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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Ordinary Level

HUMAN AND SOCIAL BIOLOGY **5096/01**

Paper 1 Multiple Choice **May/June 2007**

1 hour

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

4272859622

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.

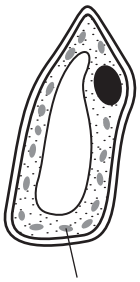
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.

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

1 The diagrams show four types of cell found in organisms.

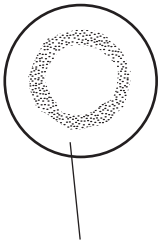
Which cell moves around inside an organism but is **not** capable of locomotion?

A



chloroplast

B

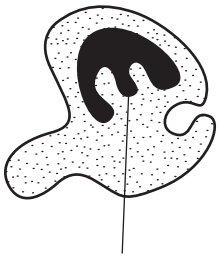


cytoplasm with haemoglobin

C

haploid nucleus

D



lobed nucleus

2 Which is correctly described?

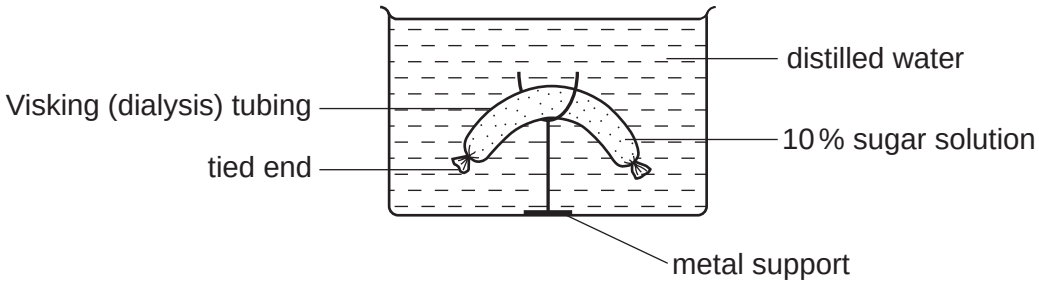
A A bacterium has a nucleus and no protein coat.

B A phagocyte has a cell membrane and no nucleus.

C A red blood cell has a nucleus and a cell membrane.

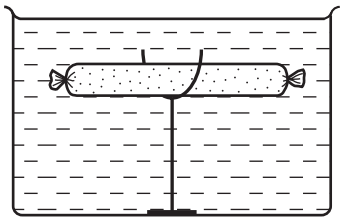
D A virus has a protein coat and no nucleus.

3 The apparatus was set up as below.

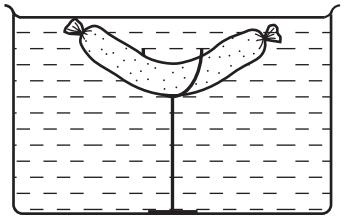


Which diagram shows the result two hours later?

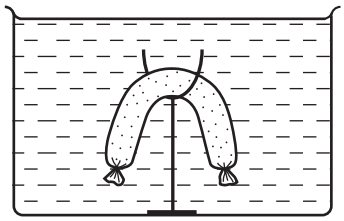
A



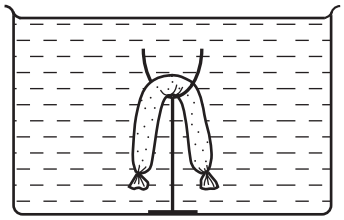
B



C



D



4 The following is a list of organs in the human body.

1 oviduct

2 ovary

3 pancreas

4 rectum

5 uterus

Which organs form part of the same system?

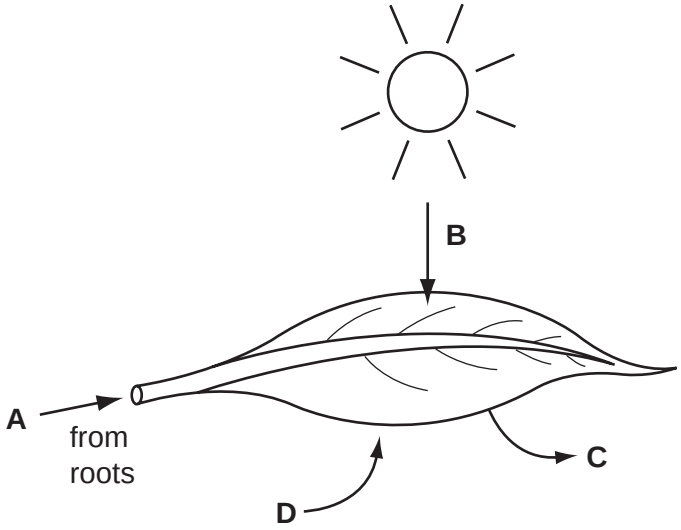
A 1, 2 and 5

B 1, 4 and 5

C 2, 3 and 4

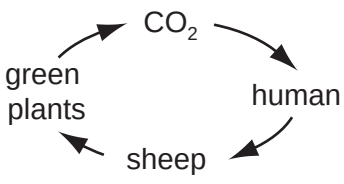
D 2, 4 and 5

5 Which arrow on the diagram of a leaf represents the movement of oxygen during pho[illegible]?



6 Which diagram shows a simple carbon cycle?

A



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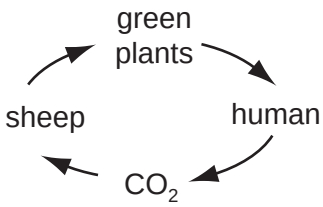
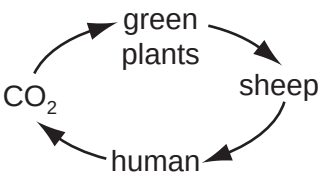
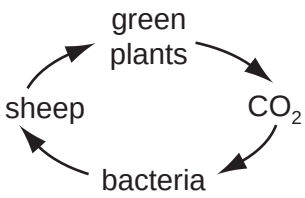


C



D



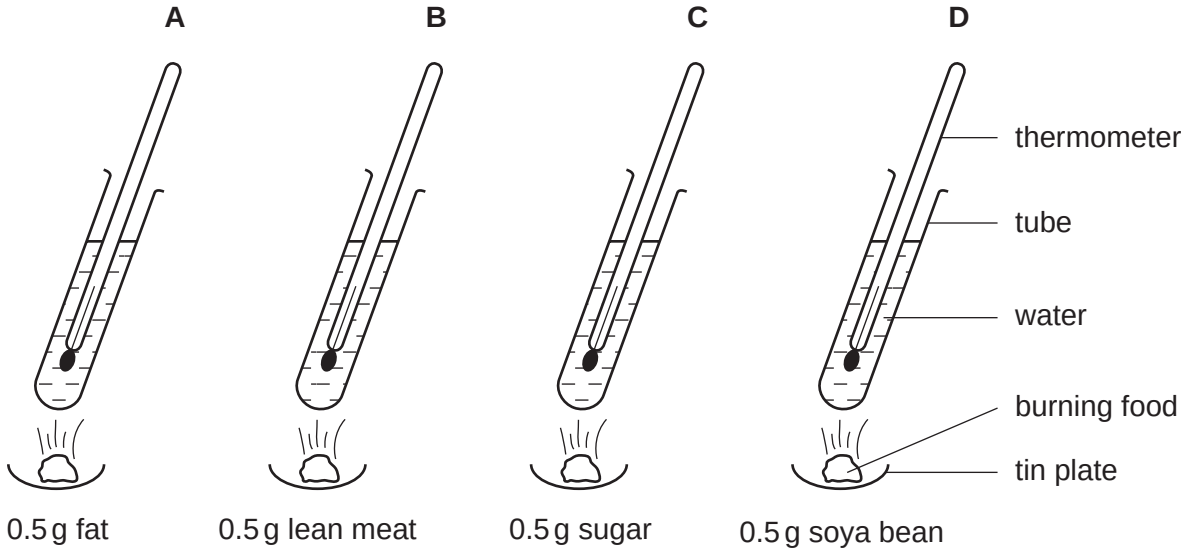
7 A portion of cooked rice was tested by adding iodine solution to it. A second portion was heated with Benedict's solution.

Which two colours would be seen (✓) in the test tubes at the end of the experiment?

	brown	blue-black	pale blue	red
A			✓	✓
B	✓	✓		
C	✓			✓
D		✓	✓	

8 The energy value of foods can be compared using the apparatus shown. The same [illegible] is burned under each of four tubes containing water.

In which tube would the temperature of the water rise the most?



9 What are calcium ions used for in the body?

A blood clotting and forming haemoglobin

B forming haemoglobin and preventing anaemia

C preventing anaemia and for muscle contraction

D muscle contraction and blood clotting

10 Which condition is most likely to develop if a teenager's daily diet contained sufficient quantities of protein, fat, carbohydrate, vitamins C and D and calcium, but an insufficient quantity of another nutrient?

A anaemia

B poor wound healing

C rickets

D weight loss

11 Scrapings were taken from the teeth of four students one hour after the following acti

student	activity
1	brushing the teeth with water
2	brushing the teeth with toothpaste
3	eating an apple
4	eating a cake

The scrapings are spread evenly over the surface of agar plates and incubated.

Which agar plate contains the scraping from student 4?

A **B** **C** **D**

12 A student eats a bread roll.

Why does salivary amylase stop working in the stomach?

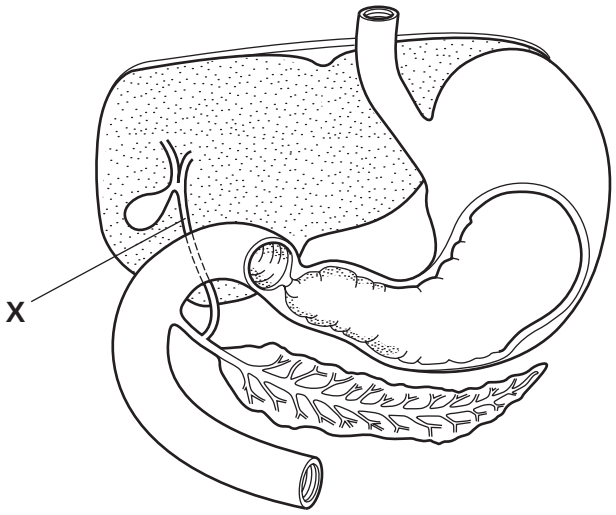
A All the amylase has been used up.

B All the starch has been converted to glucose.

C Amylase cannot work in acid conditions.

D The temperature in the stomach is higher than in the mouth.

13 The diagram shows some organs found in the abdomen.



What is caused by a blockage in **X**?

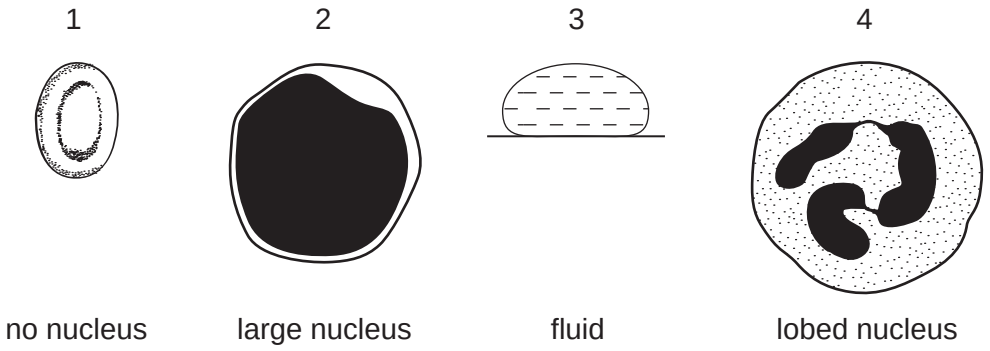
A increased glycogen in the liver

B increased pancreatic juice in the pancreas

C reduced blood supply to the liver

D reduced digestion of fat

14 The diagrams show four parts of human blood.

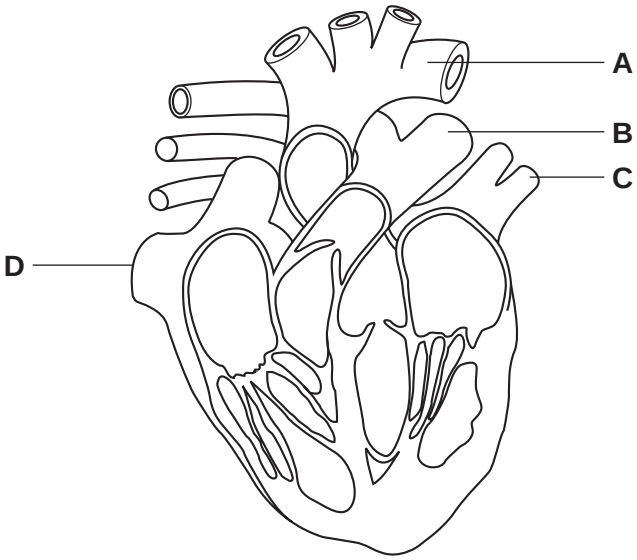


Which parts are involved with the transport of carbon dioxide and which parts with the destruction of bacteria?

	transport of carbon dioxide	destruction of bacteria
A	1 and 3	2 and 3
B	1 and 3	2 and 4
C	2 and 4	1 and 4
D	3 and 4	1 and 4

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

Which is a pulmonary artery?



16 Arteries differ from veins because **all** arteries

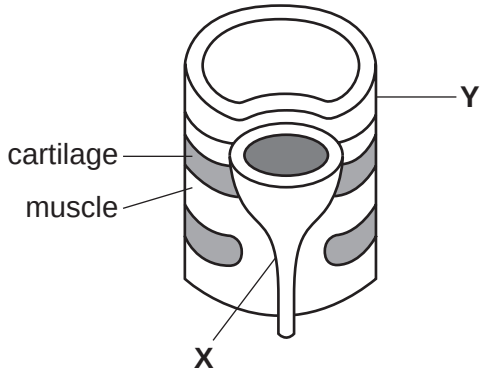
A carry blood away from the heart.

B carry blood towards the heart.

C carry deoxygenated blood.

D carry oxygenated blood.

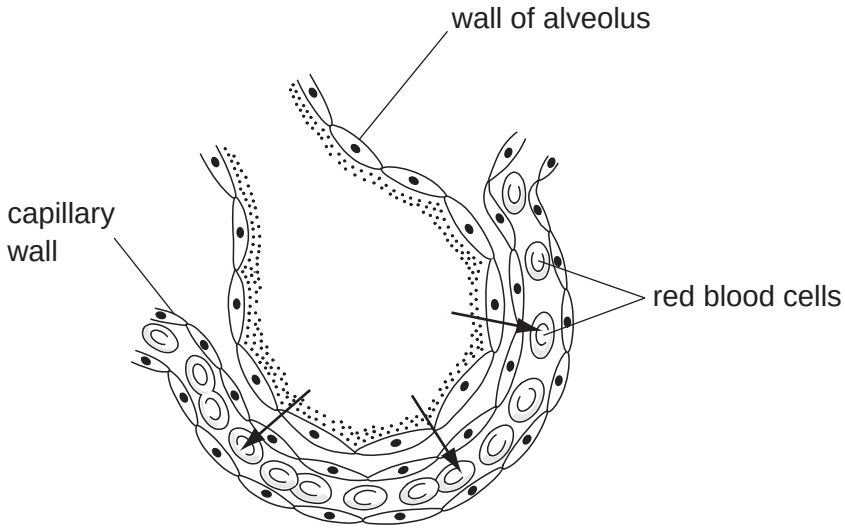
17 The diagram shows a section of two tubes, **X** and **Y**, which pass through the thorax.



What are tubes **X** and **Y**?

	X	Y
A	aorta	trachea
B	oesophagus	trachea
C	trachea	oesophagus
D	oesophagus	aorta

18 The diagram shows a section through an alveolus and a blood capillary.



What is diffusing in the direction shown by the arrows?

A carbon dioxide out of the alveolus

B lymph into the blood plasma

C oxygen down a concentration gradient

D water molecules up a concentration gradient

19 Which process does **not** require a supply of energy?

A active transport

B cell division

C diffusion of oxygen

D muscle contraction

20 How are bone and cartilage similar?

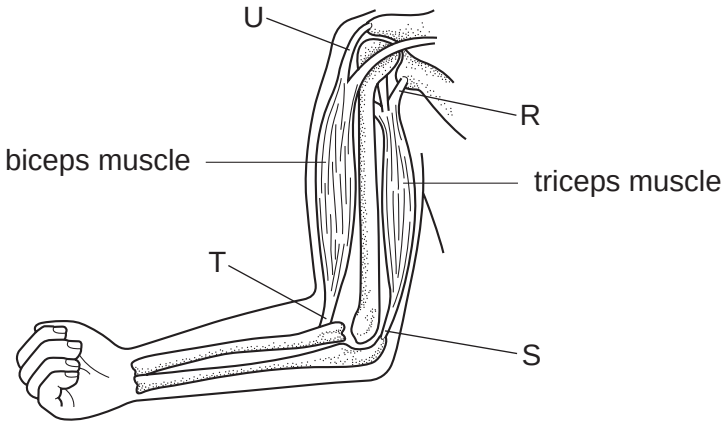
A They are both rigid.

B They both act as shock absorbers.

C They both contain living cells.

D They both produce red blood cells.

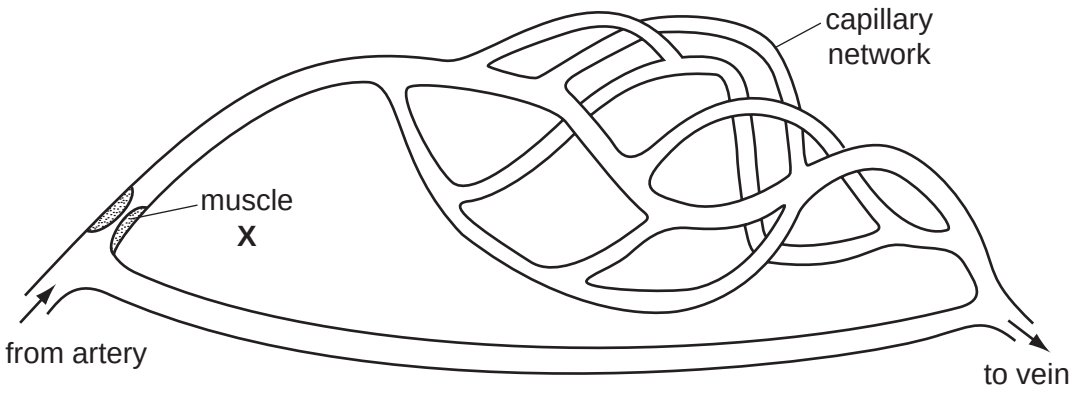
21 The diagram shows the bones of the arm, with the points of muscle attachment labelled R, S, T and U.



What are origin and insertion points of the muscle used to bend the arm at the elbow?

	origin	insertion
A	R	S
B	U	T
C	S	R
D	T	U

22 The diagram shows a capillary network near the surface of the skin.



What happens if muscle **X** relaxes?

A The body temperature increases.

B A greater heat loss occurs from the body.

C More sweating will occur from the skin.

D Less shivering will occur by the muscles.

23 Which change occurs in the liver to lower the blood sugar level?

A glucose to glycogen

B glucose to starch

C glycogen to glucose

D starch to glucose

24 Which statement is true of all sense organs?

A They act as effectors in reflexes.

B They are only found as part of a reflex action.

C They generate nerve impulses.

D They respond to both light and sound.

25 How does a nerve impulse travel across a synapse?

A by active transport of ions

B by an electrical impulse

C by diffusion of a chemical

D osmosis of water molecules

26 What is the first effect of drinking alcohol?

A Liver cells degenerate.

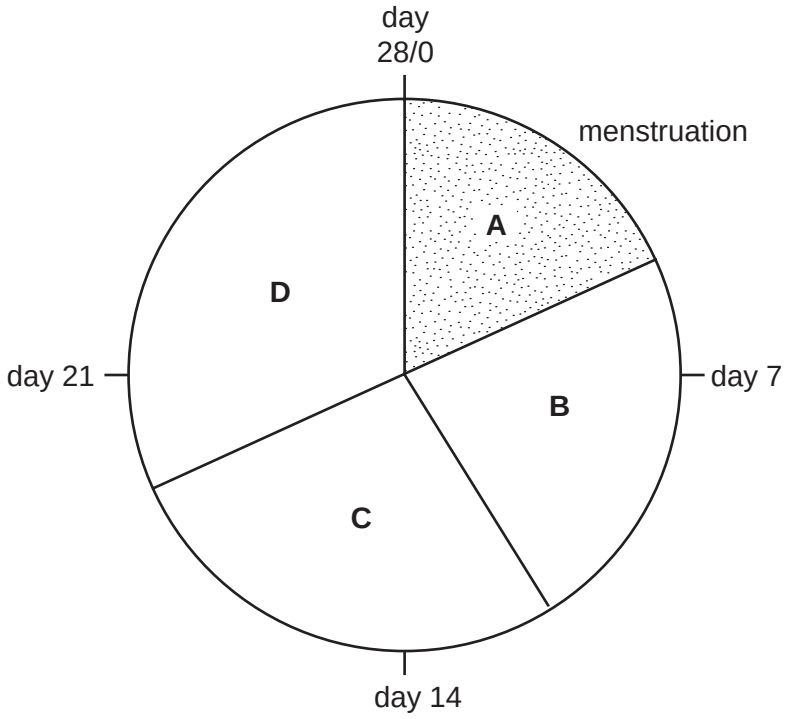
B The blood vessels of the skin constrict.

C The body temperature rises several degrees.

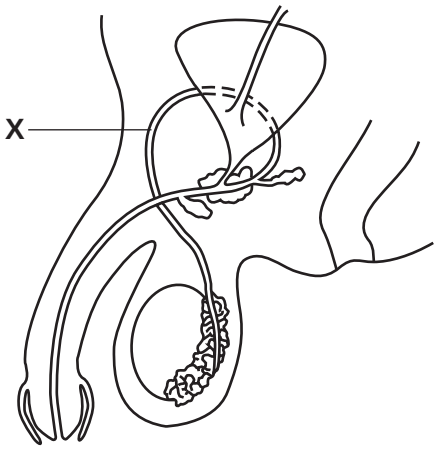
D The rate of transmission of impulses slows down.

27 The diagram shows a 28 day menstrual cycle of a human female.

During which part of the cycle is ovulation most likely to happen?



28 The diagram shows part of the male reproductive system and urinary system.



A cut is made at **X** on both sides of the body and the tubes are sealed.

Which process would be prevented?

A fertilisation

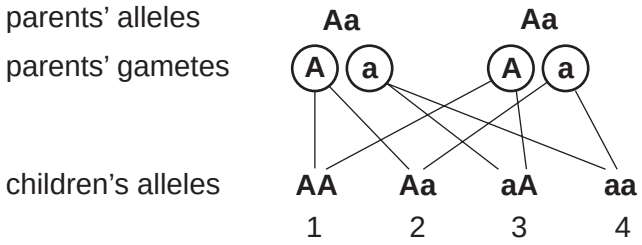
B meiosis

C ovulation

D urination

29 The diagram shows the genetic make-up of two parents and their four children.

A represents the allele for normal pigmentation and **a** represents the allele for lack of pigmentation (albino).



Which of the children are albinos, carriers or normal?

	1	2	3	4
A	normal	normal	normal	albino
B	albino	carrier	carrier	normal
C	albino	normal	carrier	normal
D	normal	carrier	carrier	albino

30 Why is tuberculosis common throughout the world?

A The bacteria are capable of living in a wide range of climates.

B The bacteria are not killed by antibiotics.

C Many people live in overcrowded conditions and are easily infected.

D Many people have poor sewage disposal and are easily infected.

31 What advice, given to mothers who are HIV positive, may best help reduce the spread of HIV (Human Immunodeficiency Virus)?

A Do not breast feed your baby.

B Take anti-viral drugs.

C Use the intrauterine device as a form of contraception.

D Wear a face mask when near the baby.

32 What are the signs and symptoms of gonorrhoea?

	signs	symptoms
A	burning pain and vomiting	discharge from urethra and fever
B	discharge from urethra	fever and vomiting
C	fever and vomiting	discharge from urethra
D	discharge from urethra	nausea, itching and burning pain

33 The table shows the occurrence of certain diseases in four different regions.

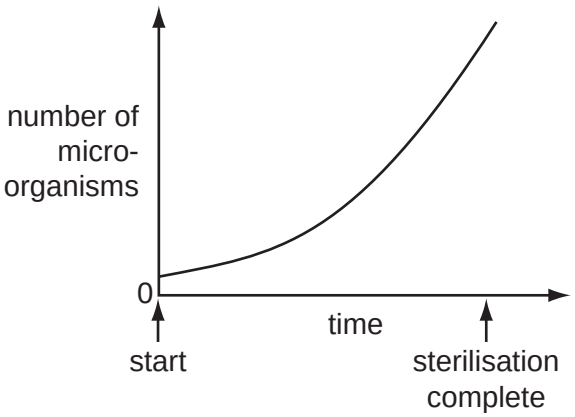
Which region is likely to have poor facilities for the disposal of sewage?

	number of recorded treatments for disease per 1 million of the population			
disease	region **A**	region **B**	region **C**	region **D**
lung cancer	10	130	21	200
malaria	300	40	2	0
ringworm	24	200	5	220
typhoid	5	4	140	8

34 Meat broth was sterilised in a pressure cooker (autoclave).

Which graph shows the number of microorganisms in the broth from start to co sterilisation?

A



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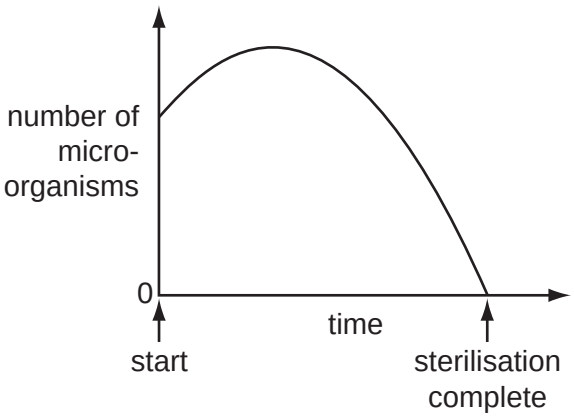
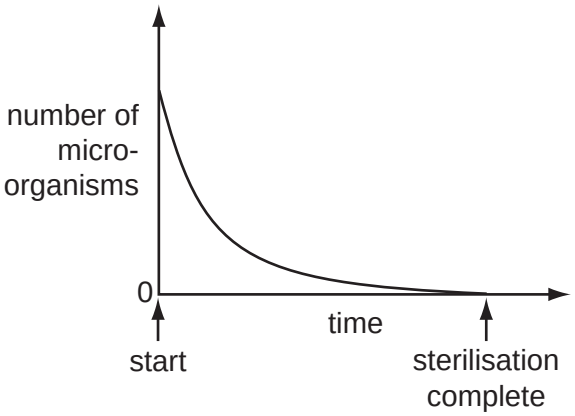
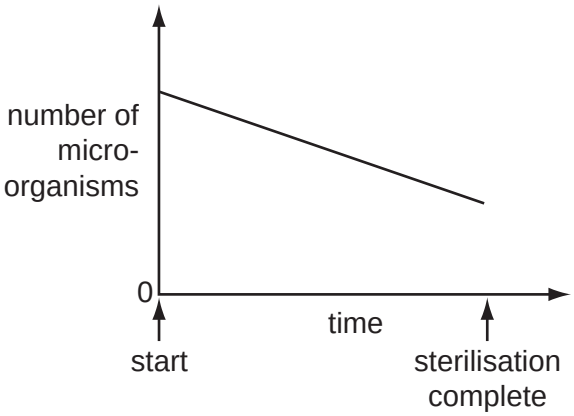


C



D



35 Why are mosquitoes a danger to humans?

A They introduce toxins into the body.

B They feed on blood and may cause anaemia.

C They live in dirty places and carry microorganisms on their bodies.

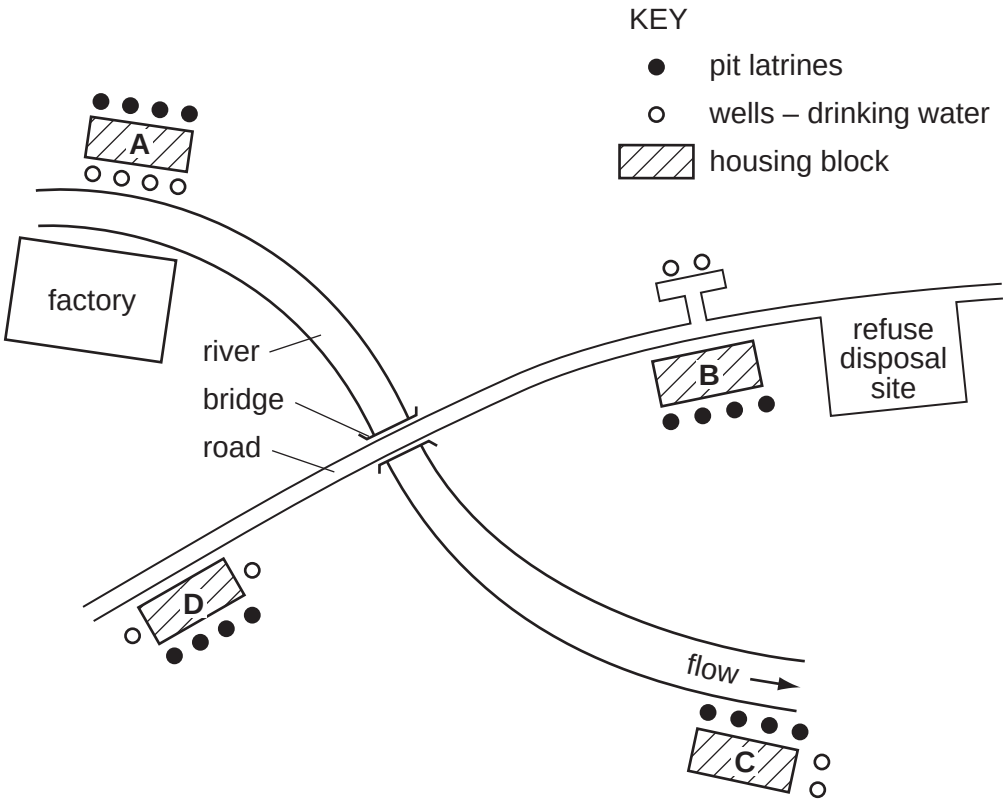
D They pierce the skin and may introduce pathogens into the blood.

36 Which shows how active, passive and artificial immunity are obtained?

	active	passive	artificial
A	by being infected	by vaccination	by injecting antibodies
B	by being infected	by injecting antibodies	by vaccination
C	by injecting antibodies	by vaccination	by being infected
D	by vaccination	by being infected	by injecting antibodies

37 The map of a small town shows four housing blocks, each with four latrines.

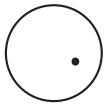
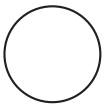
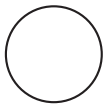
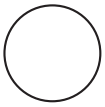
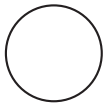
At which housing block are the pit latrines best sited?



38 The bacteria present in samples of water taken from a shallow well and from a bo[illegible]e investigated.

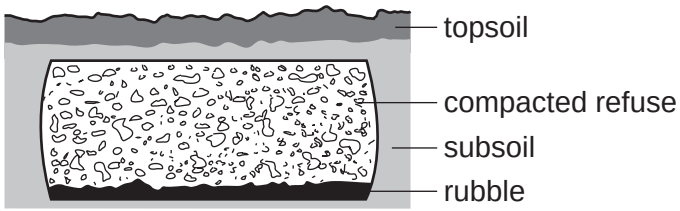
One drop of fresh water and one drop of boiled water from each water source were spread[illegible] the surface of sterile nutrient agar in separate Petri dishes. The dishes were incubated for thr[illegible] days.

Which set of diagrams shows the expected results?

	shallow well fresh water	borehole fresh water	shallow well boiled water	borehole boiled water
A				
B				
C				
D				

key • = a bacterial colony

39 The diagram shows how domestic refuse is treated at a communal site.



What is the most important reason for treating the refuse as shown?

A to prevent escape of gases

B to prevent bacterial action

C to reduce breeding by mosquitoes

D to restrict entry by rats

40 What is an effect of lead pollution?

A A burning sensation when passing urine.

B A feeling of tiredness due to anaemia.

C An increase in the number of red and white blood cells.

D The formation of carboxyhaemoglobin.

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