UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

**HUMAN AND SOCIAL BIOLOGY** **5096/01**

Paper 1 Multiple Choice **May/June 2009**

**1 hour**

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

*5271010563*

**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.**

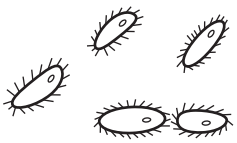
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.

This document consists of **18** printed pages and **2** blank pages.

**1** The diagrams show four organisms.

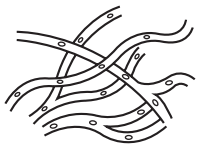
Which organism is a parasite that only reproduces inside living host cells?

**A**



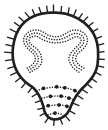
unicellular
× 500

**B**



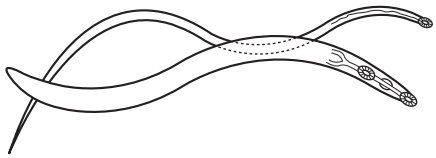
mycelium of hyphae
× 50

**C**



non-cellular
× 10 000

**D**

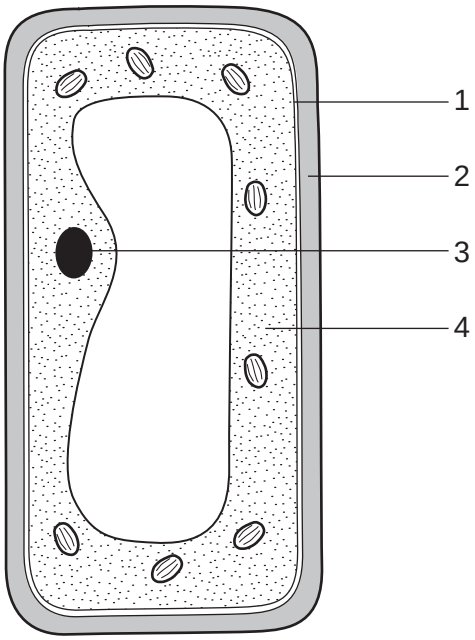


male and female
adult worms
× 50

**2** Which shows the features of a bacterium?

| | cell wall | nucleus | DNA |
|---|---|---|---|
| **A** | absent | present | present |
| **B** | present | absent | present |
| **C** | present | present | absent |
| **D** | present | present | present |

**3** The diagram shows a plant cell.




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

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

**4** Which is a tissue?

**A** bone

**B** collagen

**C** cytoplasm

**D** haemoglobin

**5** The diagram shows the flow of energy between three organisms.


What is **X**?

**A** chlorophyll

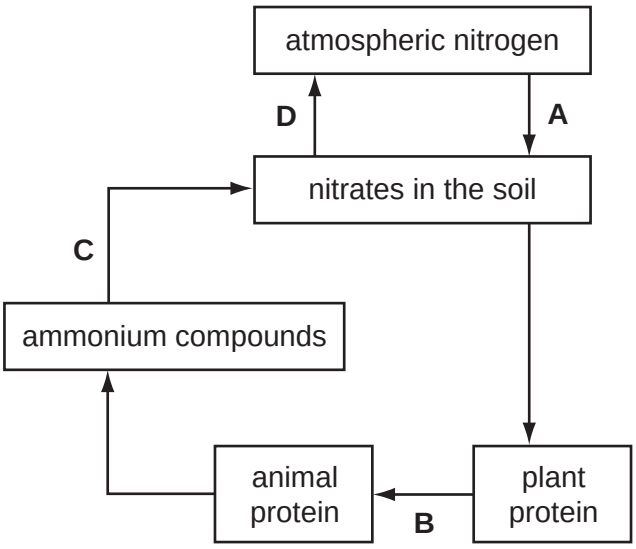
**B** plants

**C** sunlight

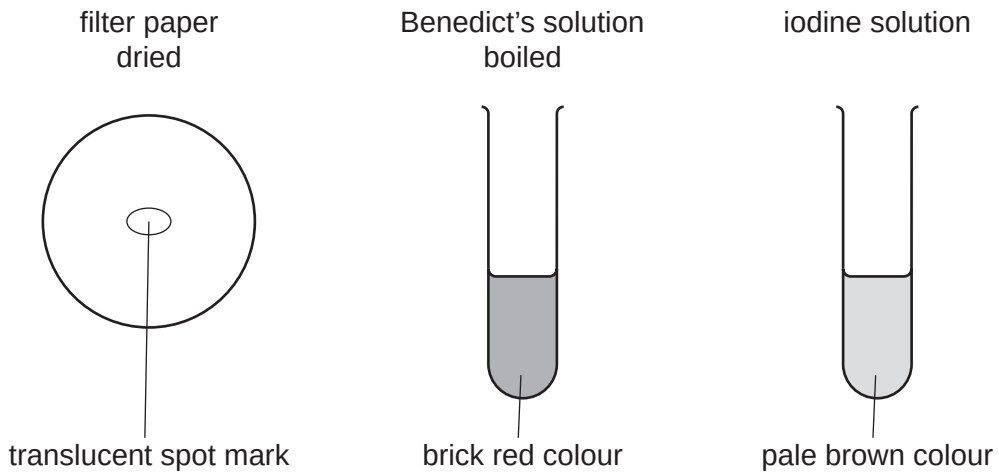
**D** water

**6** The diagram shows a simple version of the nitrogen cycle.

During which stage are nitrogenous compounds changed into amino acids?



**7** The diagrams show the results of three tests on a food.




Which nutrients are present?

**A** fat only

**B** fat and reducing sugar only

**C** fat, reducing sugar and starch

**D** reducing sugar and starch only

**8** Which nutrient in the diet should be increased to keep a patient healthy, after being infected with *Plasmodium*?

**A** calcium

**B** fat

**C** iron

**D** vitamin D

**9** What is the best food to help a patient recover from rickets?

**A** eggs

**B** oranges

**C** potato

**D** rice

**10** Diagram 1 shows a cross section through a molar tooth

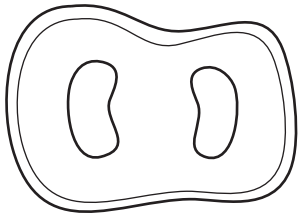


Diagram 1

Diagram 2 shows a vertical section through the same molar tooth.

At which level was the cross section taken?

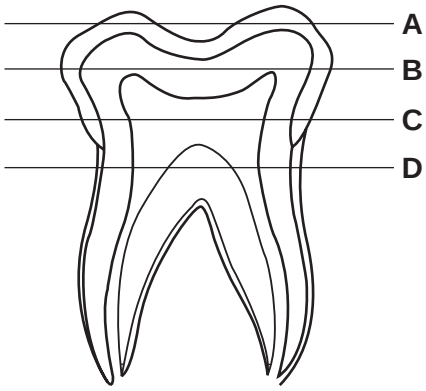
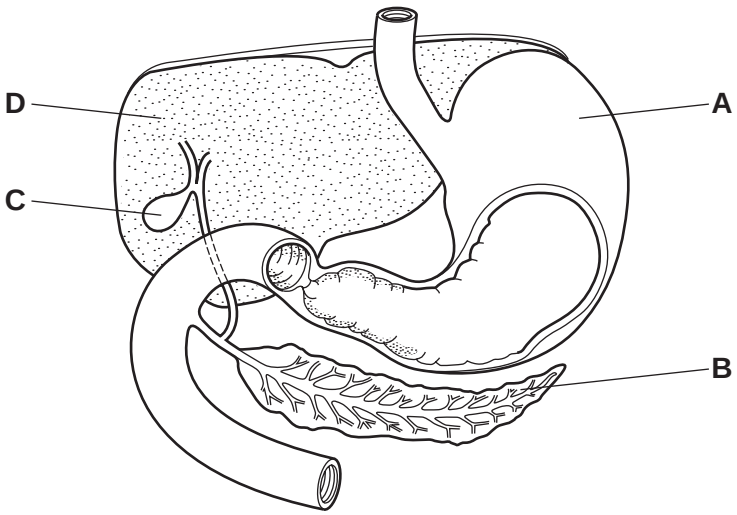



Diagram 2

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

Which structure produces **both** an alkaline liquid important in digestion and an excretory product containing nitrogen?



**12** In an experiment, hydrochloric acid added to a digestive juice converted protein into polypeptides.

From which part of the alimentary canal was the digestive juice obtained?

**A** colon

**B** duodenum

**C** mouth

**D** stomach

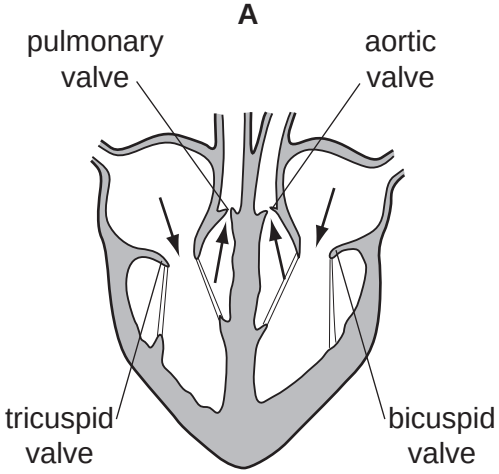
**13** What do haemoglobin and plasma transport in the blood?

| | transported by haemoglobin | transported by plasma |
|---|---|---|
| **A** | carbon dioxide | products of digestion |
| **B** | hormones | carbon dioxide |
| **C** | products of digestion | urea |
| **D** | urea | hormones |

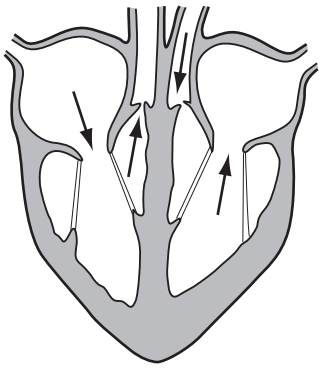
**14** The diagrams show sections through four hearts.

Which diagram has arrows correctly showing the direction of blood passing through valves?

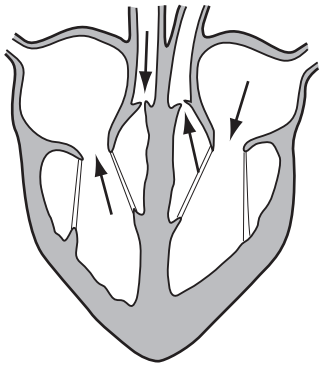
**A**



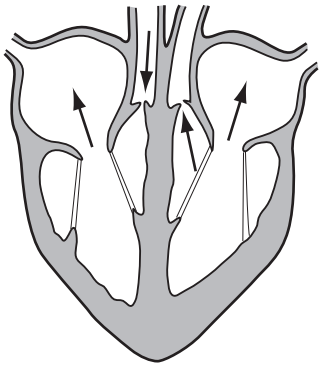

**B**



**C**

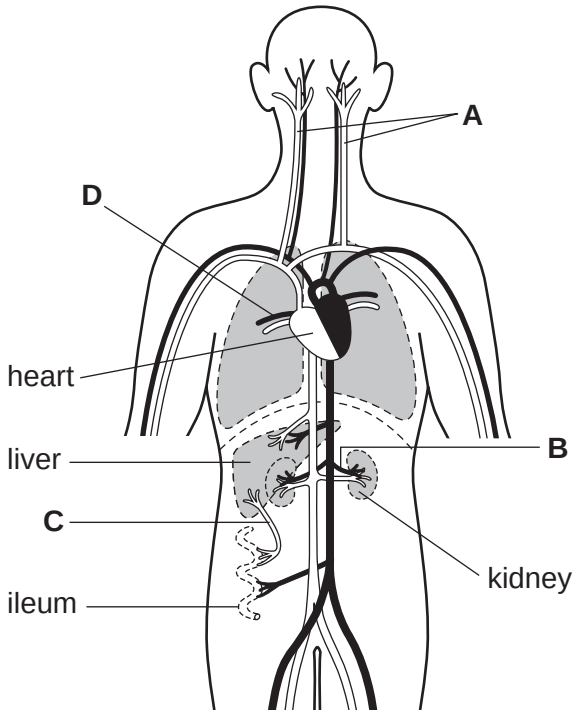


**D**



**15** The diagram shows some of the main blood vessels in the body.

Which blood vessel has capillaries at both ends?




**16** Which can contract to help breathing out?

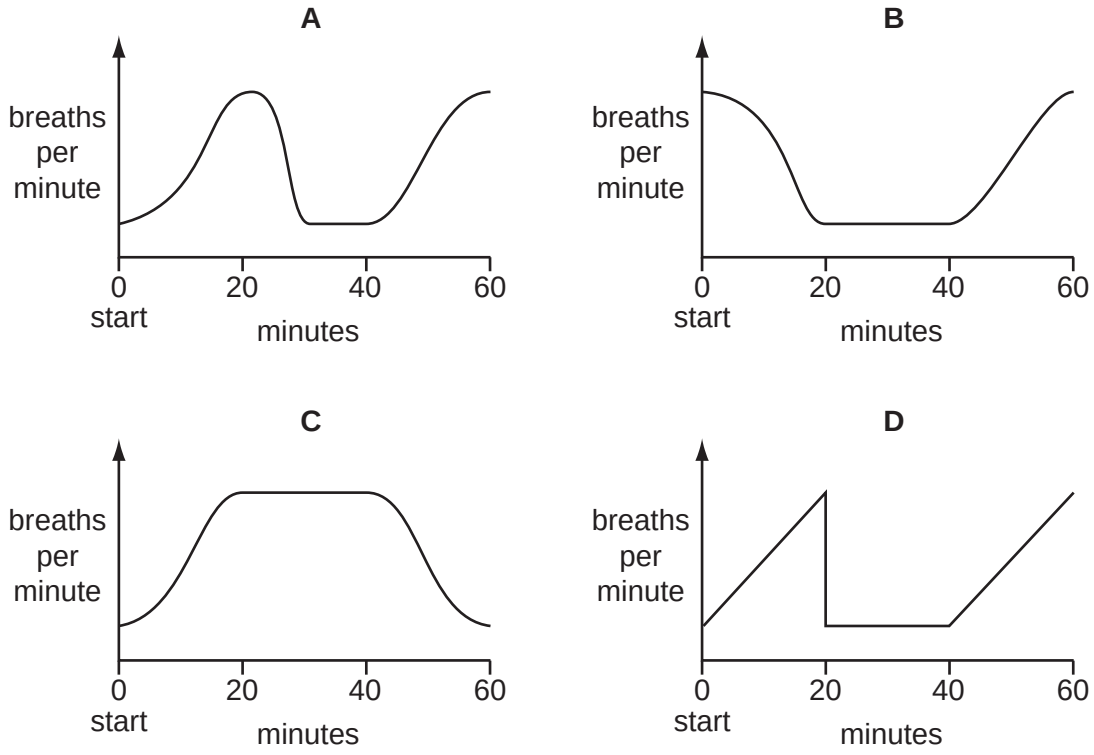
**A** diaphragm fibres

**B** diaphragm muscles

**C** external intercostal muscles

**D** internal intercostal muscles

**17** Which graph shows the breathing rate of a student who, from resting, runs for 20 catch a bus, sits on the bus for 20 minutes and then runs 20 minutes to school?




**18** What is an effect of **both** cigarette-smoking and drinking alcohol?

**A** infectious disease

**B** liver damage

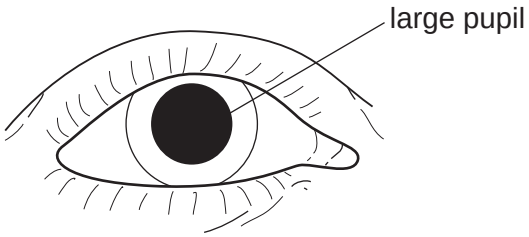
**C** lung damage

**D** physical dependence

**19** Which information is correct for when the forearm is flexed (bent)?

| | biceps | triceps | origin of triceps | insertion of biceps |
|---|---|---|---|---|
| **A** | contracts | relaxes | scapula | radius |
| **B** | contracts | relaxes | radius | scapula |
| **C** | relaxes | contracts | scapula | radius |
| **D** | relaxes | contracts | radius | scapula |

**20** The diagram shows an eye that has adapted to see in a certain light condition.




What describes the condition of this eye?

| | circular muscles of iris | adapted for |
|---|---|---|
| **A** | contracted | dim light |
| **B** | relaxed | dim light |
| **C** | contracted | bright light |
| **D** | relaxed | bright light |

**21** What would be absent from the glomerular filtrate in the kidney?

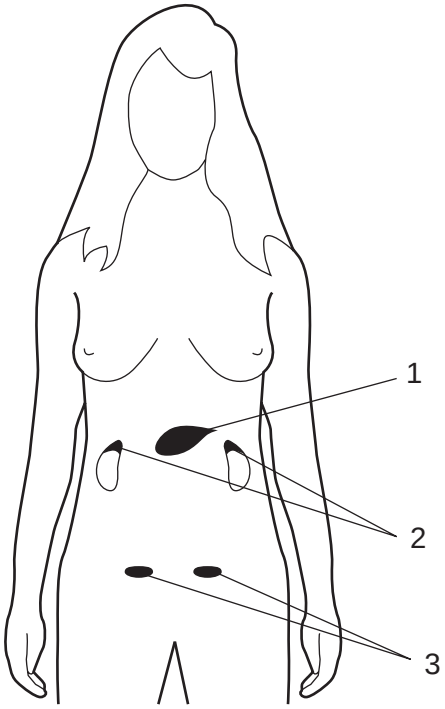
**A** glucose

**B** protein

**C** salts

**D** urea

**22** The diagram shows the position of three types of gland in the body.



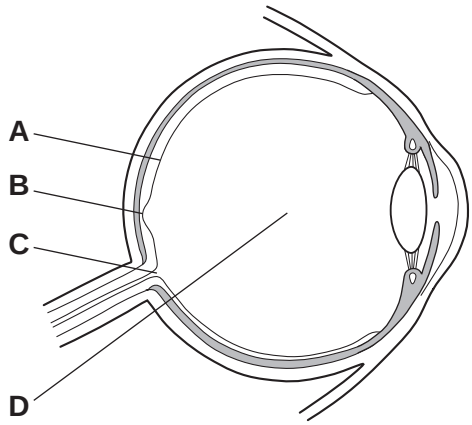

Which glands secrete adrenaline, glucagon and oestrogen?

| | adrenaline | glucagon | oestrogen |
|---|---|---|---|
| **A** | 1 | 2 | 3 |
| **B** | 2 | 3 | 1 |
| **C** | 2 | 1 | 3 |
| **D** | 3 | 1 | 2 |

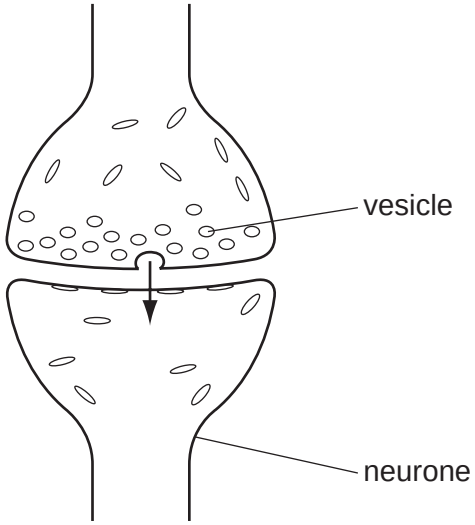
**23** A student draws a dot and a cross as shown.

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?




**24** The diagram shows a synapse as found in parts of the nervous system.




What passes in the direction of the arrow?

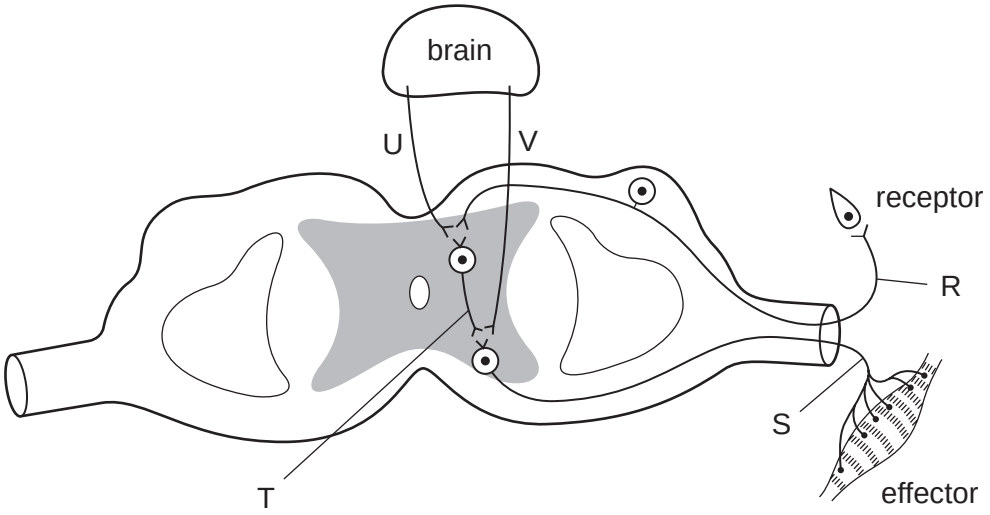
**A** an electrical impulse

**B** complex chemicals

**C** sodium ions

**D** the vesicle

**25** The diagram shows some possible routes for nerve impulses.




What is the direction taken by an impulse during a spinal reflex action?

**A** U → R

**B** V → S

**C** S → T → R

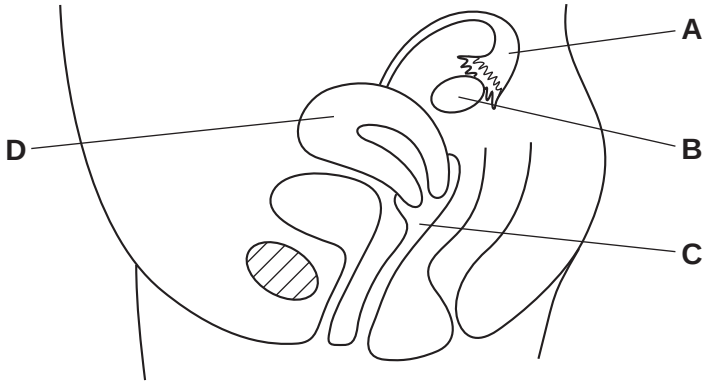
**D** R → T → S

**26** Which row in the table best describes control in the body by a slow-acting hormone and by a quick-acting hormone?

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

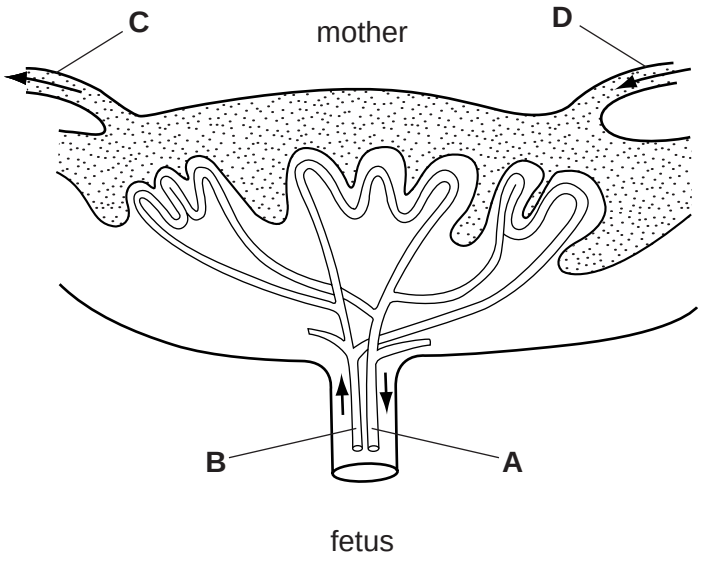
**27** The diagram shows the female reproductive system.

Which structure sheds its lining during menstruation?




**28** The diagram shows the placenta and umbilical cord.

Which blood vessel would carry the highest concentration of glucose and the lowest concentration of carbon dioxide and urea?




**29** A length of DNA which codes for a particular characteristic is

**A** a genotype.

**B** a chromosome.

**C** a gene.

**D** a mutation.

**30** What defines disease?

**A** a loss of health due to a disturbance of normal body processes

**B** an infectious illness that is transmitted from one person to another

**C** an organ that is damaged and no longer functions correctly

**D** an inherited medical condition passed from one or both parents

**31** How is a person who is infected with tuberculosis (TB) treated?

**A** by taking a mixture of antibiotics for several months

**B** by isolation in a mosquito proof room

**C** by thorough washing of the skin with an antiseptic solution

**D** by using dietary supplements, for example, Vitamin D

**32** Oil is sprayed onto the surface of stagnant water to help reduce the risk of malaria.

How does this stop the life cycle of the anopheline mosquito?

**A** The adult females can lay their eggs in water but not on oil.

**B** The oil decreases the surface tension of the water so larvae sink.

**C** The oil prevents the mosquito from settling to lay eggs.

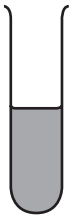
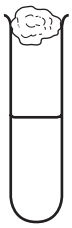
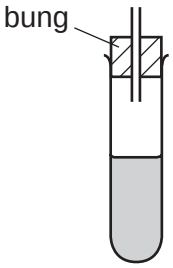
**D** The pupae cannot hatch into adults through the surface of oil.

**33** Which row is correct for the blood fluke, *Schistosoma mansoni*?

| | adults live in | eggs found in | larvae found in |
|---|---|---|---|
| **A** | humans | snails | soil |
| **B** | humans | urine and faeces | freshwater |
| **C** | snails | blood | faeces |
| **D** | snails | urine and faeces | humans |

**34** Four test-tubes of clear nutrient broth were treated as shown in the diagrams a... d at 28 °C.

The changes in appearance of the broth after 14 days are recorded.

| | experiment 1 | experiment 2 | experiment 3 | experiment 4 |
|---|---|---|---|---|
| |  |  |  |   |
| | plugged with cotton wool | boiled and left open | boiled and plugged with cotton wool | boiled and glass tube inserted |
| after 14 days | very cloudy | cloudy | clear | slightly cloudy |

In which experiments have bacteria entered the test-tubes **after** the apparatus was set up?

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

**35** What kills bacteria and is produced by some fungi?

**A** antibiotics

**B** antibodies

**C** antigens

**D** antiseptics

**36** When a mosquito carrying malaria bites a human, the insect is acting as

**A** a causative agent.

**B** a pathogen.

**C** a protozoan.

**D** a vector.

**37** What provides a child with active acquired immunity?

**A** receiving antibodies from mother's blood during pregnancy

**B** receiving antibodies from mother's milk

**C** receiving injections of antigens that cause the production of antibodies

**D** receiving injections of antibodies produced in a horse

**38** Which process occurs in both large scale sewage disposal and large scale treatment for drinking?

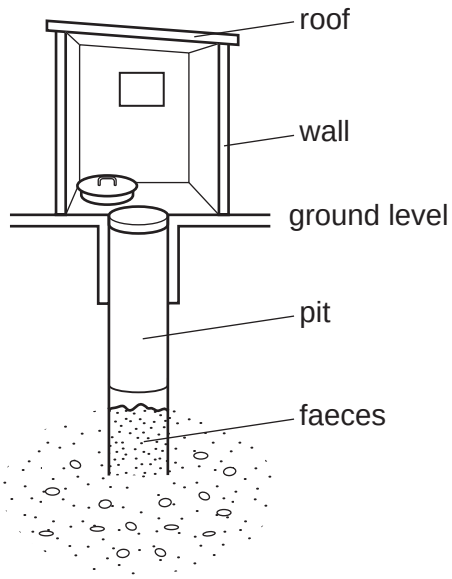
**A** Disinfectants are used to kill microorganisms.

**B** Effluent removes microorganisms.

**C** Filters are used to remove microorganisms.

**D** Microorganisms act as decomposers.

**39** The diagram shows a section through a pit latrine.




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

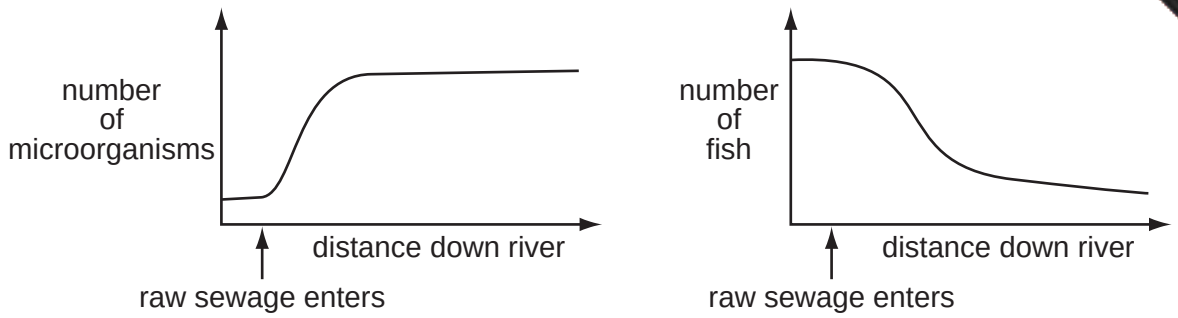
**A** Flies can enter and leave the latrine.

**B** Mosquitoes can lay their eggs in the faeces.

**C** The concrete lining should extend to the base of the pit.

**D** Ventilation is poor, so smells accumulate.

**40** The graphs show the number of microorganisms and fish in the same river. The p… 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** Microrganisms from sewage kill the plants that the fish eat.

**C** Sewage contains chemicals that kill the microrganisms and fish.

**D** The increase in numbers of microorganisms provides more food for the fish to eat.

BLANK PAGE

**BLANK PAGE**