

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**HUMAN AND SOCIAL BIOLOGY**

**5096/01**

Paper 1 Multiple Choice

May/June 2005

**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 **19** printed pages and **1** blank page.



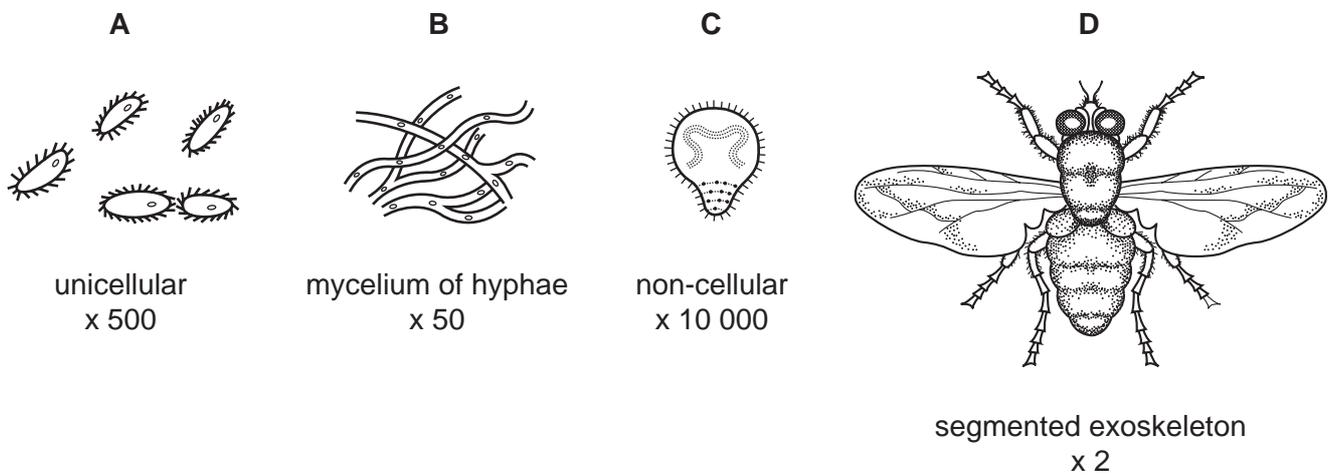
- 1 When fuel burns in the engine of a car, energy is released.

Which process that occurs in living organisms is most similar to this?

- A excretion
- B movement
- C nutrition
- D respiration

- 2 The diagrams show the features of four organisms.

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

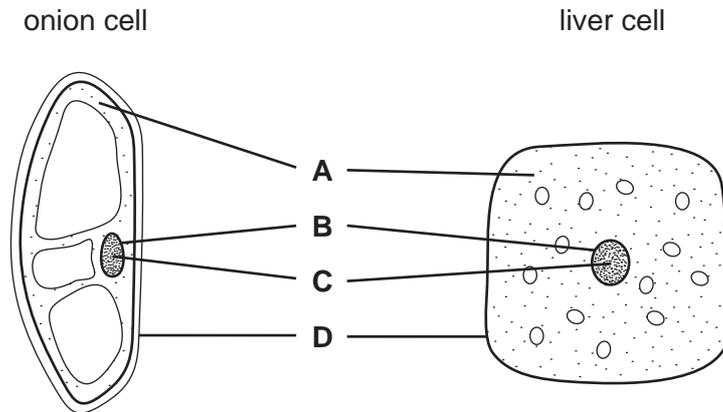


- 3 Which organism is a flatworm?

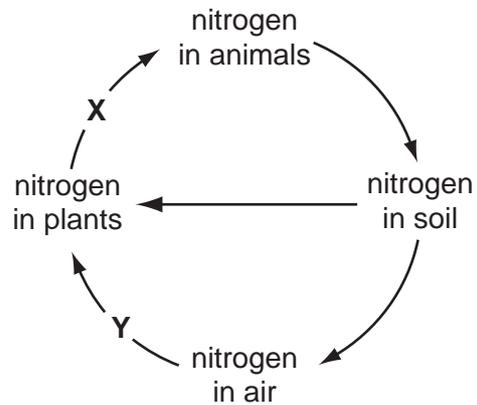
- A *Anopheles*
- B *Plasmodium*
- C *Schistosoma*
- D *Tinea*

- 4 The diagrams show a cell from an onion and a cell from the liver.

Which guideline does **not** point to the same structure on both diagrams?



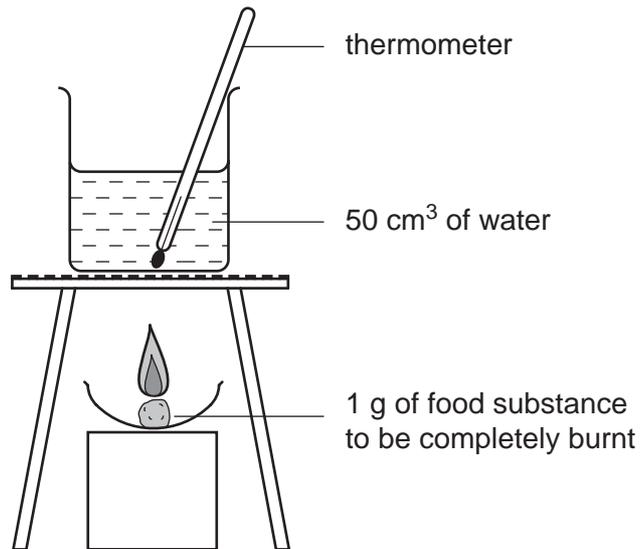
- 5 The diagram shows part of the nitrogen cycle.



Which processes are **X** and **Y**?

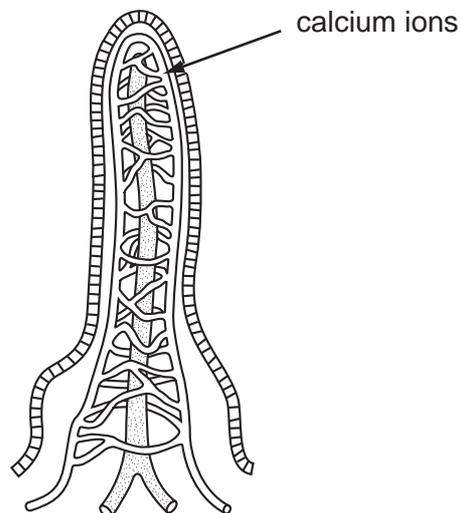
	<b>X</b>	<b>Y</b>
<b>A</b>	ingestion	decay
<b>B</b>	ingestion	nitrogen fixing
<b>C</b>	excretion	decay
<b>D</b>	excretion	nitrogen fixing

- 6 The apparatus shown can be used to compare the energy values of various food substances.



Which food substance will give the greatest rise in the temperature of the water?

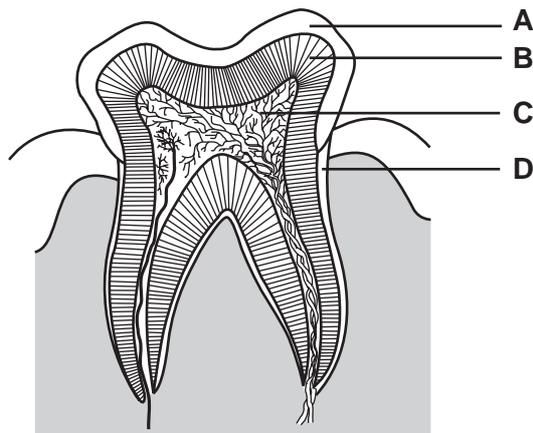
- A fat
  - B protein
  - C starch
  - D sugar
- 7 The diagram shows a structure in the small intestine.



What is needed for the movement of calcium ions, as shown by the arrow?

- A carbohydrate
- B iron
- C vitamin A
- D vitamin D

- 8 Why is iron an important part of the diet?
- A It builds and hardens bones and teeth.
  - B It helps prevent tooth decay.
  - C It is used to make haemoglobin.
  - D It prevents blood from clotting.
- 9 The diagram shows a vertical section through a molar tooth in the jaw.
- Which is the hardest part shown?

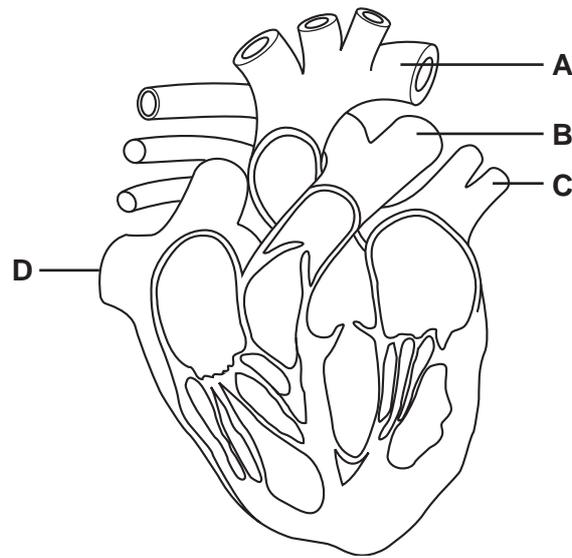


- 10 Where does bile enter the alimentary canal?
- A colon
  - B duodenum
  - C ileum
  - D stomach
- 11 What are the conditions necessary for healthy defecation?

	contraction of gut muscles	enough fibre in diet	vitamin C in diet	enough water in diet
<b>A</b>	yes	yes	no	no
<b>B</b>	no	no	yes	yes
<b>C</b>	yes	no	yes	yes
<b>D</b>	yes	yes	no	yes

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

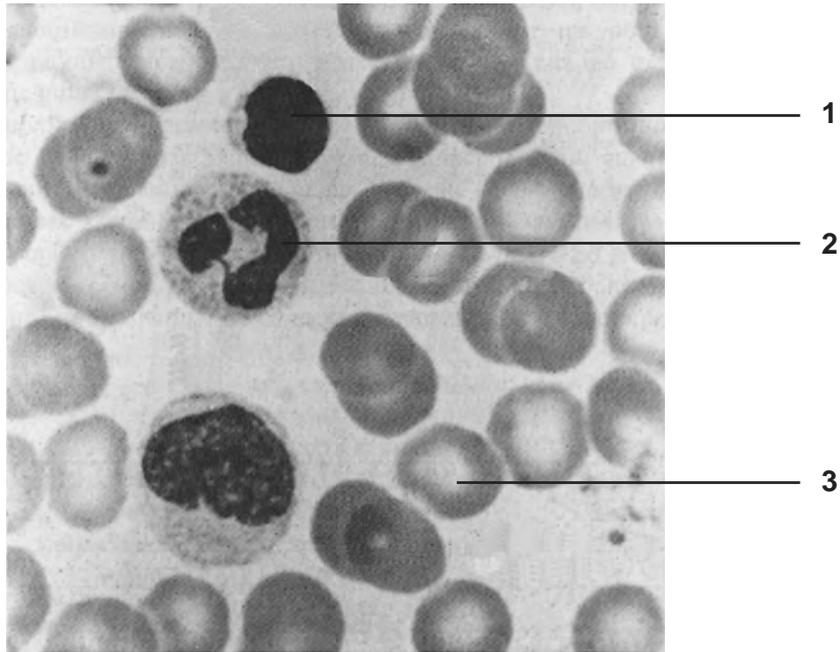
Which is the pulmonary vein?



13 What is the role of the pacemaker in the heart?

- A** It decreases pressure in the ventricles.
- B** It increases the flow of blood through the coronary arteries.
- C** It regulates the rate of contraction of the heart muscle.
- D** It stops the back flow of blood in the heart.

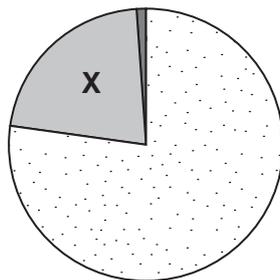
14 The diagram shows a photograph of blood as seen with a microscope.



Which guide lines label lymphocytes, phagocytes and red cells?

	lymphocytes	phagocytes	red cells
<b>A</b>	1	3	2
<b>B</b>	3	2	1
<b>C</b>	2	1	3
<b>D</b>	1	2	3

15 The pie chart shows the percentages of three gases in inspired air.



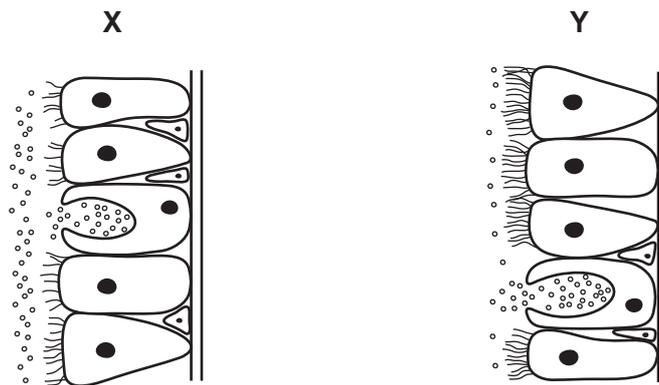
Which gas does sector **X** represent?

- A** carbon dioxide
- B** nitrogen
- C** oxygen
- D** water vapour

16 What happens when breathing out?

	diaphragm muscle	volume of thorax	pressure in thorax
<b>A</b>	contracts	decreases	increases
<b>B</b>	contracts	increases	decreases
<b>C</b>	relaxes	decreases	increases
<b>D</b>	relaxes	increases	decreases

17 The diagrams show the epithelium lining a bronchiole from a cigarette smoker and a non-smoker.



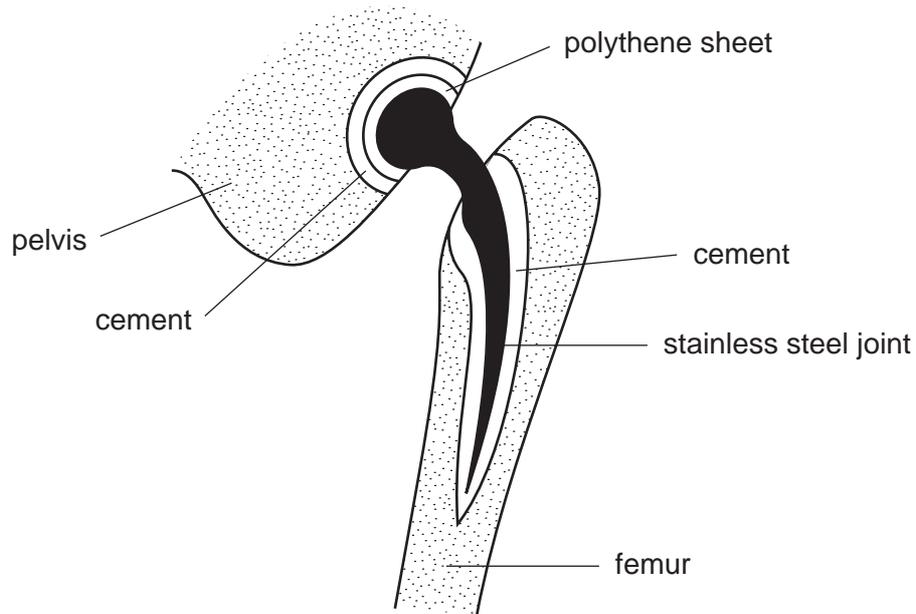
Which diagram shows the epithelium from a smoker and what is the effect of the smoke?

	smoker's epithelium	effect of smoke
<b>A</b>	X	there are fewer cilia
<b>B</b>	X	there is less mucus
<b>C</b>	Y	there are longer cilia
<b>D</b>	Y	the mucus is more fluid

18 Which part of bone makes it tough but not rigid?

- A** bone marrow
- B** calcium phosphate
- C** collagen fibres
- D** living cells

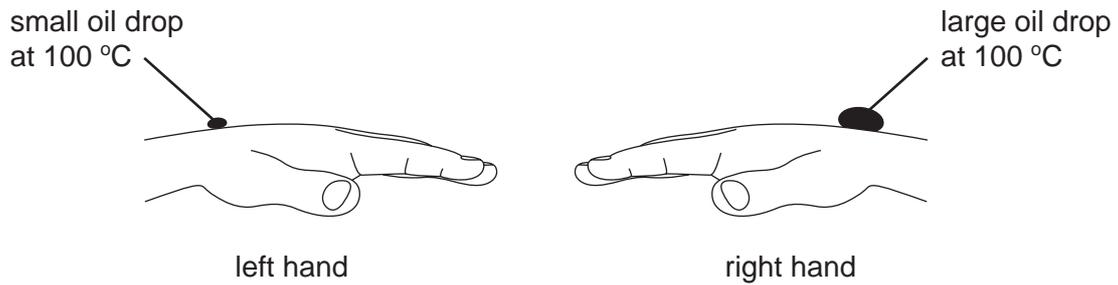
19 The diagram shows a replacement hip joint.



What is missing from this joint that would hold bones together in a normal joint?

- A cartilage
- B ligaments
- C synovial membrane
- D tendons

- 20 A student heats some cooking oil up to  $100^{\circ}\text{C}$ . A small drop of oil splashes onto her left hand and a large drop splashes onto her right hand.

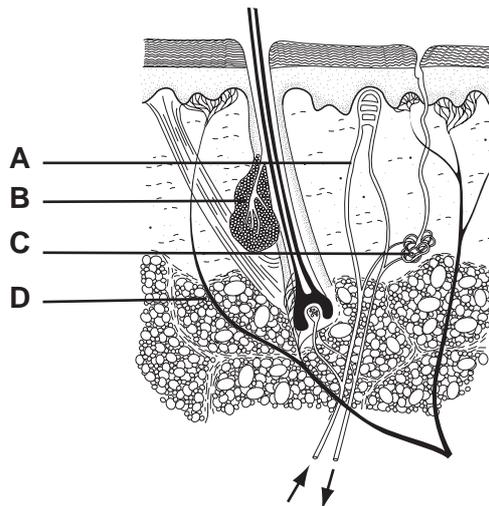


Which result and explanation are correct?

	result	explanation
<b>A</b>	The skin on both hands is equally burnt.	The oil is at the same temperature.
<b>B</b>	The skin on the right hand is more badly burnt.	The larger mass of oil has more heat.
<b>C</b>	The skin on the right hand is more badly burnt.	The larger mass of oil is at a higher temperature.
<b>D</b>	The skin on the left hand is more badly burnt.	Small splashes of hot oil cause more damage.

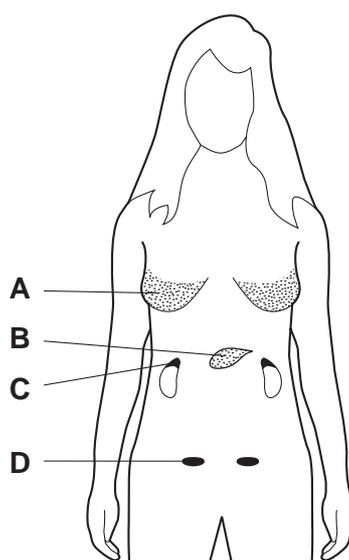
- 21 The diagram shows a section through the skin as seen with a microscope.

Which structure dilates and enlarges to cause heat loss from the body?

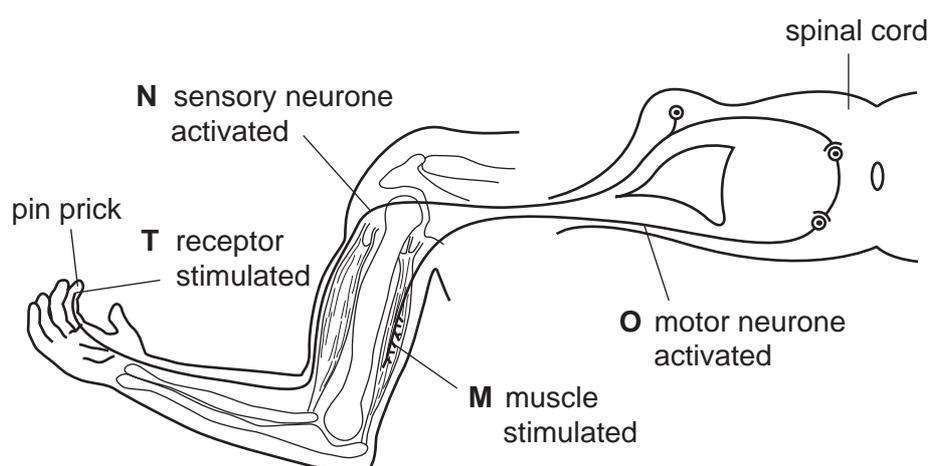


22 The diagram shows the position of some glands.

Which gland produces both hormones and digestive juices?



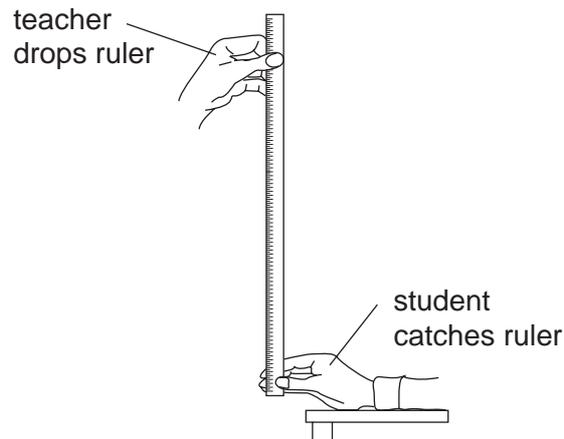
23 The diagram shows a simple reflex arc.



What is the correct order of events?

	first	→	last
<b>A</b>	<b>T</b>	<b>N</b>	<b>O M</b>
<b>B</b>	<b>T</b>	<b>N</b>	<b>M O</b>
<b>C</b>	<b>M</b>	<b>O</b>	<b>N T</b>
<b>D</b>	<b>M</b>	<b>T</b>	<b>N O</b>

- 24 The reaction time of a student is found by measuring the distance a ruler falls before being caught by a student. A teacher drops the ruler as shown.



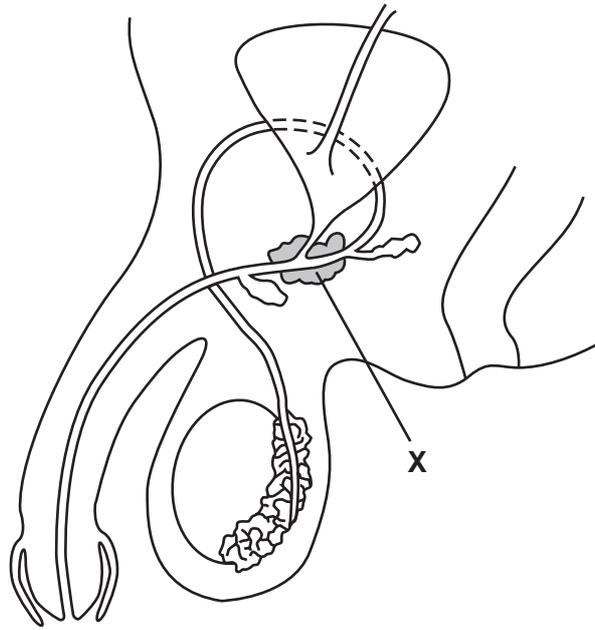
Which path is taken by nerve impulses from the student's eyes to the muscles of his hand?

- A optic nerve → retina → spinal cord → brain → spinal nerve
  - B optic nerve → retina → spinal cord → spinal nerve → brain
  - C retina → optic nerve → brain → spinal cord → spinal nerve
  - D retina → optic nerve → spinal nerve → brain → spinal cord
- 25 A patient suffers from hallucinations, convulsions and sweating. There are secretions from his eyes and nose, and spots appear on his skin.

From what is the patient most likely to be suffering?

- A alcohol poisoning
- B schistosomiasis
- C heroin withdrawal
- D malaria

26 The diagram shows parts of the male reproductive system.



What will be the effect of removing gland X?

- A to prevent the storage of sperm before fertilisation
- B to reduce the nutrients in the seminal fluid
- C to slow down the production of sperm
- D to stop the secretion of a male hormone

27 The table describes two organs in the female reproductive system.

organ	description
X	a tube which carries the egg from the ovary
Y	an organ in which sperms are deposited

What are organs X and Y?

	X	Y
A	cervix	uterus
B	oviduct	vagina
C	cervix	vagina
D	oviduct	uterus

28 What happens to the amniotic membrane, umbilical cord and uterus wall in the early stages of childbirth?

	amniotic membrane	umbilical cord	uterus wall
<b>A</b>	breaks	remains intact	expands
<b>B</b>	breaks	remains intact	contracts
<b>C</b>	remains intact	breaks	expands
<b>D</b>	remains intact	breaks	contracts

29 What **cannot** be prevented by healthy living?

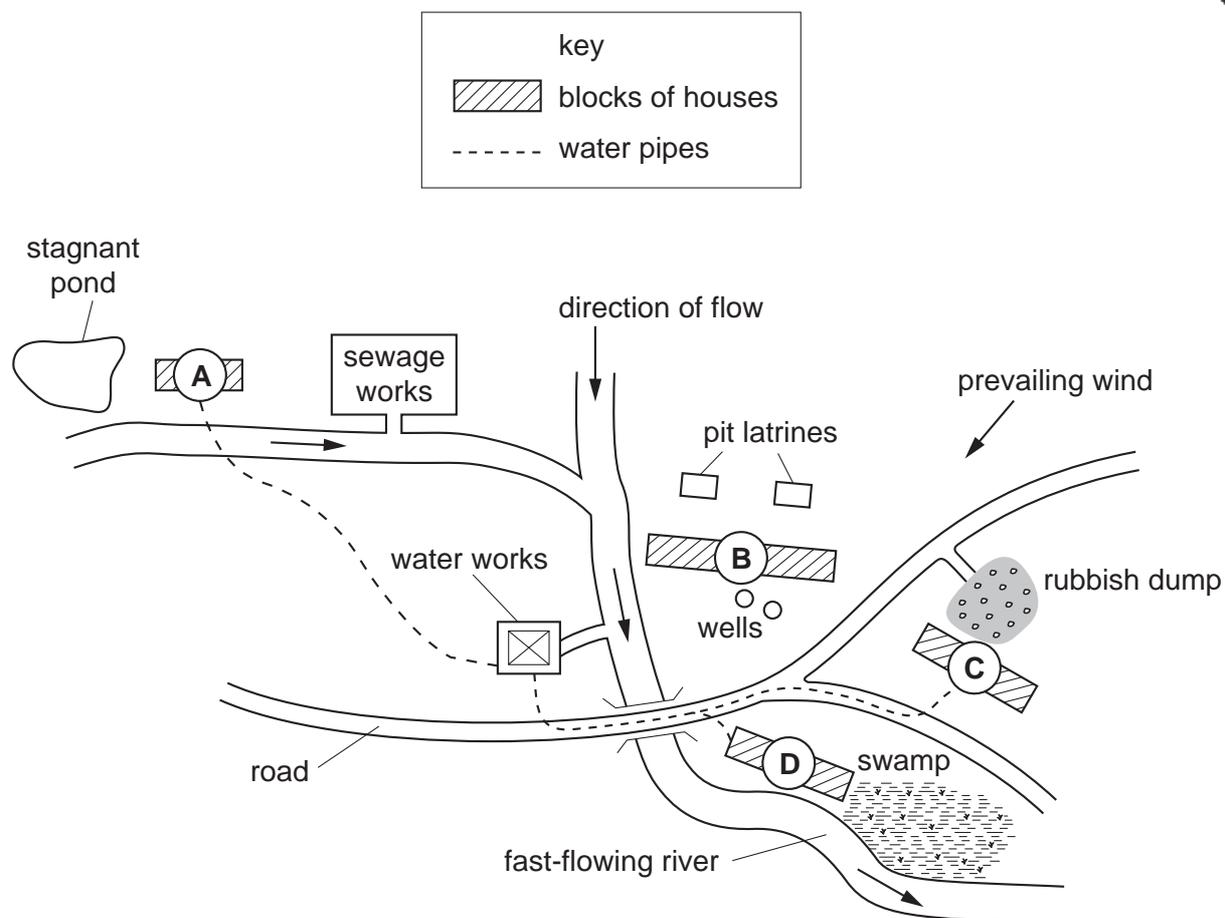
- A** chronic heart disease
- B** gonorrhoea
- C** sickle cell anaemia
- D** tuberculosis

30 What is the most effective method of preventing the spread of typhoid?

- A** avoiding coughing and spitting in public
- B** improving ventilation of homes
- C** preventing flies from reaching food
- D** sleeping under fine mesh netting

31 The map shows a small town.

In which block of houses would an outbreak of cholera be most likely to occur?



32 The table shows the number of cases of six diseases among long-serving prisoners in four prisons.

Which prison was most likely to have been overcrowded and poorly ventilated causing disease?

prison	number of cases of each disease					
	AIDS	coronary heart disease	cholera	lung cancer	syphilis	tuberculosis
<b>A</b>	0	5	6	2	1	24
<b>B</b>	2	28	0	29	3	4
<b>C</b>	25	9	0	12	20	0
<b>D</b>	4	8	22	9	0	11

33 How would a doctor identify schistosomiasis (bilharzia)?

- A analyse sputum for blood
- B examine a blood smear for parasites
- C examine a sample of urine for bacterial growth
- D examine faeces for eggs

34 What is a difference between an antiseptic and a disinfectant?

	antiseptic	disinfectant
A	damages human tissue	used in pit latrines
B	damages human tissue	kills most bacteria
C	inhibits bacterial reproduction	damages human tissue
D	inhibits bacterial reproduction	used in pit latrines

35 Among the people in a town a disease is caused by a virus and transmitted by sexual contact only.

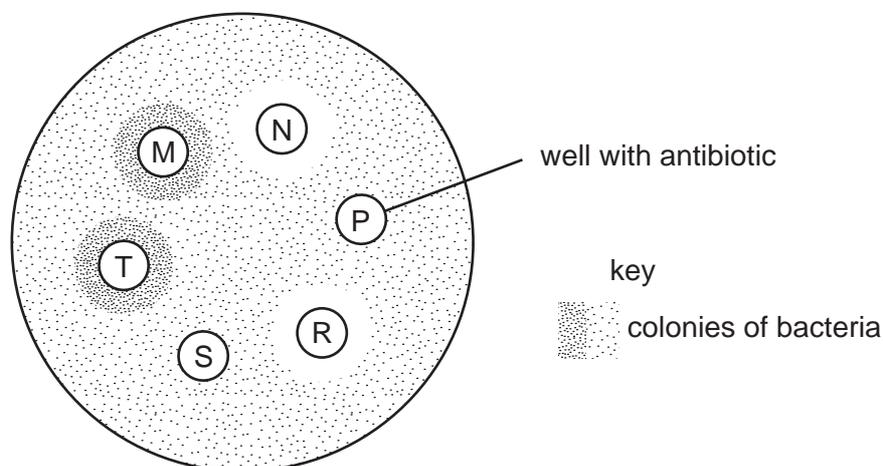
What would reduce the spread of this disease?

- A use of vaccination with weak cultures of the virus
- B increased use of the intra-uterine device
- C increased use of condoms (sheath) during sexual contacts
- D use of antibiotics to treat the disease

- 36 Fluid from the vagina taken from a patient suffering from gonorrhoea is spread on a petri

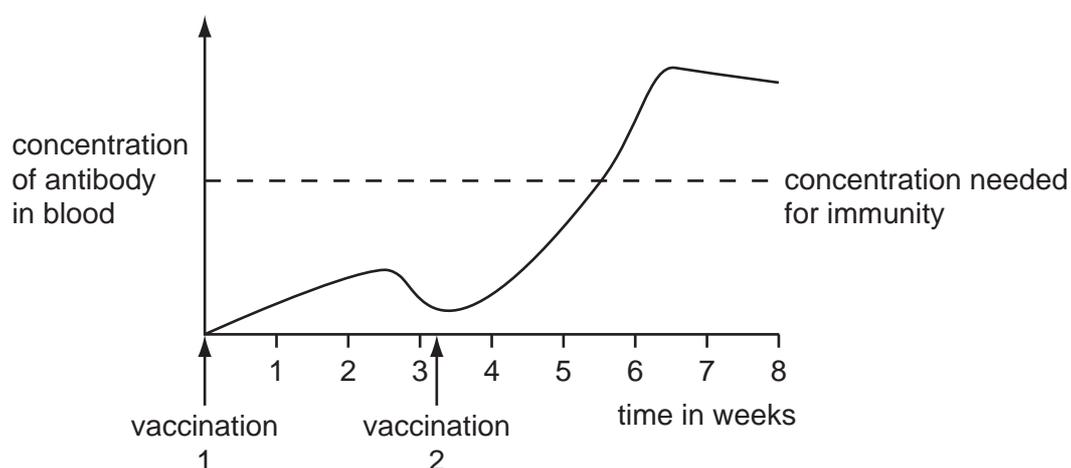
plate.  
After 48 hours incubation six wells are made in the agar and a different antibiotic placed in each

well.  
The diagram shows the plate after a further 24 hours.



Which two antibiotics would be best used to treat a patient suffering from gonorrhoea?

- A** M and T      **B** N and R      **C** P and S      **D** R and S
- 37 The graph shows the antibody concentration in the blood following two vaccinations against a disease.

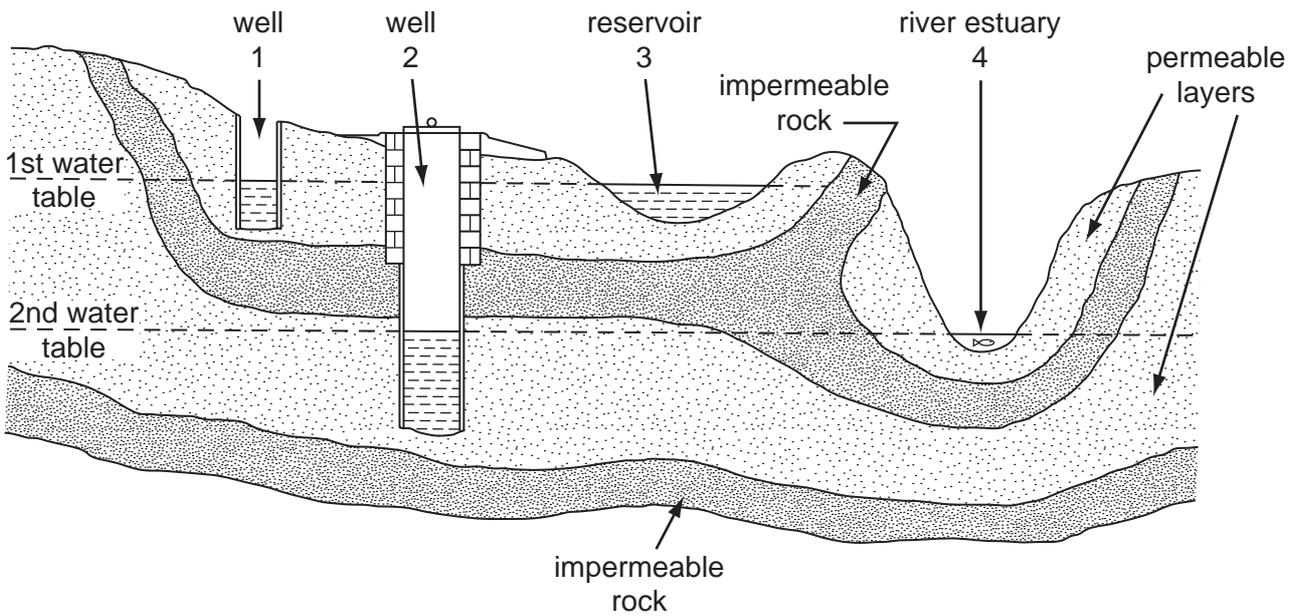


When does this person become immune to the disease?

- A** 2½ weeks      **B** 5½ weeks      **C** 6½ weeks      **D** 8 weeks

- 38 What is the main risk to human health, in warm weather, when waste is left lying on a street?
- A Unpleasant smells are produced.
  - B Houseflies feed and reproduce.
  - C Birds may scavenge for food.
  - D Viruses may reproduce in rotting food and cause disease.

39 The diagram shows four sources of water in the environment.



Which shows the order from safest to least safe water to drink?

	safest to drink →		← least safe to drink	
<b>A</b>	1	2	3	4
<b>B</b>	2	1	3	4
<b>C</b>	2	3	4	1
<b>D</b>	4	3	2	1

- 40 Fertilisers and pesticides (insecticides) are in the run off water passing into surrounding farmland.

What are the likely effects on the animals, plants and mineral salts in the lake?

	animals	plants	mineral salts
<b>A</b>	increase	decrease	increase
<b>B</b>	increase	decrease	decrease
<b>C</b>	decrease	increase	decrease
<b>D</b>	decrease	increase	increase

