

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

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HUMAN AND SOCIAL BIOLOGY

5096/01

Paper 1 Multiple Choice

October/November 2008

1 hour

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

* 1 2 8 5 9 0 4 9 7 7 *
* 1 2 8 5 9 0 4 9 7 7 *

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 What is true of **all** living organisms?

- A They are multicellular.
- B They can reproduce sexually.
- C They can respond to stimuli.
- D They can take in food.

2 The table below shows features of cells in four organisms.

Which organism is a bacterium?

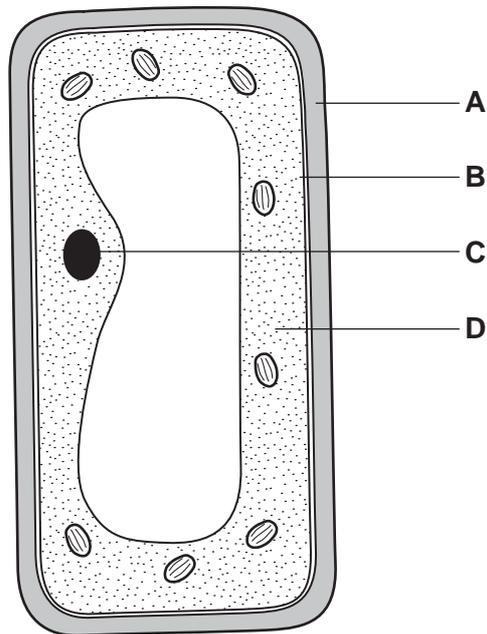
	unicellular	reproduce by fission	distinct nucleus	cytoplasm
A	yes	yes	absent	present
B	yes	yes	present	present
C	yes	no	present	present
D	no	no	absent	absent

3 Which group contains many vectors of disease?

- A bacteria
- B flatworms
- C insects
- D protozoa

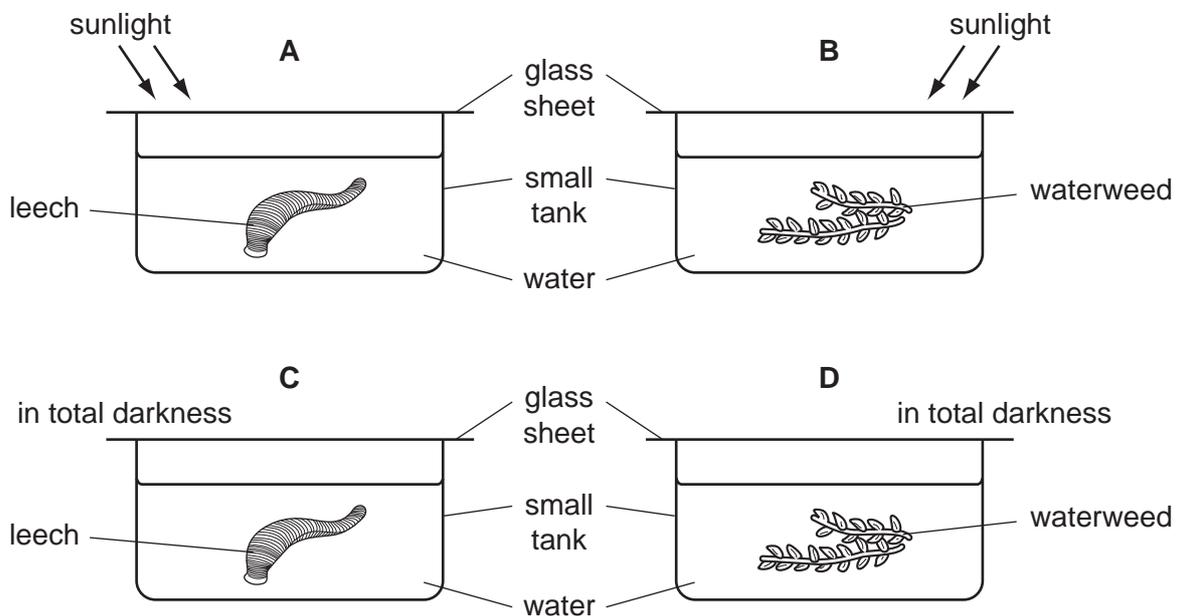
4 The diagram shows a plant cell.

Which part of this cell is **not** present in a liver cell?



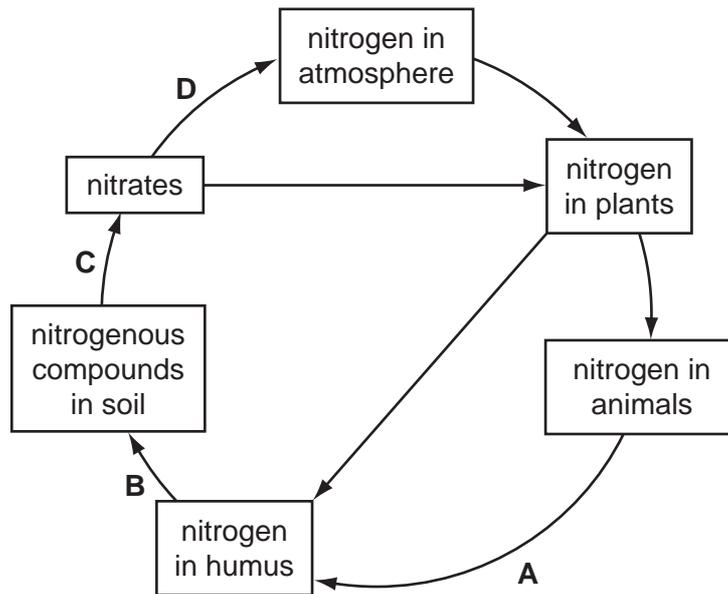
5 The diagram shows an investigation into gaseous exchange.

In which container will the concentration of oxygen increase?



6 The diagram shows the nitrogen cycle.

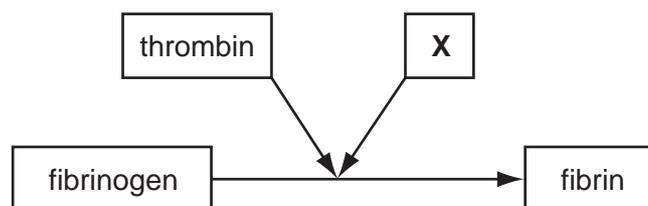
At which stage will bacteria make the soil less fertile?



7 What is needed in the diet for the formation of healthy epithelial cells?

- A calcium
- B iron
- C vitamin C
- D vitamin D

8 The diagram represents some of the substances involved in forming a blood clot.



Which substance in the diet is **X**?

- A calcium
- B fibre
- C iron
- D vitamin D

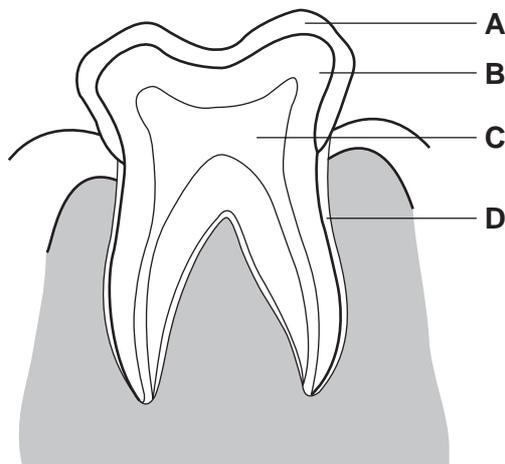
- 9 The diet of a pregnant woman should contain more iron than the diet of a non-pregnant woman.

What risk does this reduce?

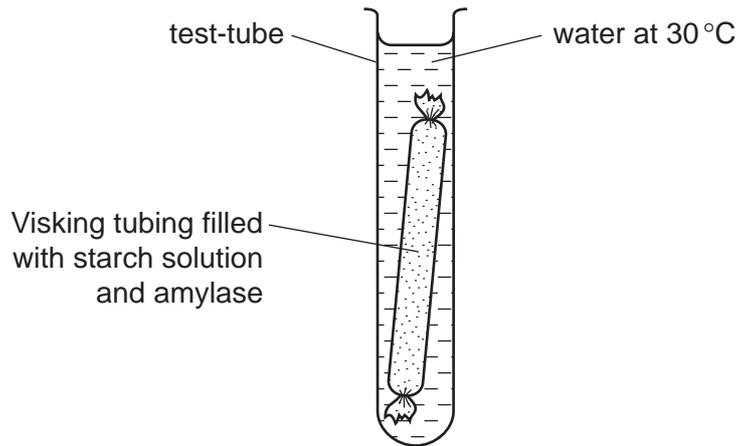
- A the woman becoming anaemic
- B the woman suffering from haemorrhage
- C the fetus being unable to absorb oxygen
- D the placenta not functioning properly

- 10 The diagram shows the structure of a tooth.

Which part is sensitive to pain?



11 The apparatus shown was set up to investigate the action of amylase on starch.



After two hours, a Benedict's test was carried out on the water in the test-tube.

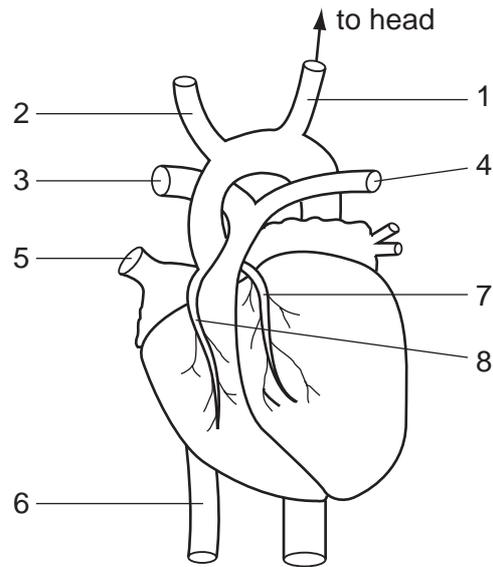
Which result and explanation are correct?

	colour after test	explanation
A	black	starch was present
B	blue	reducing sugar was present
C	brown	starch was absent
D	red	reducing sugar was present

12 Which substances are excreted and which are egested?

	substances excreted	substances egested
A	carbon dioxide and fibre	bacteria and urea
B	carbon dioxide and bacteria	urea and fibre
C	urea and fibre	carbon dioxide and bacteria
D	urea and carbon dioxide	fibre and bacteria

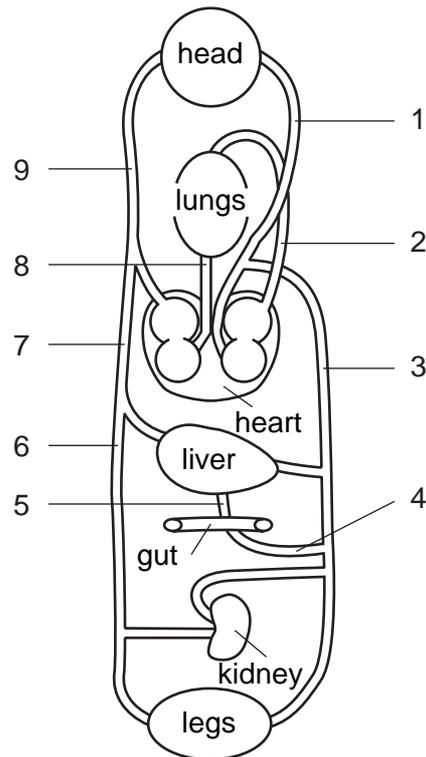
13 The diagram shows the external structure of the heart.



In which two vessels would a deposit of cholesterol increase the likelihood of coronary thrombosis?

- A** 1 and 2 **B** 3 and 4 **C** 5 and 6 **D** 7 and 8

14 The diagram represents the circulatory system.

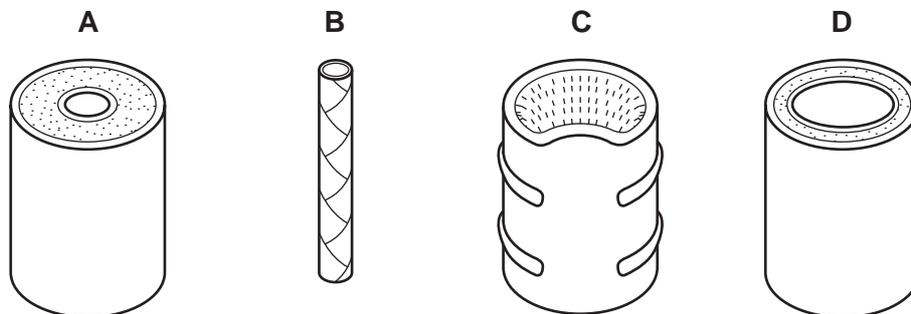


Which path does blood take from the gut to the lungs?

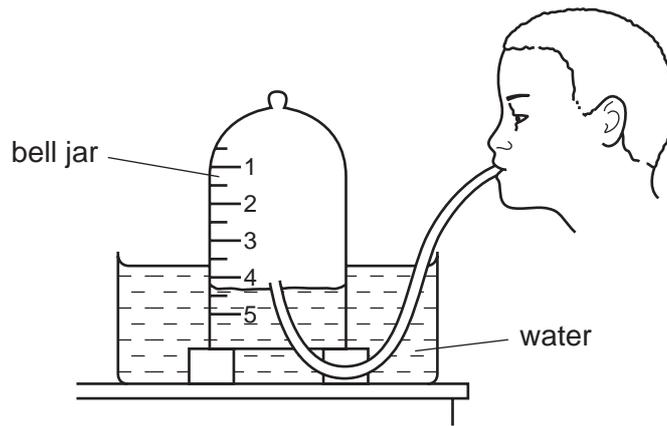
- A 4 → 3 → 2
- B 5 → 7 → 8
- C 4 → 3 → 1 → 9 → 8
- D 5 → 7 → 9 → 1 → 2

15 The diagrams show short sectional views of four tubes found in the body.

Through which tube will air flow?



16 The apparatus shown in the diagram was full of water at the start of an experiment.



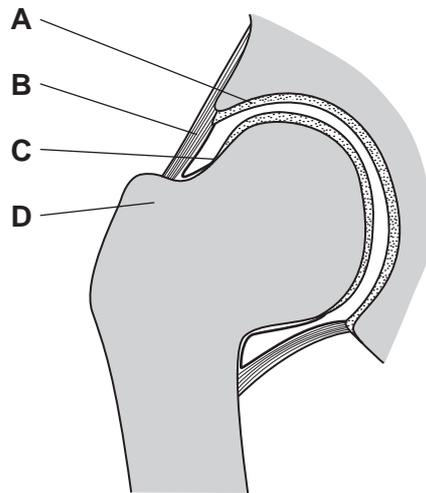
The student breathed in as deeply as possible, then blew out as much air as possible to produce the result shown in the diagram.

What was being measured in this experiment?

- A depth of breathing
 - B rate of breathing
 - C total lung volume
 - D vital capacity
- 17 What causes a smoker to cough?
- A carbon monoxide reducing the carriage of oxygen by haemoglobin
 - B cilia stopping beating and the bronchi becoming blocked with mucus
 - C nicotine damaging the lining of bronchi
 - D tar reducing the surface area for gas exchange in the alveoli

18 The diagram shows a section through a joint.

Where is a tough, flexible elastic tissue found?



19 Which line is true of the skeleton?

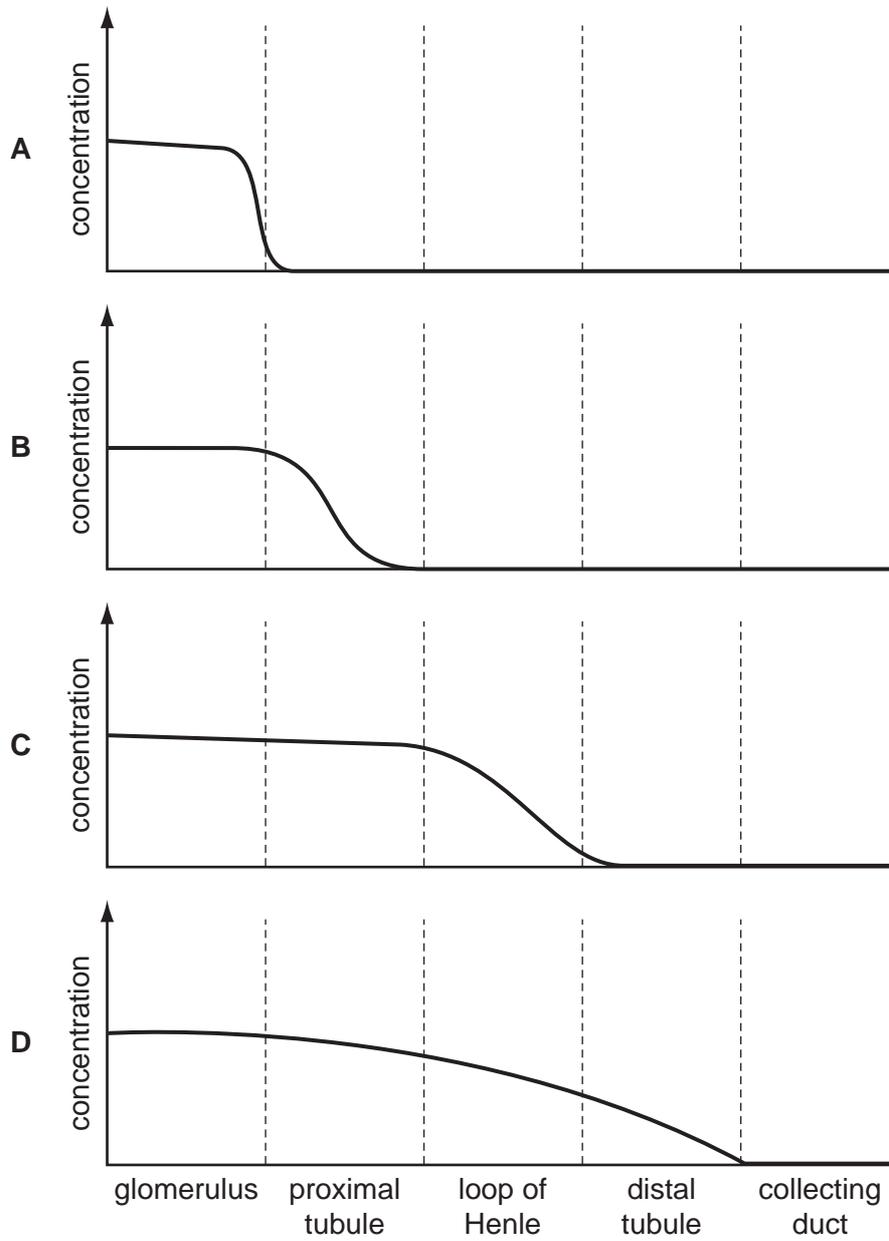
	produces hormone insulin	produces red blood cells	protects the lungs	provides support for muscles	provides a reserve of vitamin C
A	yes	yes	yes	no	no
B	no	yes	no	yes	yes
C	no	yes	yes	yes	no
D	yes	no	no	yes	yes

20 What is kept **constant** by a homeostatic mechanism in the body?

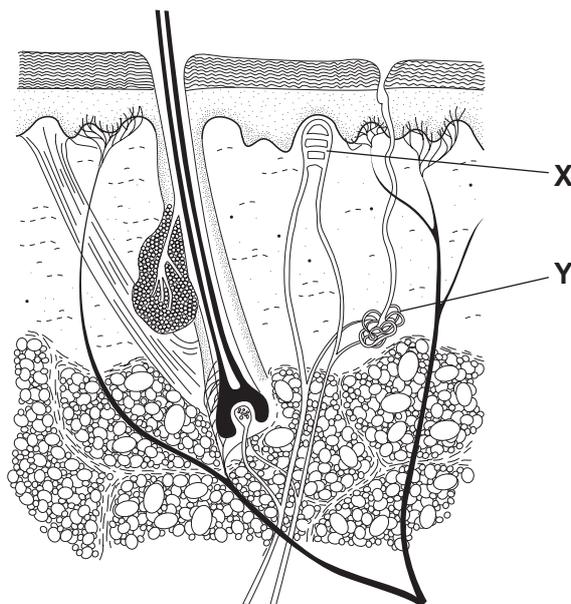
- A** the concentration of sugar in the blood
- B** the concentration of urine excreted
- C** the percentage of oxygen in expired air
- D** the rate at which the heart beats

- 21 The graphs show the concentration of four substances in five consecutive regions of a nephron tubule.

Which substance is glucose?



22 The diagram shows a vertical section through human skin.



What happens to parts **X** and **Y** in very cold conditions?

	X	Y
A	constricts	active
B	constricts	inactive
C	dilates	active
D	dilates	inactive

23 Which statement about nerves and neurones is correct?

- A** Nerves are only sensory in function; neurones are sensory and motor.
- B** Nerves are bundles of neurones.
- C** Nerves secrete chemicals; neurones carry electrical impulses.
- D** Nerves transmit impulses quicker than neurones.

24 What is involved during a spinal reflex action?

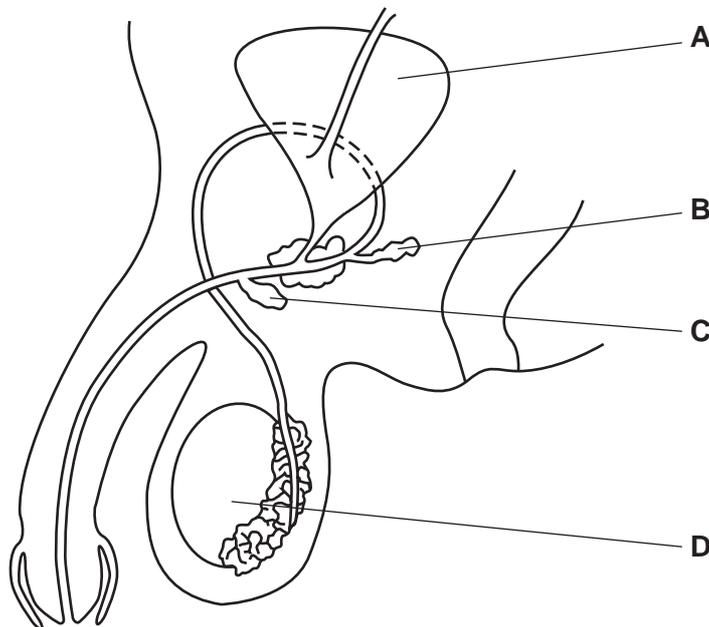
	spinal cord	brain	effectors
A	yes	yes	glands only
B	no	no	muscles only
C	no	yes	muscles and glands
D	yes	no	muscles and glands

25 Which line shows the effects of heroin?

	causes euphoria (feeling of well being)	reduces sensitivity to pain	delays sleep and increases alertness
A	no	yes	yes
B	yes	yes	no
C	yes	yes	yes
D	yes	no	yes

26 The diagram shows a side view section through the male reproductive system.

Where are both hormones and new cells being produced?



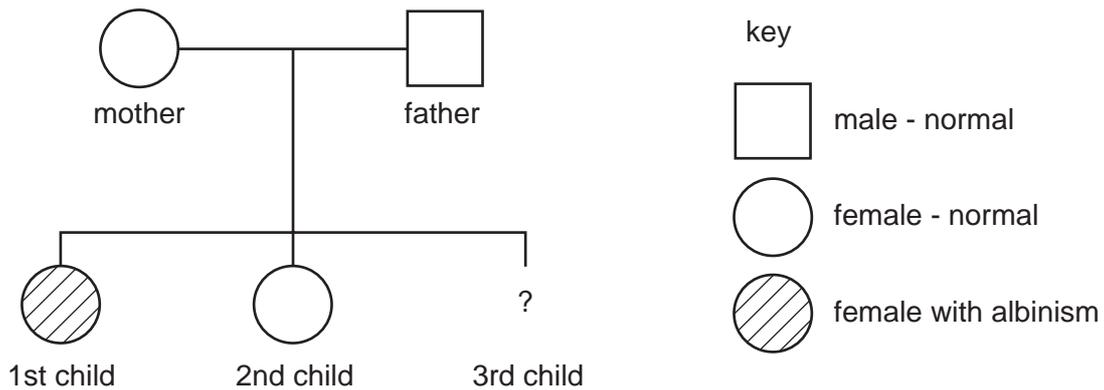
27 Where does ovulation take place?

- A** cervix
- B** ovary
- C** oviduct
- D** uterus

28 What causes menstruation?

- A act of sexual intercourse
- B less hormones secreted by the ovaries
- C nerve impulses from the brain
- D release of an egg into the oviduct

29 The diagram shows the monohybrid inheritance of albinism in a family.



What are the chances that the third child will show albinism?

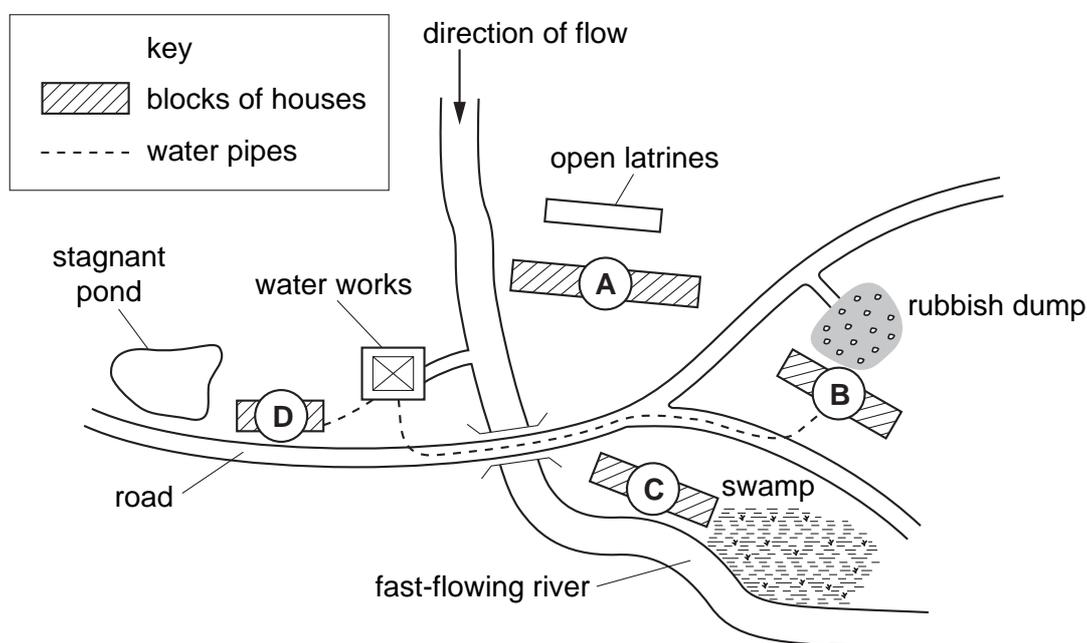
- A 100% (all)
 - B 50% (1 in 2)
 - C 25% (1 in 4)
 - D 0% (none)
- 30 What **cannot** be prevented by healthy living?
- A chronic heart disease
 - B gonorrhoea
 - C sickle cell anaemia
 - D tuberculosis

31 The table shows methods of the spread of disease between humans.

What are the methods by which HIV is spread?

	transfer via saliva	transfer via blood	transfer via air	transfer via semen	transfer via urine
A	yes	yes	no	no	yes
B	no	yes	yes	yes	no
C	no	yes	no	yes	no
D	yes	no	yes	yes	yes

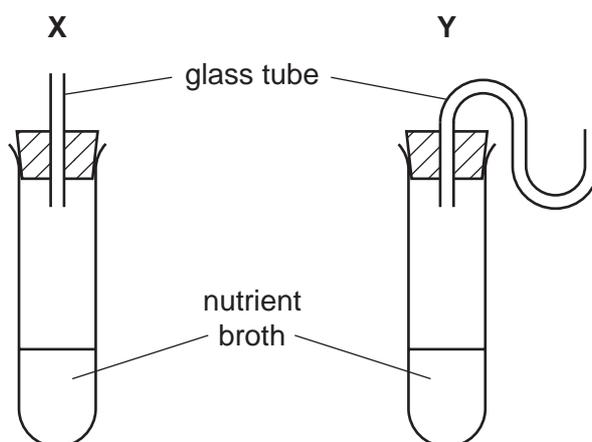
32 In which block of houses are people **most** likely to become infected with typhoid?



33 Which is a sign and which is a symptom of tuberculosis?

	sign	symptom
A	blood in sputum	feeling unwell
B	cough	weight loss
C	feeling unwell	cough
D	weight loss	blood in sputum

- 34 Immediately after a natural disaster such as a tsunami, outbreaks of cholera can occur. What is the best action to take **first** to stop the spread of cholera to the survivors?
- A providing an adequate food supply
 B rebuilding homes and hospitals
 C restoring sewage treatment works
 D supplying clean bottled water
- 35 What is the effect of the repeated use of penicillin to treat gonorrhoea?
- A Blood poisoning occurs due to frequent injections.
 B The bacteria may become resistant to penicillin.
 C There is an increased chance of becoming infertile.
 D The white blood cells will be unable to produce antibodies.
- 36 A nutrient broth in which microorganisms can grow was sterilised in tubes X and Y, which were then set up as shown in the diagram.



After incubation, which tubes of broth will go cloudy or remain clear and why?

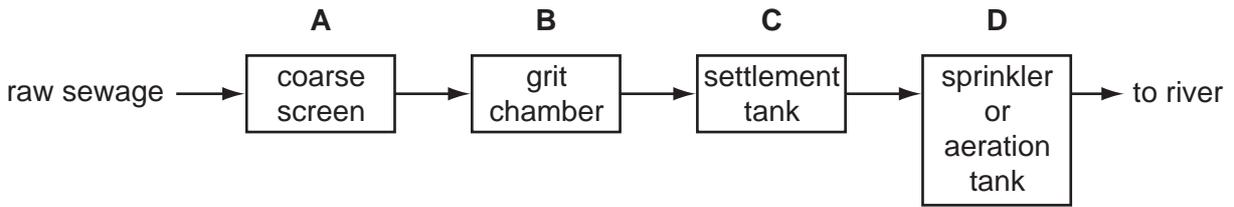
	X	Y
A	cloudy spores drop into tube	cloudy spores move through tube
B	clear spores cannot enter narrow tube	cloudy spores move through tube
C	cloudy spores drop into tube	clear spores cannot enter
D	clear spores cannot enter narrow tube	clear no air currents for spores

37 What was the **most** effective method used to eliminate smallpox?

- A inoculation with an immune serum
- B isolation of smallpox patients
- C patients treated with antibiotics
- D vaccination used

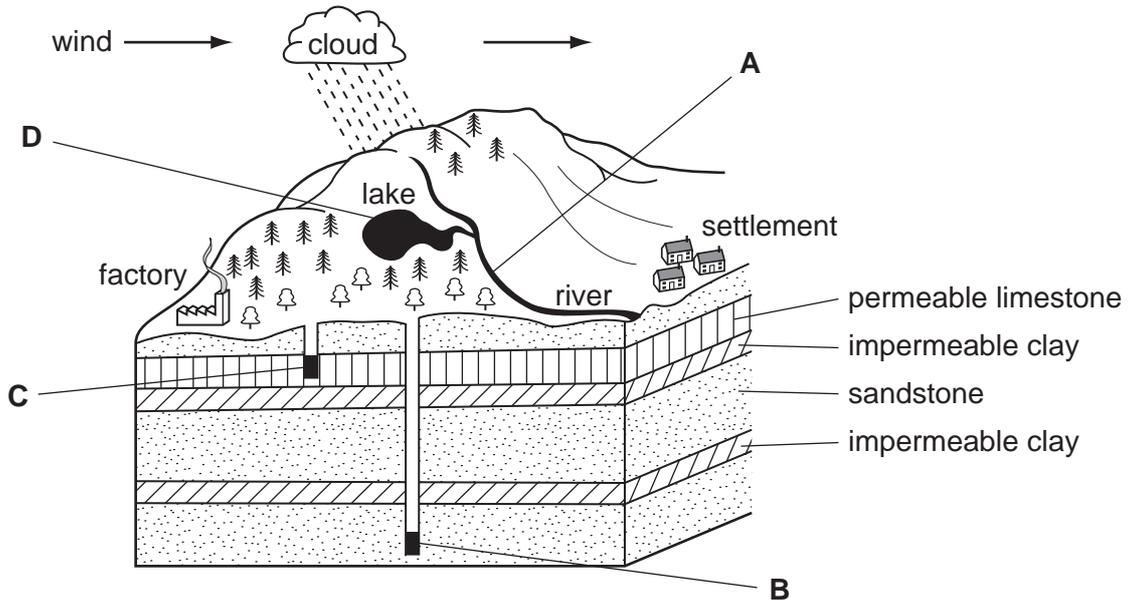
38 The diagram shows the main stages in the treatment of sewage.

At which stage is most of the organic material broken down by aerobic bacteria?



39 The diagram shows four sources of water for a small community.

Which water source would give the purest water?



- 40 The table shows the number of bacteria, the concentration of oxygen and organic matter and the number of fish in four rivers, each flowing through a different town.

In which river is there a discharge of untreated sewage from the town?

	number of bacteria	concentration of oxygen	concentration of organic matter	number of fish
A	many	low	high	few
B	many	high	high	many
C	few	high	low	many
D	few	low	low	few

