

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
**General Certificate of Education Ordinary Level**  
**HUMAN AND SOCIAL BIOLOGY**  
PAPER 1 Multiple Choice

**5096/1**

**MAY/JUNE SESSION 2002**

1 hour

Additional materials:

Multiple Choice answer sheet

Soft clean eraser

Soft pencil (type B or HB is recommended)

**TIME** 1 hour

**INSTRUCTIONS TO CANDIDATES**

**Do not open this booklet until you are told to do so.**

Write your name, Centre number and candidate number on the answer sheet in the spaces provided unless this has already been done for you.

There are **forty** questions in 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 very carefully the instructions on the answer sheet.**

**INFORMATION FOR CANDIDATES**

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.

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**This question paper consists of 16 printed pages.**

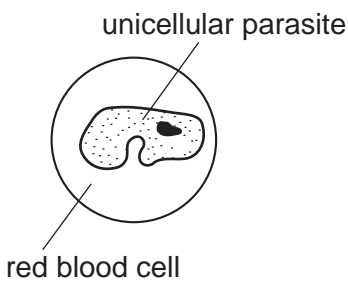


1 Which activity is essential for all the others to take place?

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

2 The diagrams show three types of organism which affect human health.

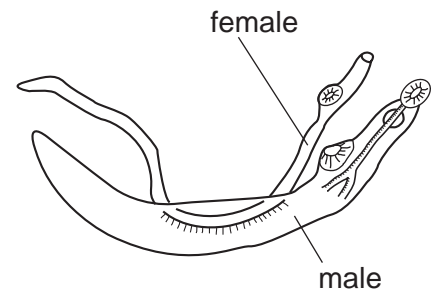
organism 1 (x1000)



organism 2 (x50)



organism 3  
Schistosoma (x10)



What is the correct classification group for each organism?

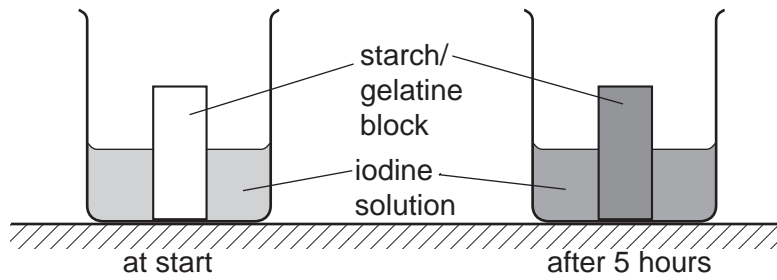
	organism 1	organism 2	organism 3
<b>A</b>	fungus	protozoan	flatworm
<b>B</b>	fungus	protozoan	threadworm
<b>C</b>	protozoan	fungus	flatworm
<b>D</b>	protozoan	fungus	threadworm

3 The table shows a cell, a tissue and an organ from the body.

Which line names these parts correctly?

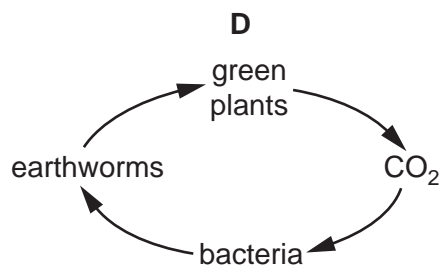
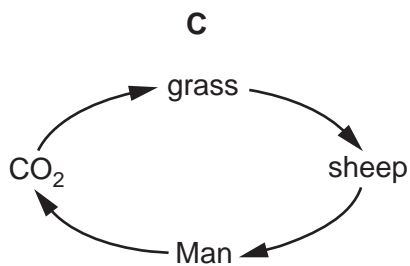
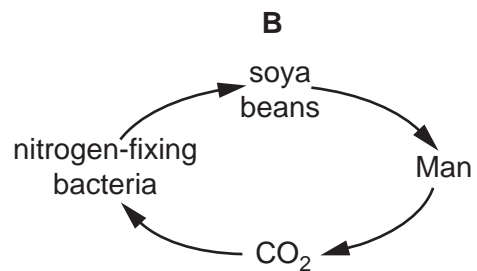
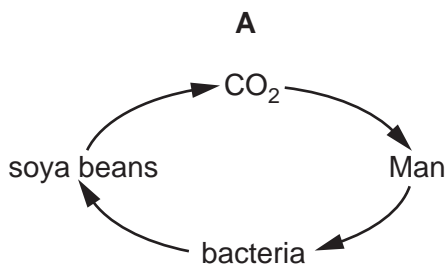
	cell	tissue	organ
<b>A</b>	arm	epithelium	lymphocyte
<b>B</b>	epithelium	lymphocyte	arm
<b>C</b>	lymphocyte	arm	epithelium
<b>D</b>	lymphocyte	epithelium	arm

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

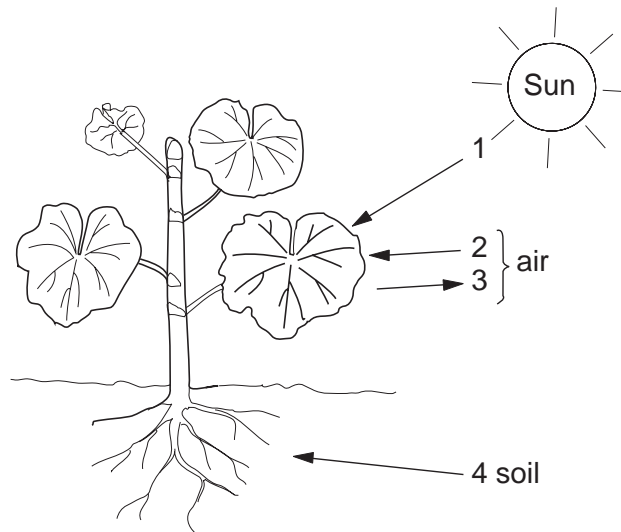


By which process will the iodine solution pass into the block?

- A active transport
  - B diffusion
  - C filtration
  - D osmosis
- 5 Which diagram shows a simple carbon cycle?



- 6 The arrows on the diagram show how energy and substances enter or leave a plant during photosynthesis.



What do the arrows represent?

	1	2	3	4
<b>A</b>	heat	oxygen	water	energy
<b>B</b>	heat	water	oxygen	energy
<b>C</b>	light	carbon dioxide	oxygen	water
<b>D</b>	light	oxygen	carbon dioxide	water

- 7 Why is it important to drink water?
- A** It dissolves vitamins A and D.
  - B** It is used in the hydrolysis of food.
  - C** It keeps the intestine free from bacteria.
  - D** It breaks down fibre.
- 8 The symptoms of a particular disease include slow healing of wounds and loose teeth.

Which nutrient should be included in the diet to prevent this disease?

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

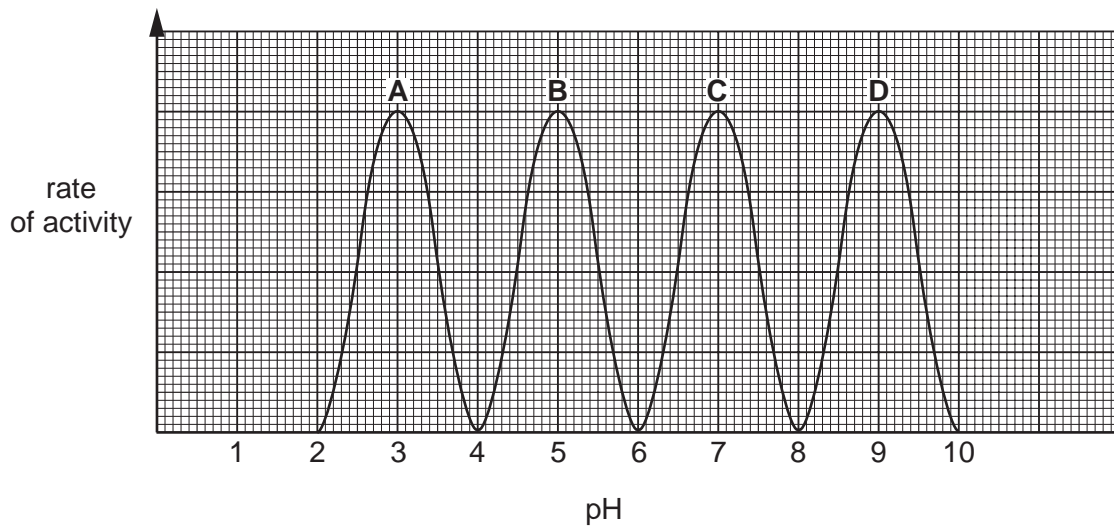
- 9 A solution of substance **X** is heated with Benedict's solution and an orange-red precipitate develops.

What is substance **X**?

- A fat
- B protein
- C reducing sugar
- D starch

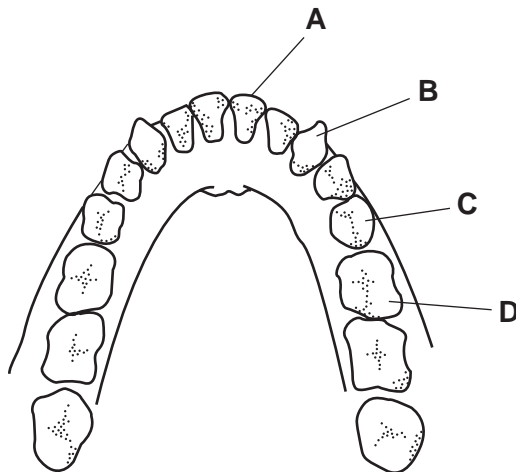
- 10 The graph shows the activity of four enzymes at different levels of pH.

Which curve shows the activity of amylase in saliva at the pH in the mouth?



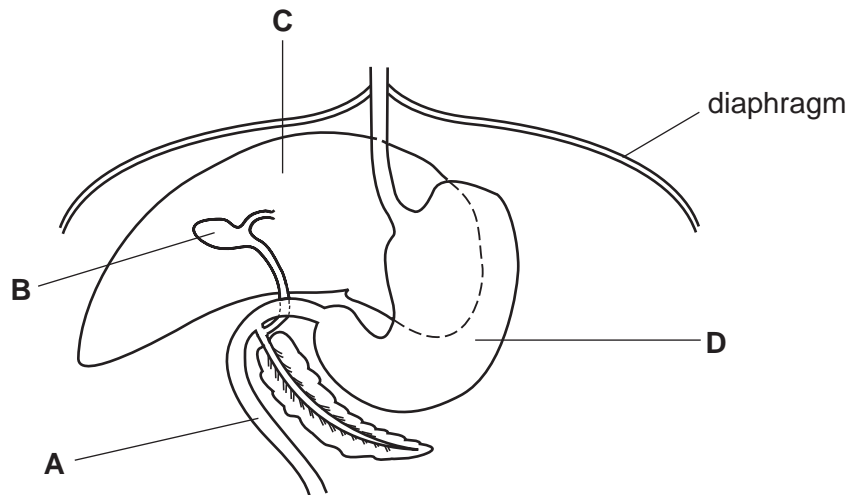
- 11 The diagram shows the teeth in the human upper jaw.

Which tooth is a molar?



12 The diagram shows the stomach, liver and related organs.

Where is fat emulsified?

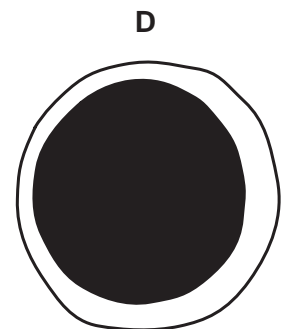
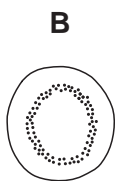


13 The movement of blood through veins is assisted by the contraction of

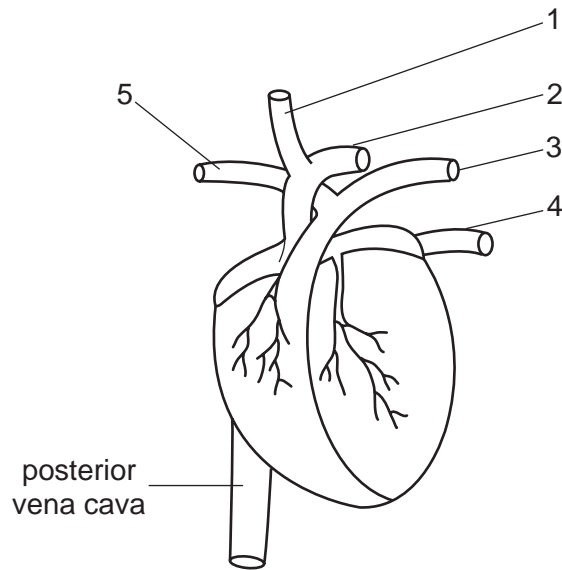
- A the capillary walls.
- B the right atrium.
- C the skeletal muscles.
- D the valves in the veins.

14 The diagrams show structures found in blood.

Which structure contains haemoglobin?



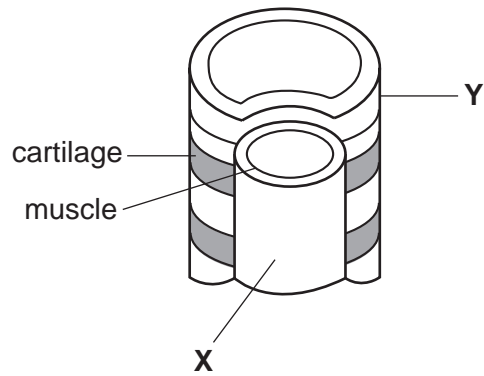
15 The diagram shows the external structure of the heart.



Which two vessels carry blood to the lungs?

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

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



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

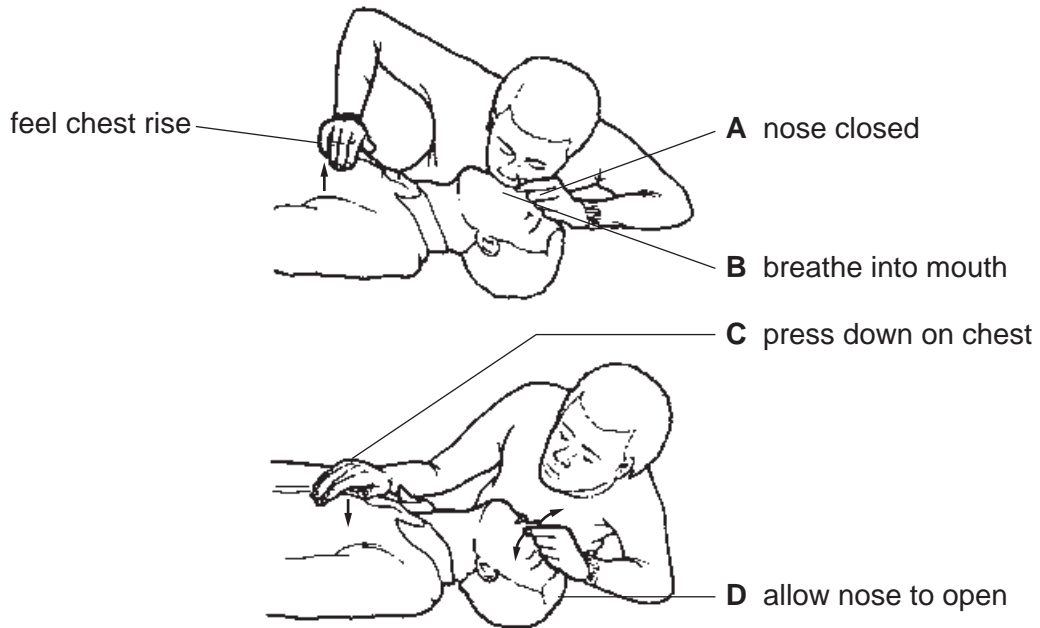
	<b>X</b>	<b>Y</b>
<b>A</b>	aorta	vena cava
<b>B</b>	oesophagus	trachea
<b>C</b>	trachea	oesophagus
<b>D</b>	vena cava	aorta

17 Which muscles contract to cause forced breathing out (expiration)?

- A diaphragm
- B external intercostal muscles
- C internal intercostal muscles
- D triceps

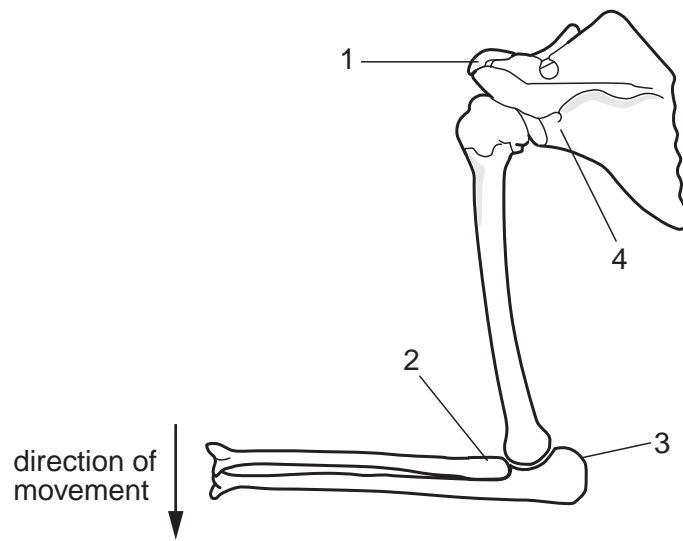
18 The diagrams show the stages of mouth-to-mouth resuscitation.

Which stage is **not** necessary?





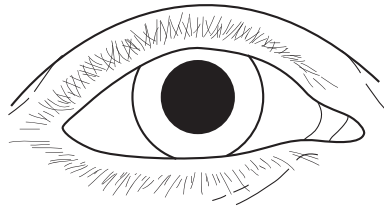
19 The diagram shows the bones of the arm and shoulder.



Between which two points would the muscle be attached to move the arm in the direction shown?

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

20 The diagram shows an eye adapted to see in certain light conditions.



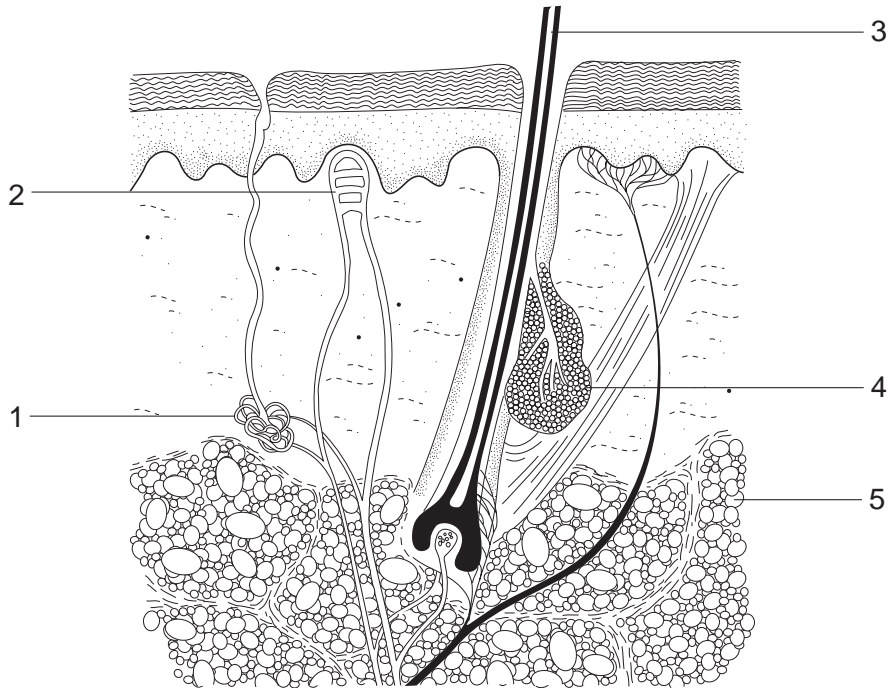
Which describes the condition of this eye?

	circular muscles of iris	adapted for
<b>A</b>	contracted	dim light
<b>B</b>	relaxed	dim light
<b>C</b>	contracted	bright light
<b>D</b>	relaxed	bright light

21 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

22 The diagram shows a section through human skin.



Which two structures help to increase heat loss from the body?

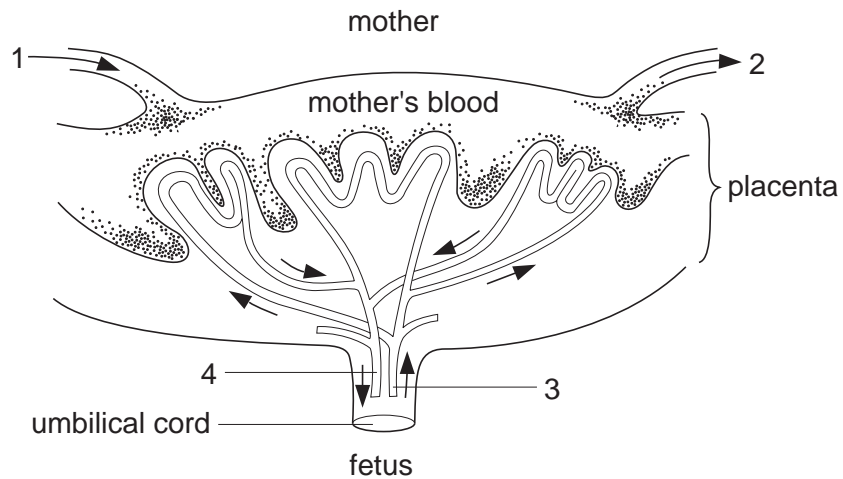
- A 1 and 2
- B 2 and 3
- C 3 and 4
- D 4 and 5

23 In which blood vessel is the concentration of urea the lowest?

- A hepatic artery
- B hepatic portal vein
- C renal artery
- D renal vein

- 24** The finger tips are the most sensitive parts of the hand to touch because they contain many
- A** capillaries.
  - B** effectors.
  - C** receptors.
  - D** sensory nerves.
- 25** What may happen to a heroin addict after several hours if the drug is withdrawn?
- A** Desire for the drug is reduced.
  - B** There is an increased feeling of well-being.
  - C** Tolerance to the drug increases.
  - D** Vomiting, sweating and cramp occur.
- 26** What is the function of a synapse?
- A** To join together the bones of the skull.
  - B** To produce the contractions of the heart.
  - C** To reduce friction at a joint.
  - D** To transmit nerve impulses.
- 27** How does the female oral contraceptive pill work?
- A** It prevents sperm penetrating the ova.
  - B** It prevents the release of ova.
  - C** It stops implantation of the embryo.
  - D** It stops sperm reaching the oviduct.

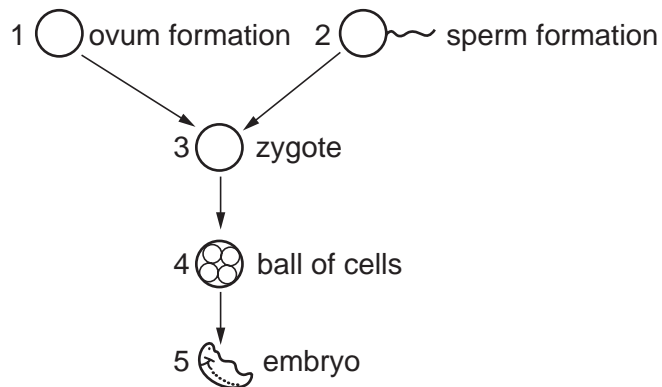
28 The diagram shows part of the placenta and its blood supply.



Which blood vessels contain the most oxygen and nutrients?

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

29 The diagram represents some stages of reproduction.



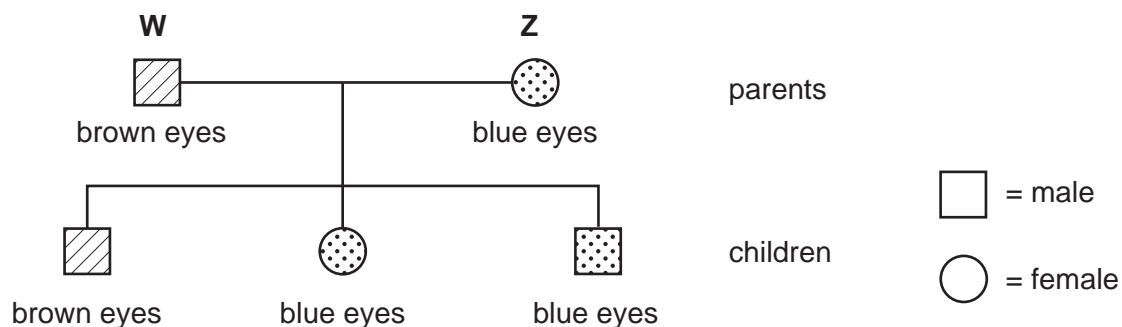
Haploid cells contain half the number of chromosomes found in other body cells.

Which two stages contain haploid cells?

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

30 The diagram shows the inheritance of eye colour in a family.

The allele for brown eyes (B) is dominant to the allele for blue eyes (b).



What are the genotypes of the brown-eyed father, **W**, and the blue-eyed mother, **Z**?

	father <b>W</b>	mother <b>Z</b>
<b>A</b>	Bb	bb
<b>B</b>	Bb	Bb
<b>C</b>	BB	bb
<b>D</b>	BB	Bb

31 How is gonorrhoea spread?

- A by breathing in droplets
- B by drinking dirty water
- C by insect bites
- D by skin contact

32 Which part of the body is first damaged by the human immune deficiency virus, HIV?

- A brain and sense organs
- B immune system
- C red blood cells
- D reproductive organs

33 The table shows the number of cases of diseases among prisoners over a ten-year period in four prisons, **A**, **B**, **C** and **D**.

Which prison is most likely to have had a water supply contaminated by faeces?

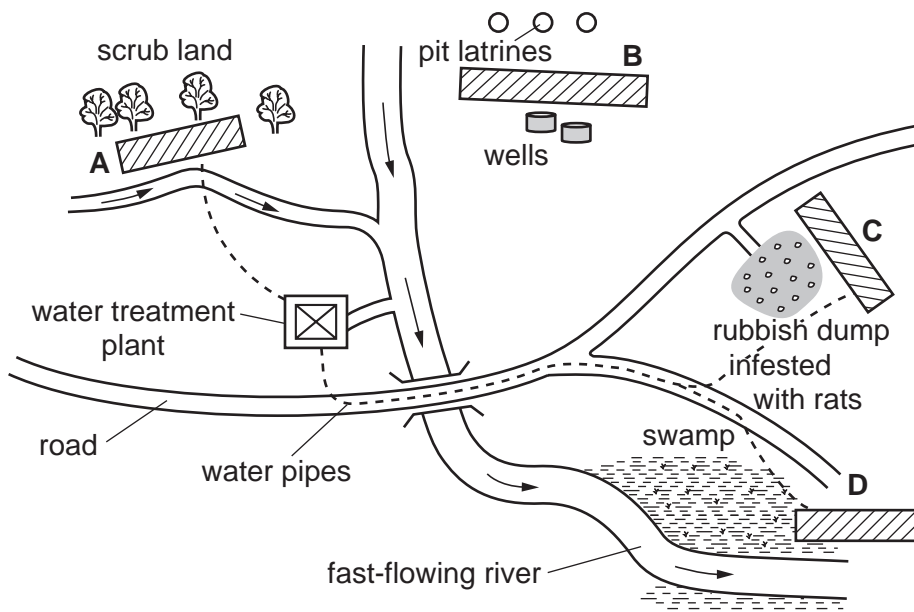
disease	number of cases of disease recorded			
	prison <b>A</b>	prison <b>B</b>	prison <b>C</b>	prison <b>D</b>
coronary heart disease	8	28	0	5
cholera	22	0	0	6
lung cancer	0	29	12	2
ringworm	4	2	25	20

34 Which disease can be transmitted to others when an infected person spits in a crowded place?

- A AIDS
- B cholera
- C malaria
- D tuberculosis

35 The diagram shows a map of a town with four main housing blocks.

In which block of houses are the residents most likely to suffer from malaria?



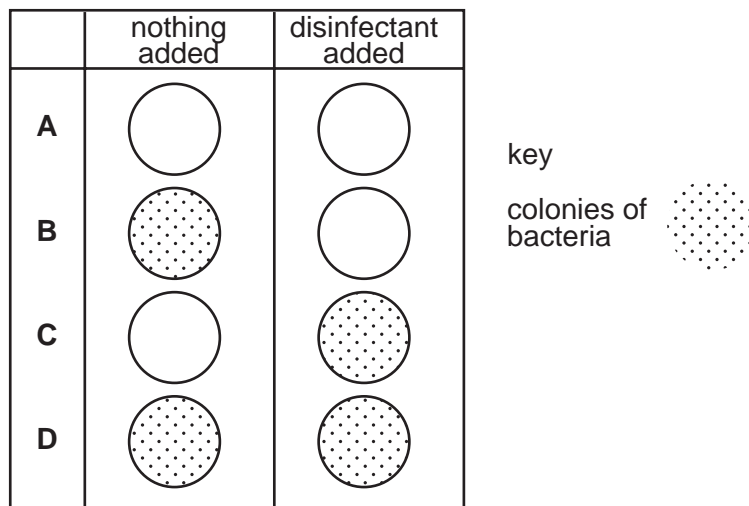
36 Which type of immunity is provided by breast feeding?

- A active artificial immunity
- B active natural immunity
- C passive artificial immunity
- D passive natural immunity

37 Sterile agar plates were prepared and disinfectant was added to some of the plates.

The plates were exposed to the air for an hour and then covered and incubated for 48 hours at 37 °C.

Which diagram shows the results of this experiment?



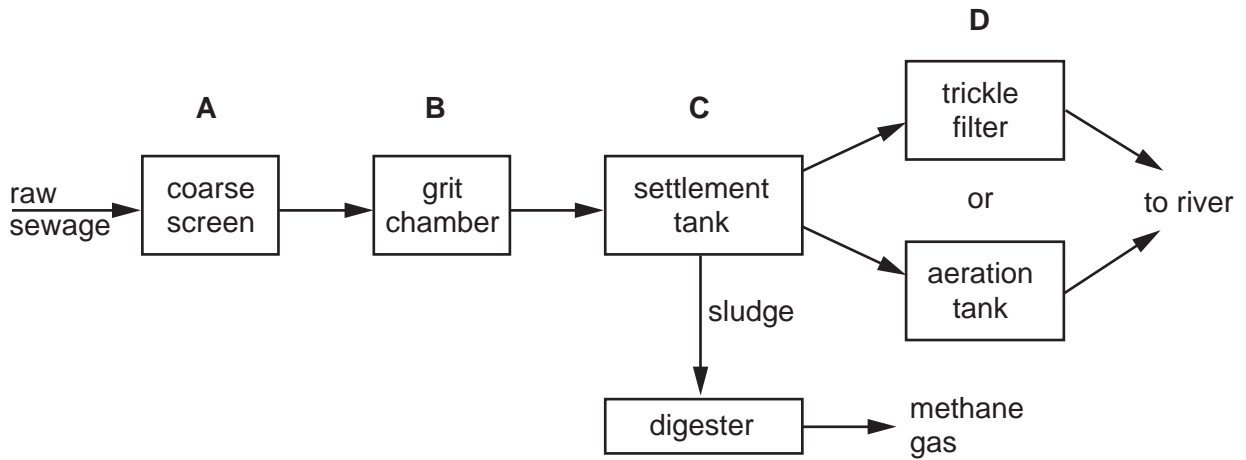
38 The amount of haemoglobin in a person's blood decreases with the amount of lead pollution in the air breathed in.

The person feels more tired because the brain cells receive less

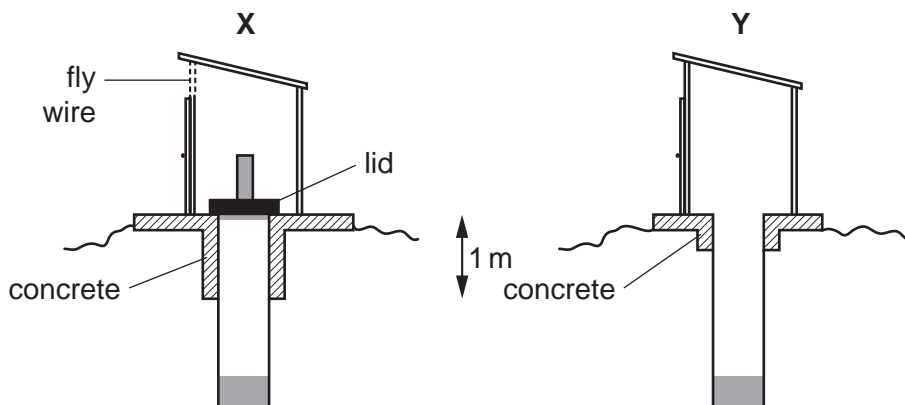
- A blood.
- B carbon dioxide.
- C glucose.
- D oxygen.

39 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?



40 The diagrams show sections through two pit latrines.



Why is there less danger to health from latrine X than latrine Y?

- A X has a lid to keep out vectors.
- B X has a long concrete lining to keep out flies.
- C X has a wide concrete base to prevent water seeping in.
- D X has fly wire over the door to let out smells.