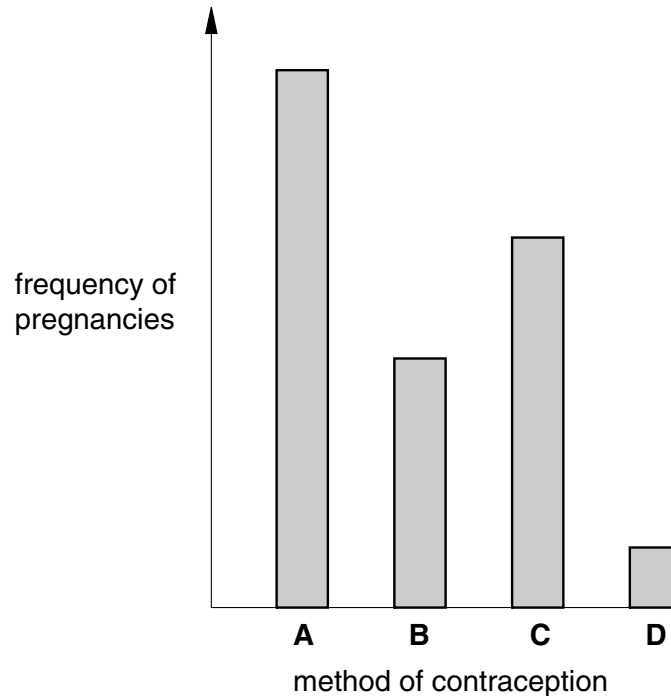
**28** The sex of a baby boy is determined by him inheriting

- A** an X chromosome from both parents.
- B** an X chromosome from his father.
- C** a Y chromosome from his mother.
- D** a Y chromosome from his father.

- 29 The bar chart shows the frequency of pregnancies when four methods of contraception are used.

The methods are: condom (sheath), IUD (coil, loop), oral contraceptive pill and rhythm (safe period).

Which bar represents the oral contraceptive pill?



- 30 What will increase the spread of a disease by droplet infection?

- A inadequate disposal of faeces
- B low humidity in the environment
- C overcrowded rooms
- D washing food in contaminated water

- 31 Which organisms cause the diseases shown?

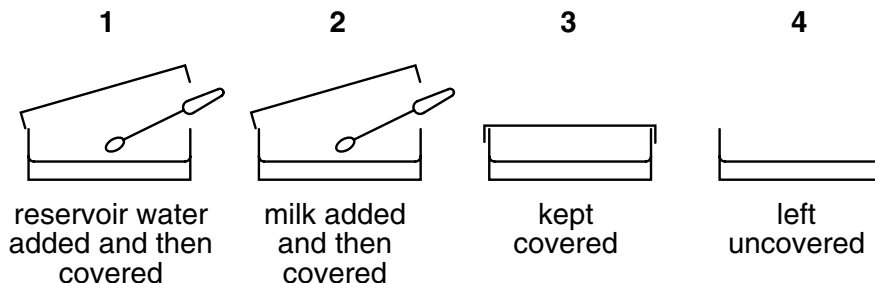
	malaria	ringworm	influenza
A	mosquito	flatworm	virus
B	mosquito	fungus	bacterium
C	protozoan	flatworm	bacterium
D	protozoan	fungus	virus

- 32** Five days after sexual intercourse, a man experienced a burning pain in his penis when passing urine.

A few days later, a yellow discharge was seen coming from the penis.

The man was suffering from

- A** AIDS.
  - B** gonorrhoea.
  - C** ringworm.
  - D** typhoid.
- 33** An air-conditioning system filters air and treats it with ultraviolet light to kill bacteria.
- Which disease will be controlled by this system?
- A** AIDS
  - B** cholera
  - C** tuberculosis
  - D** typhoid
- 34** Which may be used to help to limit the reproduction of bacteria both inside the mouth and on a kitchen surface?
- A** antibodies
  - B** antiseptics
  - C** disinfectants
  - D** soap
- 35** Four sterile agar plates were treated as shown in the diagrams and then incubated.



On which plates would colonies of bacteria grow?

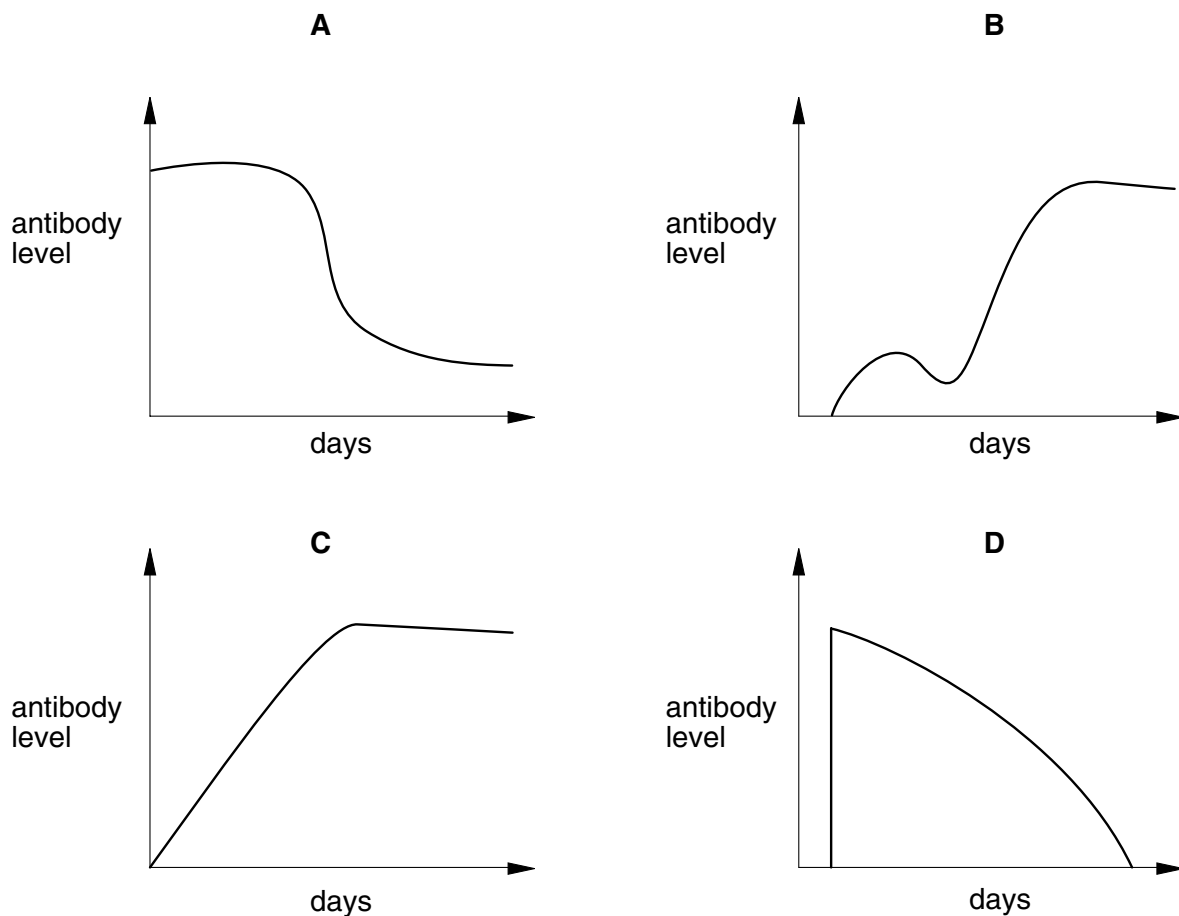
- A** 1 and 2 only
- B** 1, 2 and 4
- C** 1, 3 and 4
- D** 2, 3 and 4

**36** The spread of which diseases can be reduced by careful washing of the hands after defaecation?

- A** cholera, malaria
- B** malaria, tuberculosis
- C** tuberculosis, typhoid
- D** typhoid, cholera

**37** A student was vaccinated twice so that active artificial immunity to tuberculosis was developed.

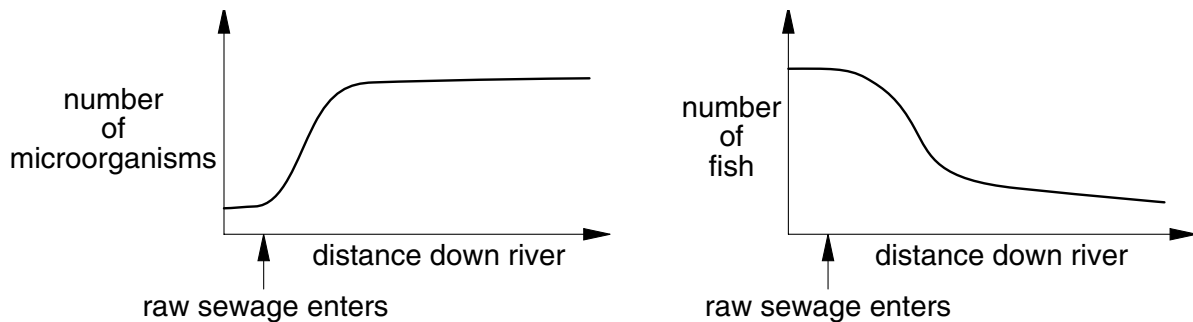
Which graph shows the tuberculosis antibody concentration developed in the blood?



**38** How do organisms that cause either schistosomiasis or hookworm enter the body?

- A** by penetration of the unbroken skin
- B** through the bite of an infected snail
- C** with infected food
- D** with the saliva of a mosquito

- 39 During hot weather it is important to empty dustbins at least once every week. How does this help minimise housefly populations?
- A Enzymes in housefly larvae are denatured by the high temperatures.
  - B Houseflies pick up pathogenic bacteria on their feet in larger numbers.
  - C Housefly eggs take less than a week to hatch out and develop into more houseflies.
  - D Housefly pupae feed on decaying matter in the bin and create unpleasant smells.
- 40 The graphs show the number of microorganisms and fish in the same river. The point at which raw sewage enters the river is shown.



What is the **main** reason for the changes shown on the graphs?

- A Microorganisms feed and grow on organic matter and use up the available oxygen in the river.
- B Sewage contains chemicals that kill the microorganisms and fish.
- C The increase in numbers of microorganisms provides more food for the fish to eat.
- D Unpolluted water causes microorganisms to multiply and fish numbers to stay constant.

