



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 2009

1 hour

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

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

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.

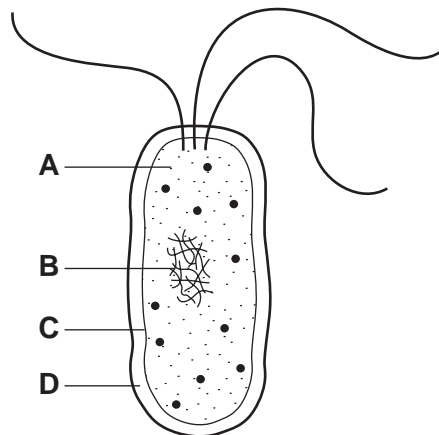
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.

This document consists of **17** printed pages and **3** blank pages.



- 1 Which feature does *Plasmodium* share with **all** other living organisms?
- A It causes disease.
 B It is found inside cells.
 C It reproduces.
 D It takes in food.
- 2 What can be used to grow a virus?
- A a fertile hen's egg
 B a petri dish of agar jelly
 C a solution of sugar in water
 D chicken broth
- 3 The diagram shows a bacterium cell.

Which part is also found in a plant cell but **not** in an animal cell?

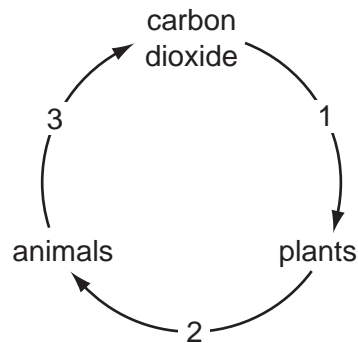


- 4 Stages in the preparation of onion epidermis for examination under the microscope are listed.
- 1 add iodine solution
 - 2 cover epidermis with a cover slip
 - 3 peel epidermis from onion
 - 4 place epidermis on glass slide

What is the correct order to carry out the stages?

- A 1 → 2 → 3 → 4
 B 2 → 3 → 4 → 1
 C 3 → 4 → 1 → 2
 D 4 → 1 → 2 → 3

- 5 Which substances, produced during photosynthesis, are essential to humans?
- A** carbohydrate and carbon dioxide
B carbohydrate and oxygen
C carbon dioxide and water
D oxygen and water
- 6 The diagram shows some processes in the carbon cycle.



Which identifies the process at 1, 2 and 3?

	1	2	3
A	photosynthesis	combustion	respiration
B	photosynthesis	feeding	respiration
C	respiration	decay	feeding
D	respiration	photosynthesis	combustion

- 7 What is an important function of protein in the diet?
- A** provides the body's main source of energy
B provides the main storage compound under the skin
C to add fibre to bulk up the faeces
D to be used in the formation of insulin

- 8 The table shows the average daily intake of nutrients of four people.

Which person will be most likely to suffer from anaemia?

	food					
	carbohydrate/g	protein/g	fat/g	calcium/g	iron/mg	vitamin C/mg
A	590	350	110	2	15	95
B	300	180	200	5	4	100
C	500	120	50	0.1	30	10
D	40	65	20	3	20	80

- 9 Which shows a disease linked to a lack of vitamin D and a disease linked to an excess of carbohydrate in the diet?

	lack of vitamin D	excess of carbohydrates
A	rickets	beriberi
B	rickets	coronary heart disease
C	scurvy	beriberi
D	scurvy	coronary heart disease

10 Swabs were taken from three people's teeth four hours after

person 1 had eaten a sticky cake,

person 2 had cleaned her teeth,

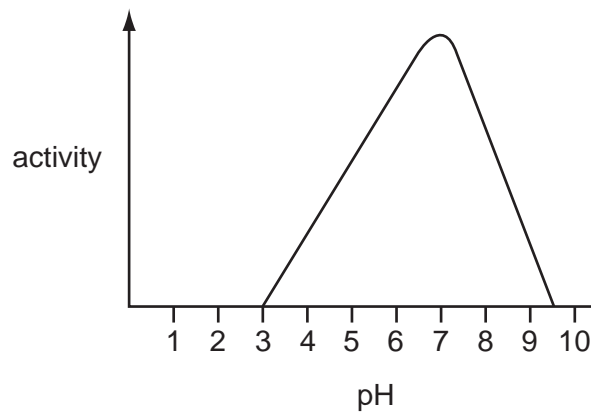
person 3 had rinsed her mouth with water.

The swabs were rubbed over agar plates that were then incubated at 25°C for 48 hours.

Which set of diagrams correctly identifies the plates?

	person 1	person 2	person 3
A			
B			
C			
D			

11 The graph shows the activity of an enzyme at different pH values.

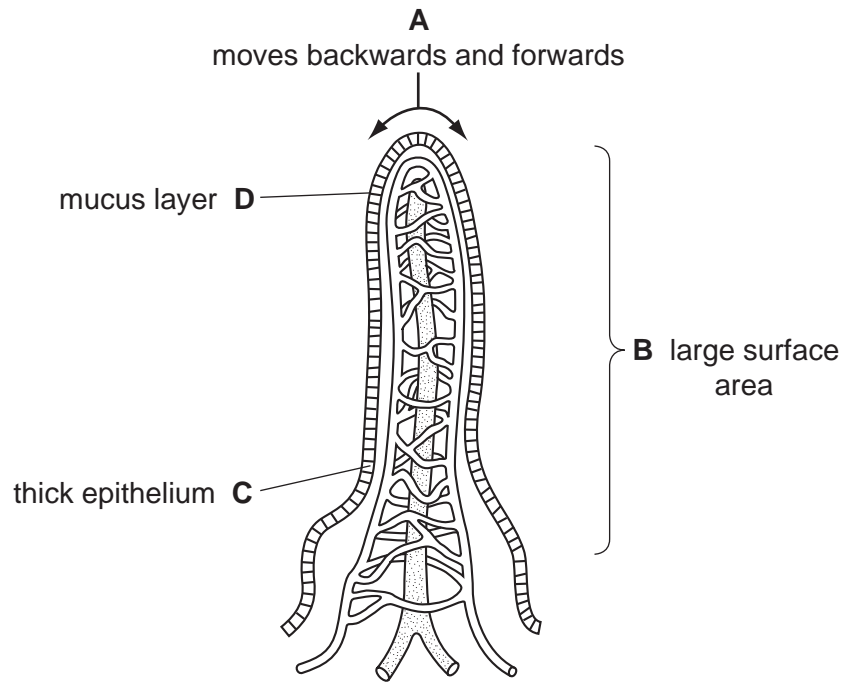


Which enzyme has this activity?

- A intestinal lipase
- B pancreatic amylase
- C salivary amylase
- D stomach protease

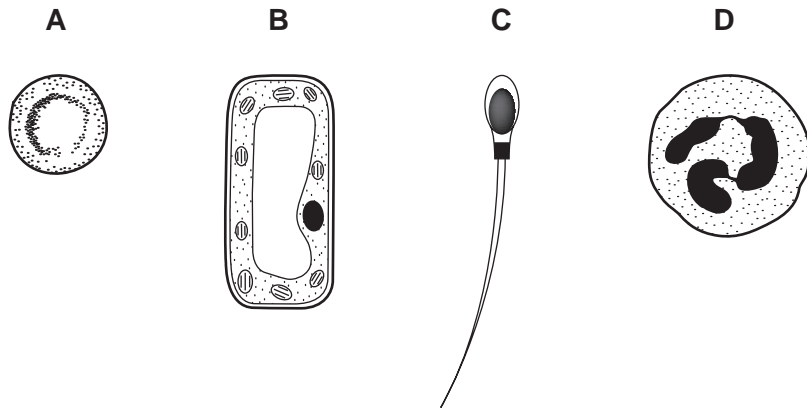
12 The diagram shows a section through a villus in the small intestine.

Which feature of the villus makes it best suited to absorb the products of digestion?

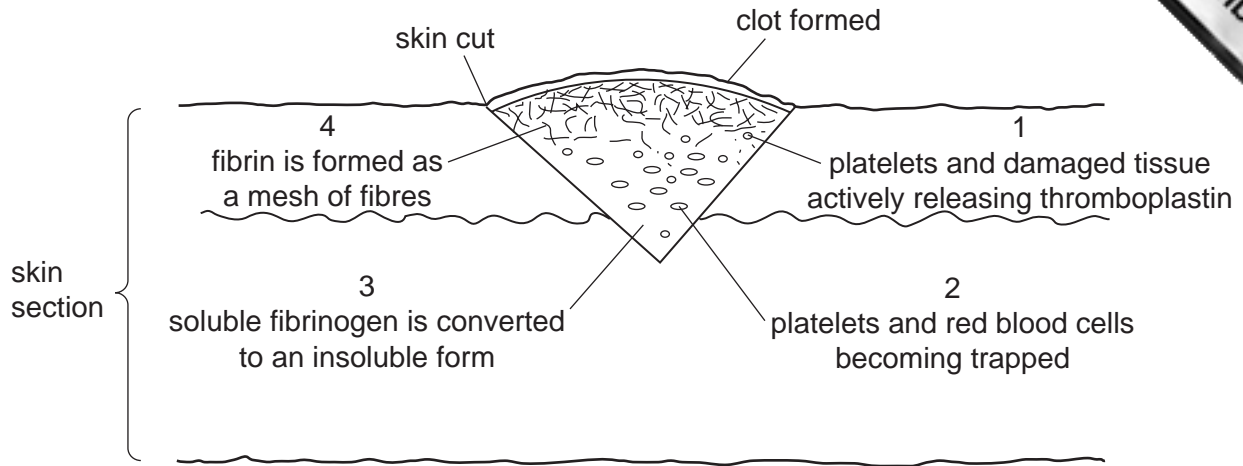


13 The diagrams show four types of cell.

Which cell lacks chromosomes?



14 The diagram shows processes during the healing of a skin wound.



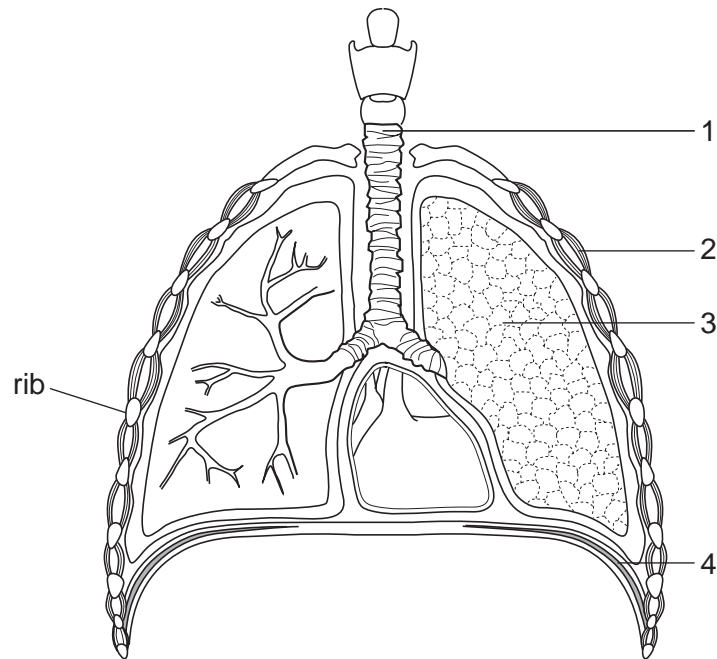
In which order do these processes take place in forming the clot?

- A 1 → 2 → 3 → 4
- B 1 → 3 → 4 → 2
- C 3 → 2 → 1 → 4
- D 3 → 4 → 1 → 2

15 Which shows the carbon dioxide, glucose and oxygen concentration in the fluid in most veins?

	concentration of carbon dioxide	concentration of glucose	concentration of oxygen
A	high	low	low
B	medium	medium	low
C	high	low	medium
D	medium	high	high

16 The diagram shows a section through the human thorax.



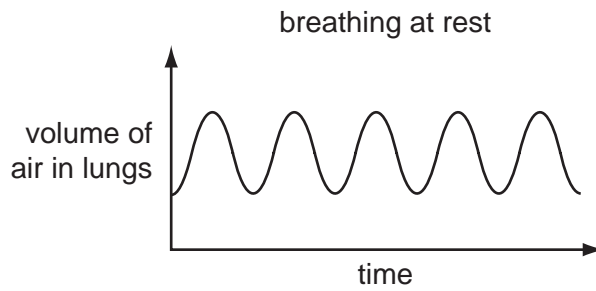
Which two parts are made of muscle?

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

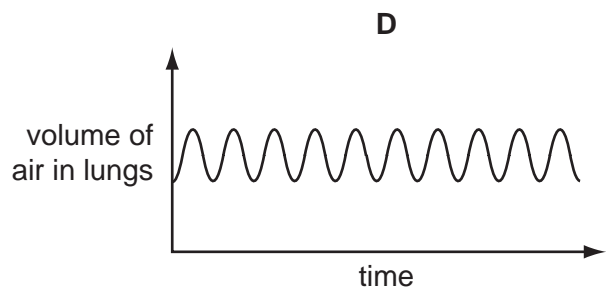
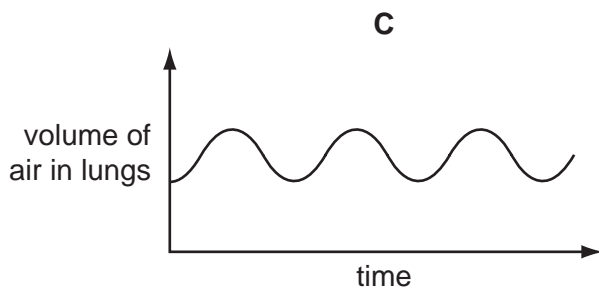
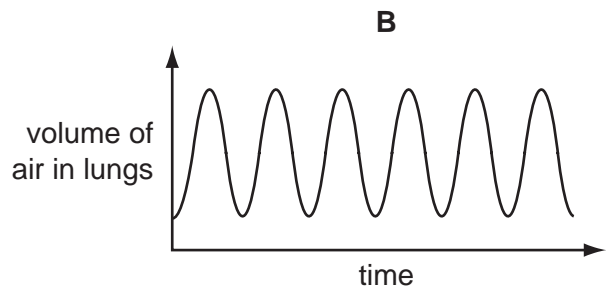
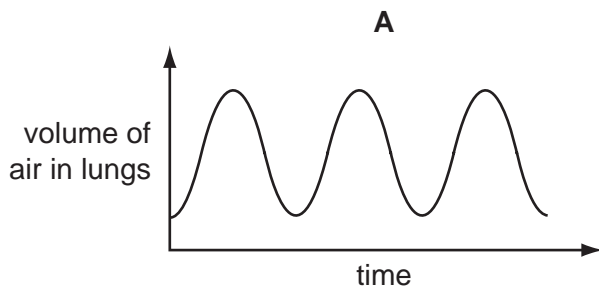
17 What happens to the ribs, external intercostal muscles, internal intercostal muscles and the muscle of the diaphragm when a person breathes in?

	ribs	external intercostal muscles	internal intercostal muscles	muscle of the diaphragm
A	lowered	relax	contract	contract
B	raised	contract	relax	contract
C	raised	contract	relax	relax
D	raised	relax	contract	contract

18 The graph shows the rate of breathing and the volume of air breathed in and out when a person is at rest.



Which graph shows the rate of breathing and the volume of air breathed in and out when a person is carrying out prolonged exercise?



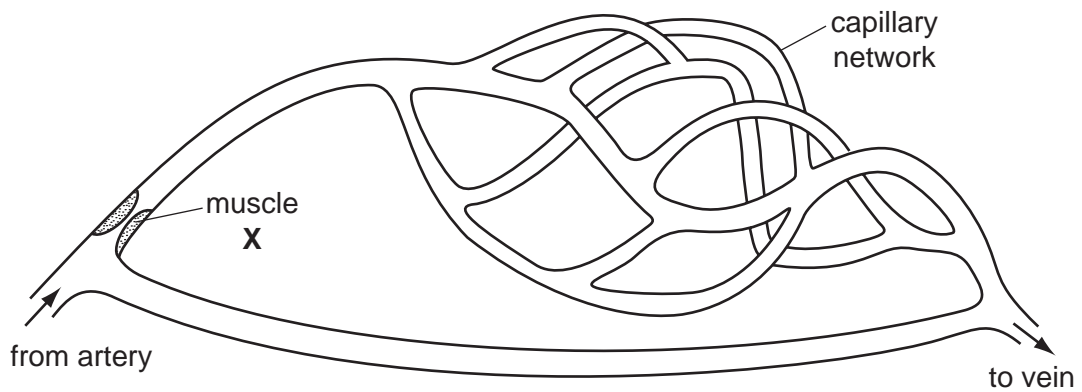
19 Which describes the actions of a hinge joint and a ball and socket joint?

	hinge joint	ball and socket joint
A	movement in all planes	movement in one plane only
B	movement in one plane only	movement in all planes
C	movement in one plane only	movement in one plane only
D	movement in two planes only	movement in all planes

20 Which tissue requires the **most** energy?

- A cartilage
- B collagen
- C skeletal muscle
- D yellow elastic

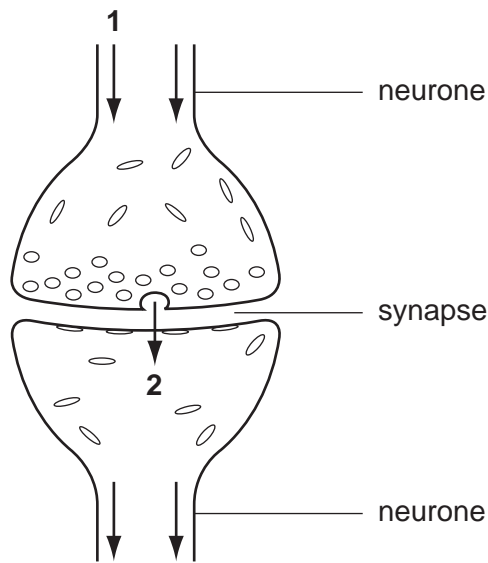
21 The diagram shows a capillary network near the surface of the skin.



What happens if muscle **X** contracts and less blood flows through the capillaries?

- A The body temperature decreases.
 - B Less heat is lost from the skin.
 - C Less shivering would occur.
 - D Less sweating would occur.
- 22 Where are changes in blood glucose concentration detected?
- A brain
 - B kidney
 - C liver
 - D pancreas

23 The diagram shows the working of a synapse between two neurones.



What do arrows 1 and 2 represent?

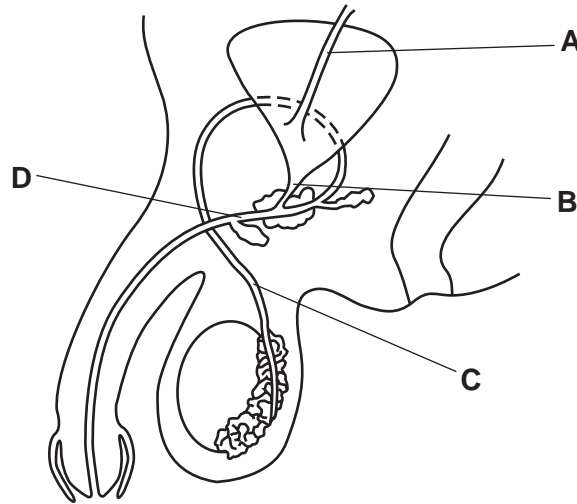
	1	2
A	chemical transmitter	chemical transmitter
B	chemical transmitter	slow acting hormone
C	nerve impulse	chemical transmitter
D	nerve impulse	slow acting hormone

24 Which social behaviour is sometimes shown by heroin users?

- A** criminal activity
- B** increased appetite
- C** outgoing friendly approach to others
- D** sickness and stomach pains

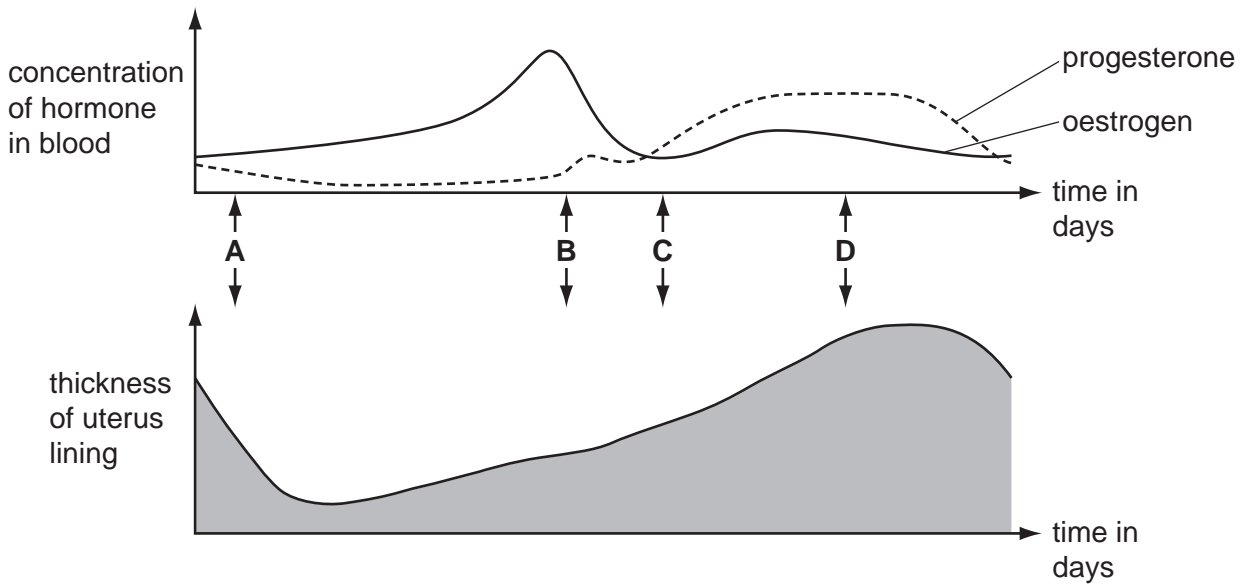
25 The diagram shows the male reproductive organs.

At which point should a tube be cut for a vasectomy?

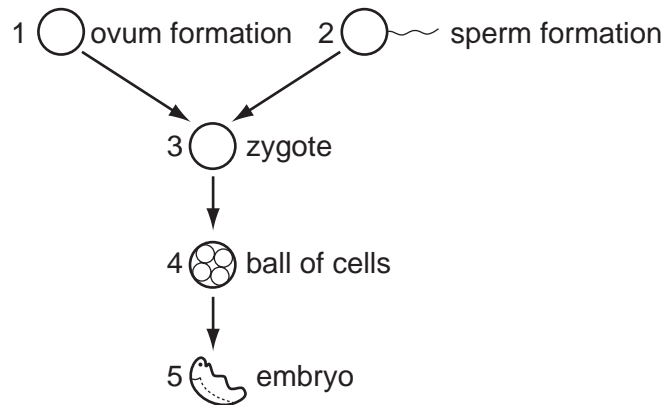


26 The diagram shows the thickness of the uterus lining and the concentrations of oestrogen and progesterone, throughout one menstrual cycle.

On which day does ovulation occur?



27 The diagram represents some stages of reproduction.

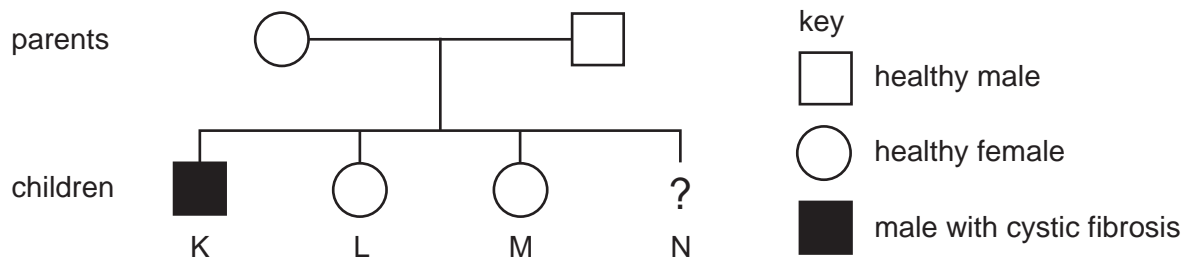


Which two stages contain haploid cells?

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

28 Cystic fibrosis is a monohybrid disease.

The diagram shows the inheritance of cystic fibrosis in a family.



What is the chance of child N having cystic fibrosis?

- A 0% (none)
 B 25% (1 in 4)
 C 33% (1 in 3)
 D 50% (1 in 2)

29 Which can be a **symptom** but is not a **sign** of a disease?

- A a headache
 B a skin rash
 C high temperature
 D sweating and shivering

30 What is the pathogen, method of spread and method of control for influenza?

	pathogen	spread	control
A	bacterium	droplets	antibiotics
B	bacterium	insect bite	vaccination
C	virus	shared needles	isolate patients
D	virus	droplets	vaccination

31 In areas where TB is endemic (always present), why should spitting in public be discouraged?

- A** Bacteria could contaminate water supplies and then infect humans.
- B** Viruses in the sputum get dispersed as droplets to infect humans.
- C** Sputum may also contain blood droplets and may help to spread AIDS.
- D** Sputum may contain spores of bacteria that can infect people.

32 Which statement about bacteria is correct?

- A** Some are used to kill mosquito larvae.
- B** Some of their DNA is found in a nucleus.
- C** Some red cells engulf them by phagocytosis.
- D** Most lack a cell wall.

33 Which diseases are caused by pathogens that normally enter through the mouth, nose and skin?

	mouth	nose	skin
A	cholera	tuberculosis	malaria
B	influenza	malaria	schistosomiasis
C	schistosomiasis	influenza	cholera
D	tuberculosis	typhoid	malaria

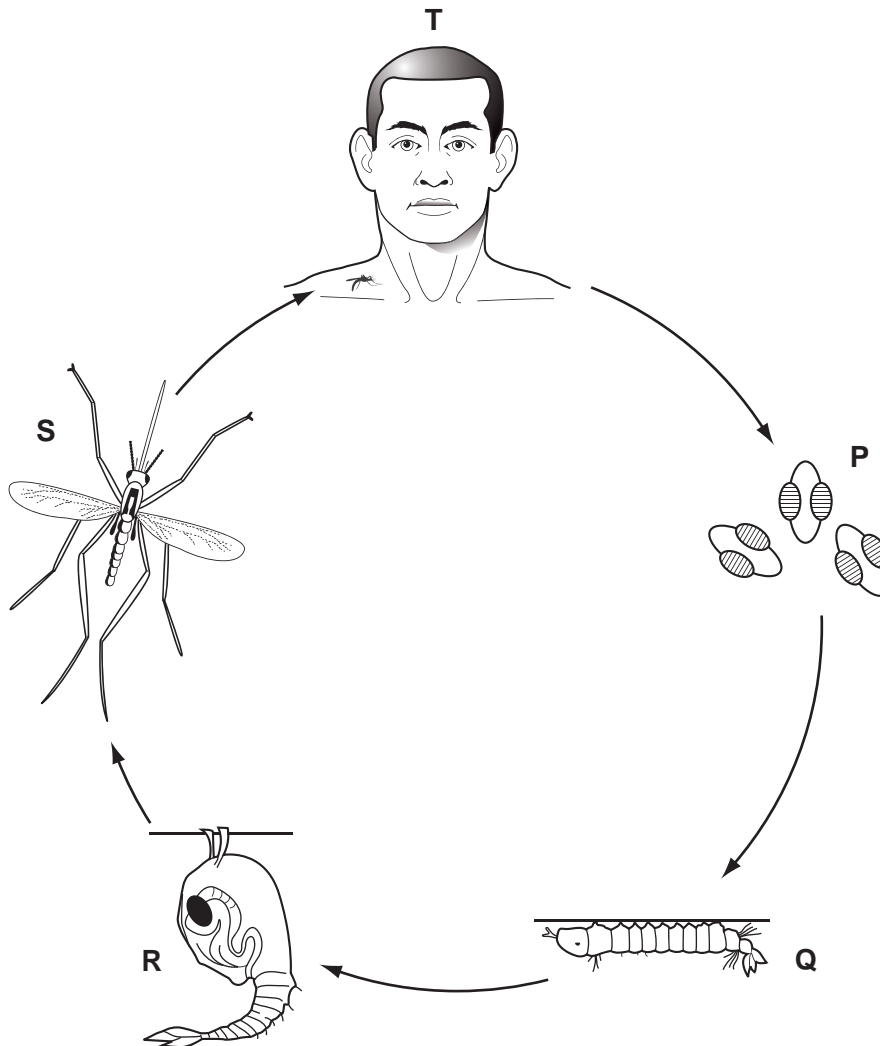
34 How would a doctor identify schistosomiasis (bilharzia)?

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

35 Which statement about antiseptics is correct?

- A Antiseptics kill all bacteria and damage human tissue.
- B Antiseptics kill all bacteria but do not damage human tissue.
- C Antiseptics prevent bacteria reproducing and damage human tissue.
- D Antiseptics prevent bacteria reproducing but do not damage human tissue.

36 The diagram shows the lifecycle of anopheline mosquitoes.



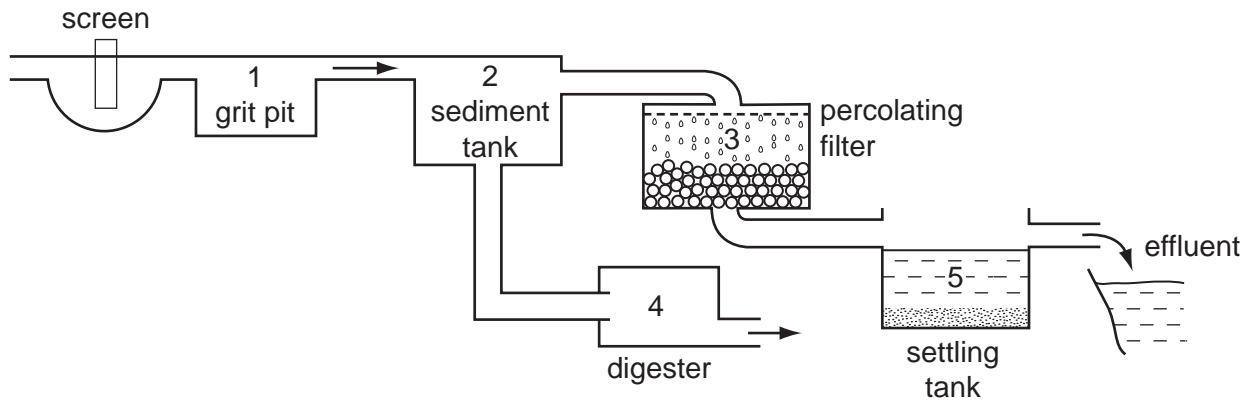
At which stages may mosquitoes carry *Plasmodium*?

- A P and Q
- B Q and R
- C R and S
- D S and T

37 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

38 The diagram shows a sewage treatment plant.



In which parts do aerobic and anaerobic bacteria become **most** active to help to digest sewage?

	aerobic bacteria	anaerobic bacteria
A	1	2
B	2	4
C	3	4
D	3	5

39 Why is refuse pressed down and compacted at communal sites?

- A to increase aerobic respiration of organisms
- B to increase the bacterial activity
- C to prevent rats burrowing into the refuse
- D to reduce unpleasant smells

40 The diagram shows a river and the surrounding area.

Where would swimmers be **most** likely to become infected with cholera?

