

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level

Biology

5090/1

Paper 1 Multiple Choice

Tuesday

30 July 2019

Additional Materials:

Multiple Choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

Time: 50 minutes

Instructions to Candidates

Look at the left hand side of your Answer card. Ensure that your **name**, the **school/centre name** and **subject paper** are printed. Also ensure that the **subject code**, **paper number**, **centre code**, **your examination number** and the **year** are printed and shaded. Do not change the already printed information.

There are **forty (40)** 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 Answer Card provided.

Read very carefully the instructions on the answer sheet.

Information for Candidates

Each correct answer will score one mark.

Any rough working should be done in this Question Paper.

Cell phones are not allowed in the examination room.

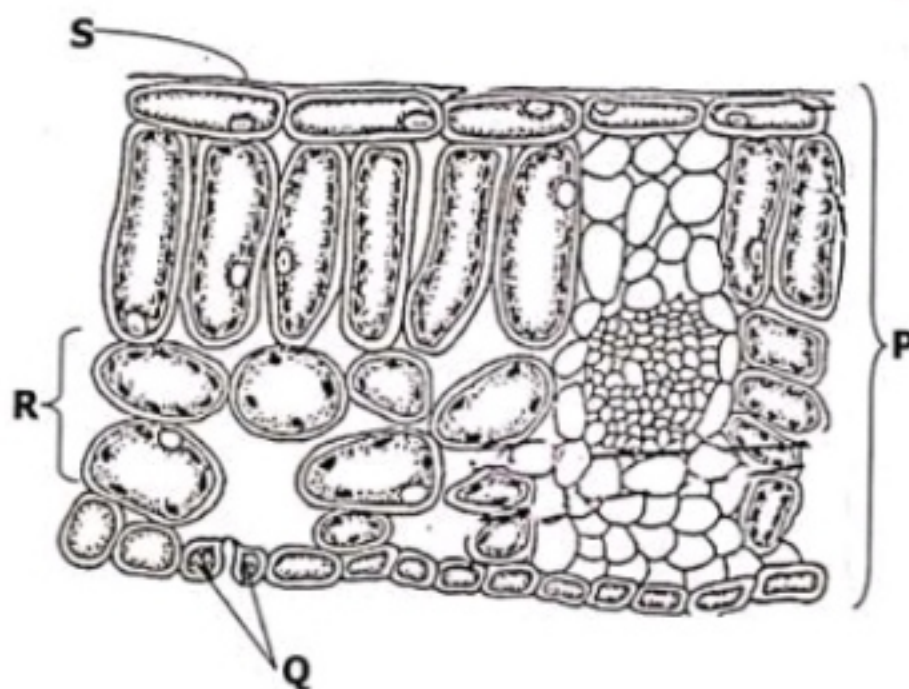
- 1 A learner was walking along a road when she saw an object under a tree. When the learner touched the object, it rolled over and divided into two. Which characteristics of living organisms did the object show?

A Excretion, movement, nutrition
 B Growth, reproduction, sensitivity
 C Movement, reproduction, respiration
 D Movement, reproduction, sensitivity

- 2 Which of the following correctly lists the path followed by a light beam from the mirror to a viewer of the specimen under a microscope?

A Specimen → objective lens → barrel → eye piece
 B Specimen → eye piece → barrel → objective lens
 C Specimen → barrel → objective lens → eye piece
 D Eye piece → Specimen → objective lens → barrel

- 3 The diagram below shows a section through a leaf.



Which structure is an organ and which one is a tissue?

	Organ	Tissue
A	P	R
B	P	S
C	Q	R
D	S	Q

- 4 The table below shows conditions in four test tubes containing equal quantities of starch and salivary amylase.

Test tube	pH	Temperature/°C
1	2	27
2	2	37
3	7	27
4	7	37

In which test tube would the starch be broken down fastest?

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

- 5 The table below shows some of the nutrients in four meals. Which meal will be the most likely to stimulate peristalsis along the alimentary canal?

	g/100g			
	Carbohydrates	Fat	Roughage	Protein
A	18	12	8	25
B	30	32	2	12
C	38	4	22	10
D	40	15	10	5

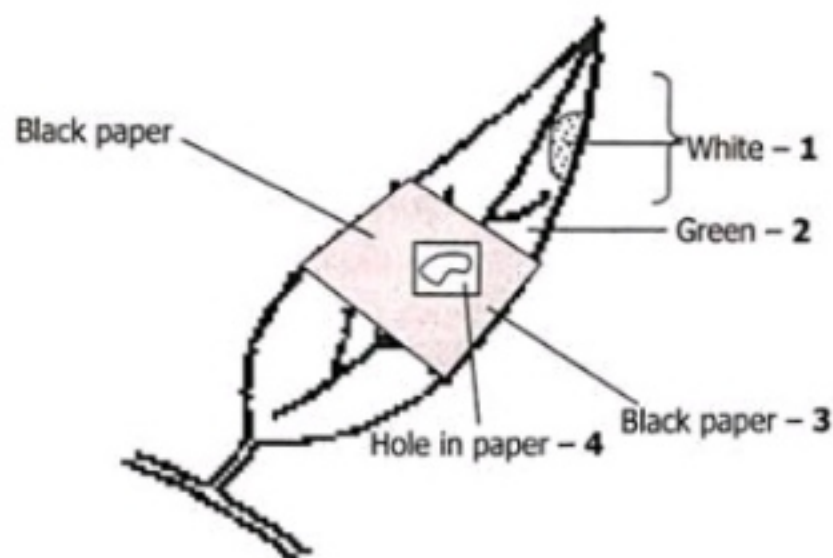
- 6 Which of the following deficiency diseases results from consuming foods that lack iodine?

- A Anaemia
- B Goitre
- C Kwashiorkor
- D Marasmus

- 7 Which macronutrient stimulates growth of flowers and fruits in plants?

- A Magnesium
- B Nitrogen
- C Phosphorus
- D Potassium

- 8 The diagram shows a variegated leaf, partly covered as shown. The leaf was exposed to light for four hours and then tested for starch.



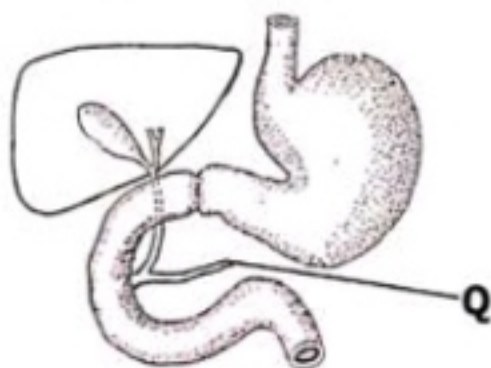
Which regions will turn blue-black?

- A 1 and 2
B 1 and 3
C 2 and 4
D 2 and 3
- 9 The following is the dental formula of a dog:

$$\begin{matrix} i & c & pm & m \\ 3 & 1 & 4 & 2 \\ 3 & 1 & 4 & 3 \end{matrix}$$

How many incisors are in the mouth of this dog?

- A 6
B 8
C 12
D 16
- 10 The diagram shows part of the human digestive system. What digestive juice flows through the part labelled Q?



- A Bile
B Gastric juice
C Intestinal juice
D Pancreatic juice

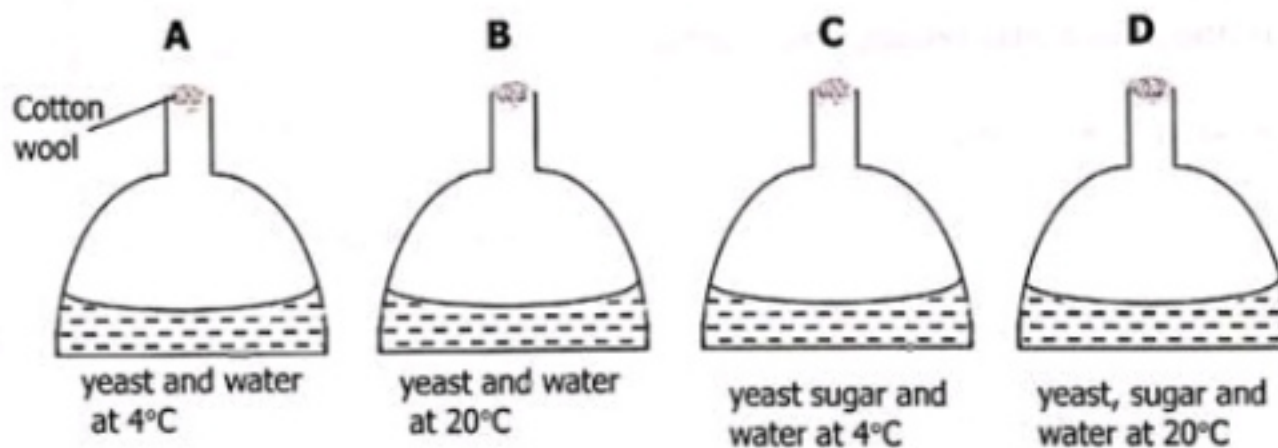
11 Which of the following can be caused by excessive drinking of alcohol?

- A** Emphysema
- B** Cirrhosis
- C** Hepatitis
- D** Hepatomegaly

12 What happens to the floor of the mouth and operculum during inspiration in fish?

	Floor of mouth	Mouth	Operculum
A	Lowered	Open	Closed
B	Lowered	Closed	Closed
C	Raised	Closed	Open
D	Raised	Open	Closed

13 Four flasks were sterilised and set up as shown.



Which flask will contain most alcohol after several hours?

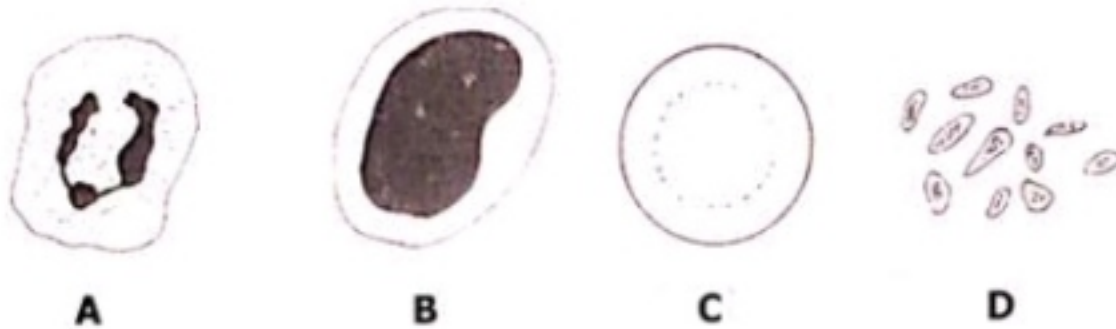
14 Children under five years receive immunisation against measles.
What type of immunity do they develop after an injection against measles?

- A** Active/Natural
- B** Active/Artificial
- C** Passive/Natural
- D** Passive/Artificial

- 15 How is the rate of transpiration affected by decreasing temperature and light intensity?

	Decreasing temperature	Decreasing light intensity
A	Slower	Slower
B	Slower	Faster
C	Faster	Slower
D	Faster	Faster

- 16 The diagram below shows some cells from the mammalian blood.



Which of the above cells breaks down pathogens?

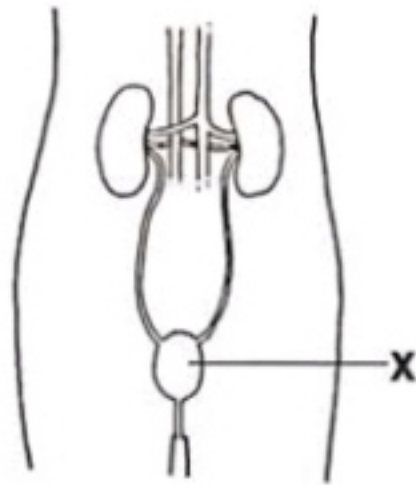
- 17 The diagram below shows a longitudinal section of the heart.



Which of the valves labelled 1, 2, 3 and 4 are closed and which ones are open during atrial systole.

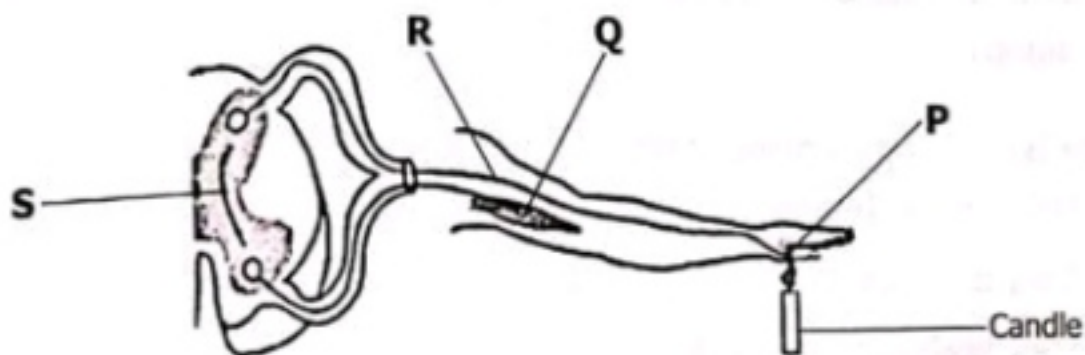
	Valves 1 and 2	Valves 3 and 4
A	Closed	Closed
B	Closed	Open
C	Open	Closed
D	Open	Open

- 18** The diagram below shows the human excretory system.



What is the function of part labelled **X**?

- A** To excrete urea
 - B** To produce urea
 - C** To produces urine
 - D** To store urine
- 19** How does the skin maintain the body temperature at 37°C when a person moves from a hot to a cold environment?
- A** Arterioles in skin constrict
 - B** Arterioles in skin dilate
 - C** Hairs on skin lie flat
 - D** Skin produces sweat
- 20** The diagram shows a reflex arc.



Which one of the following is the correct sequence in the flow of an electrical impulse?

- A** P → Q → R → S
- B** P → R → S → Q
- C** Q → R → S → P
- D** Q → S → P → R

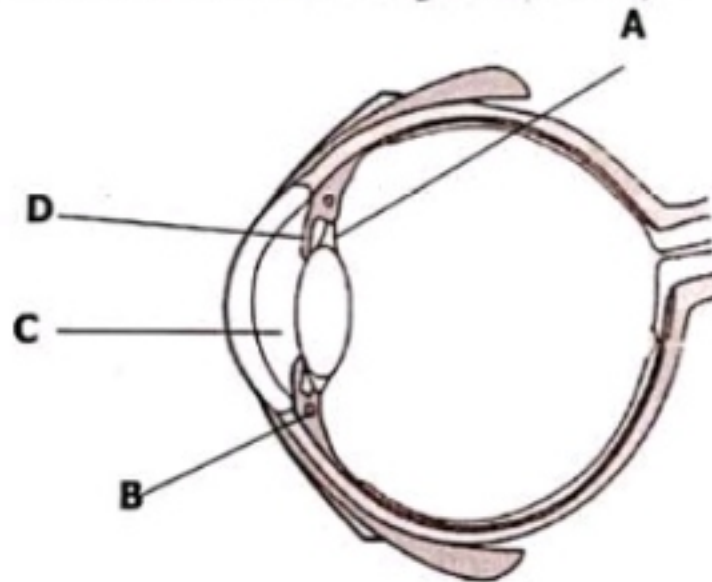
21 The following are some of the drugs used or abused by human beings.

- 1 alcohol
- 2 heroin
- 3 penicillin

Which of these drugs may be addictive, leading to possible withdraw symptoms when their use is discontinued?

- A** 1 only
- B** 1 and 2 only
- C** 2 and 3 only
- D** 1, 2 and 3

22 The diagram shows a section through a human eye.

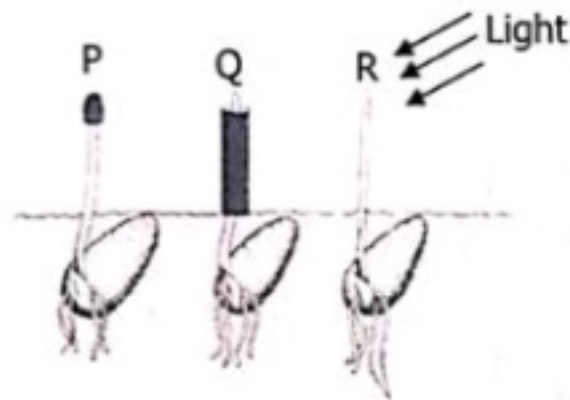


Which structure contains the muscles which contract to produce a focused image on the retina?

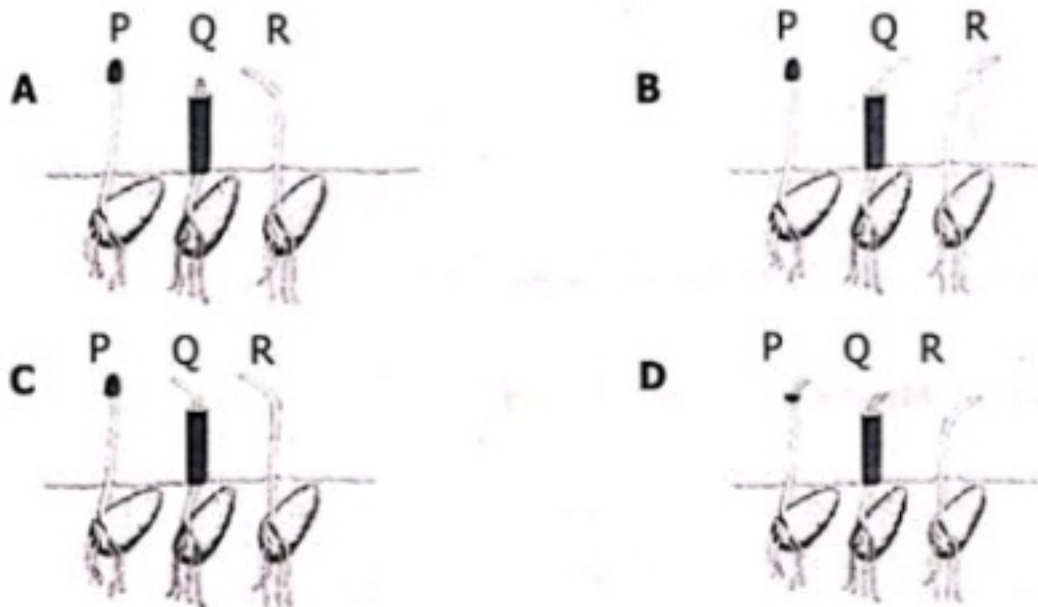
23 How are bones and cartilage similar?

- 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.

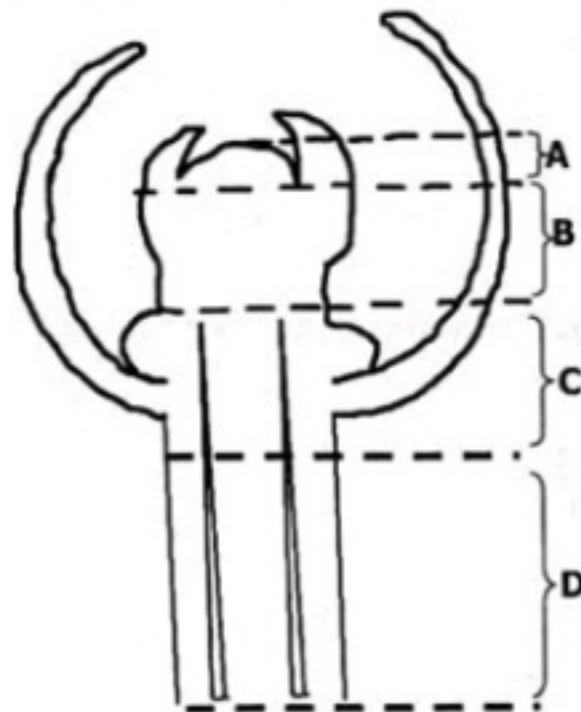
- 24** The diagram below shows three shoots exposed to light coming from one direction.



How will these plant shoots look like after 48 hours?

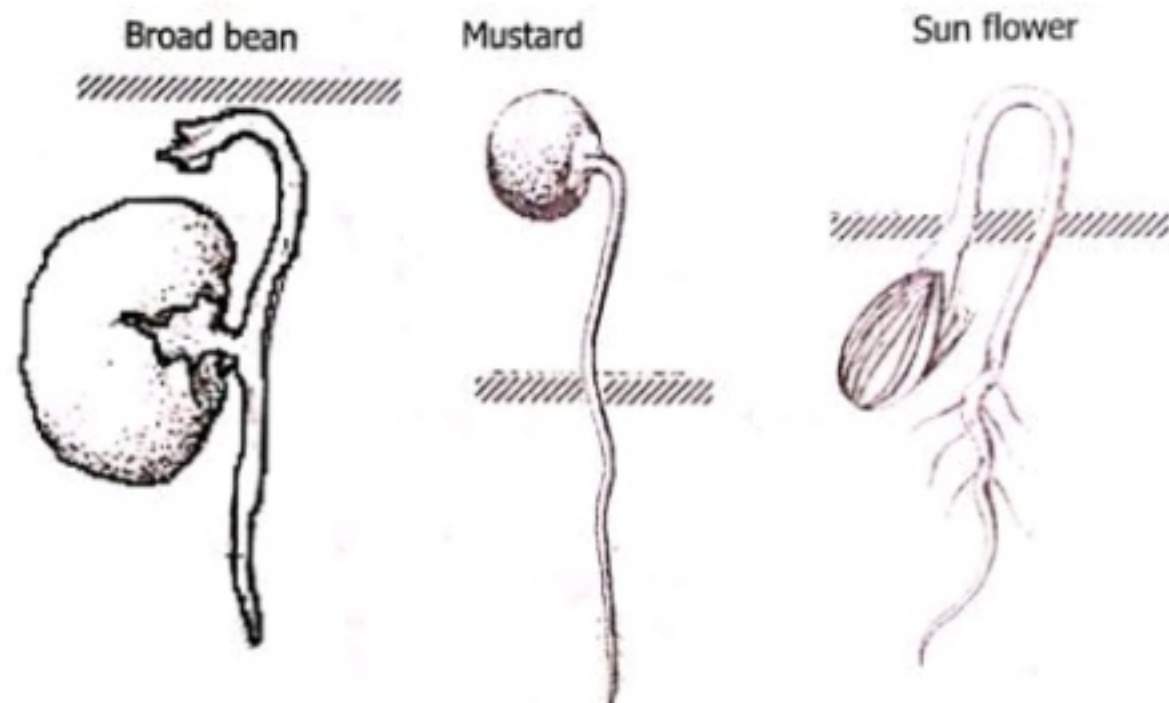


- 25** The diagram below shows parts of a shoot tip.



Which of the parts labelled **A**, **B**, **C** or **D** is a region of cell elongation?

- 26 The following diagrams show the germination of broad bean seed, mustard seed and sun flower seed.



What type of germination is shown by these seedlings?

	Broad bean	Mustard	Sunflower
A	Hypogeal	Epigeal	Epigeal
B	Hypogeal	Hypogeal	Epigeal
C	Epigeal	Epigeal	Hypogeal
D	Epigeal	Hypogeal	Epigeal

- 27 Which of the following is a disadvantage of vegetative propagation?

- A Plants are usually overcrowded.
- B Plants are widely dispersed.
- C Plant population grows slowly.
- D Varieties of useful plants are kept unchanged.

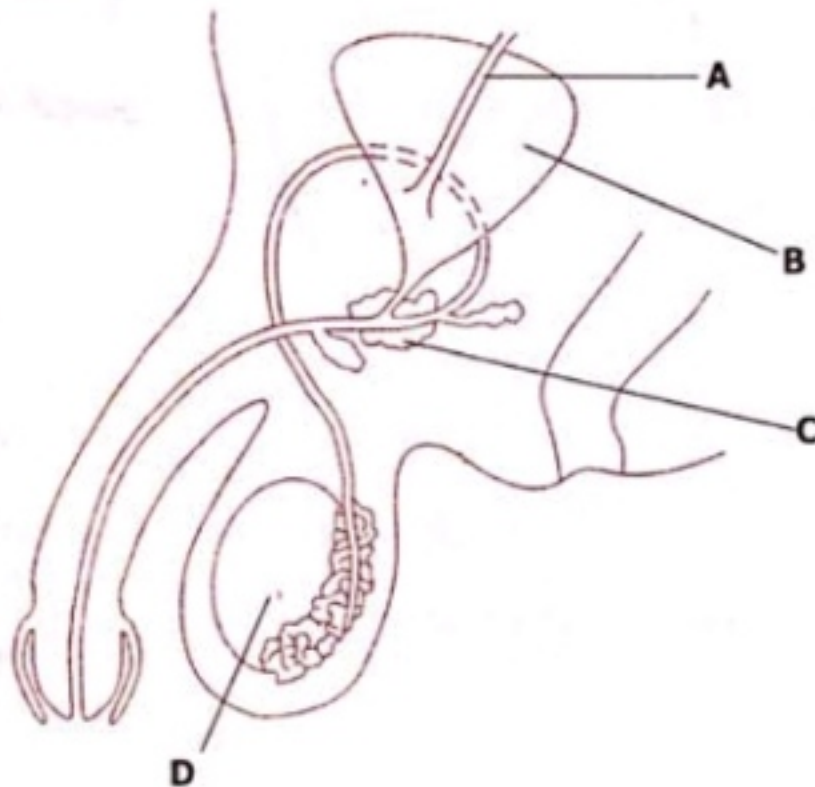
- 28 The following shows a marigold fruit magnified three times.



The above fruit is dispersed by ...

- A animals.
- B self mechanism.
- C water.
- D wind.

29 The diagram shows the male reproductive and urinary systems.



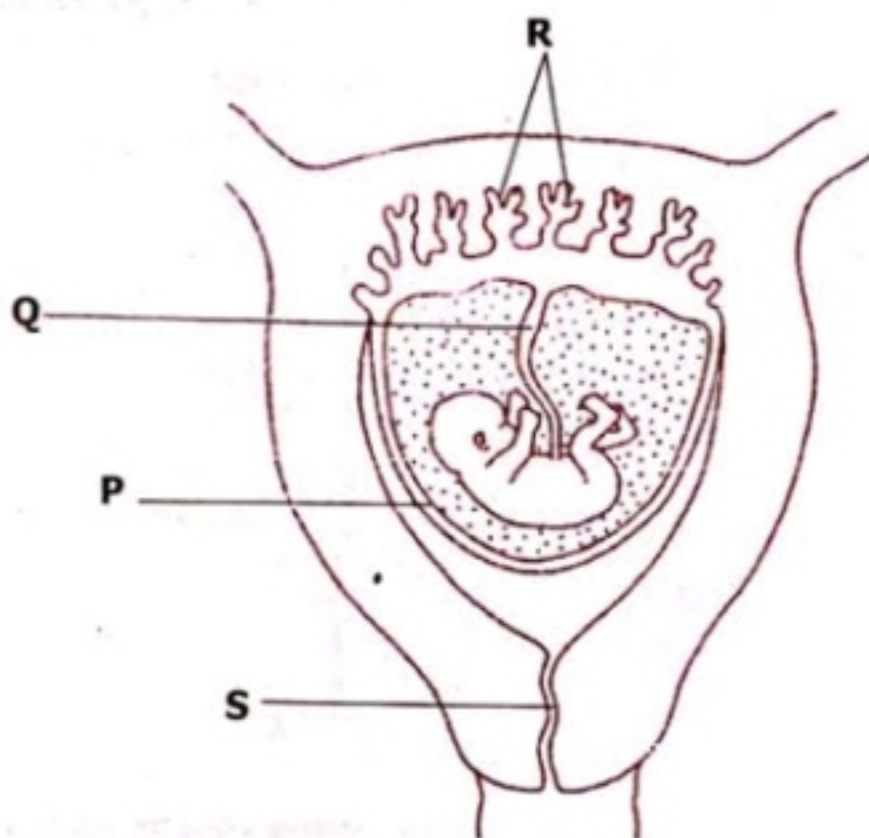
Which structure produces the fluid part of semen?

30 A natural method of birth control assumes that sperm live for three days after sexual intercourse, ovulation occurs between days 13-15 of the menstrual cycle and released ova live for 36 hours.

On which day of the cycle would sexual intercourse **not** result into pregnancy?

- A Day 7
- B Day 10
- C Day 12
- D Day 16

31 The diagram shows a foetus in the uterus.



Which structures remove excretory products from the foetus?

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

32 What is the advantage of male circumcision?

- A It prevents the spread of HIV and other STIs.
- B It helps the man enjoy sex more.
- C It prevents spread of cervical cancer.
- D It helps the female enjoy sex more.

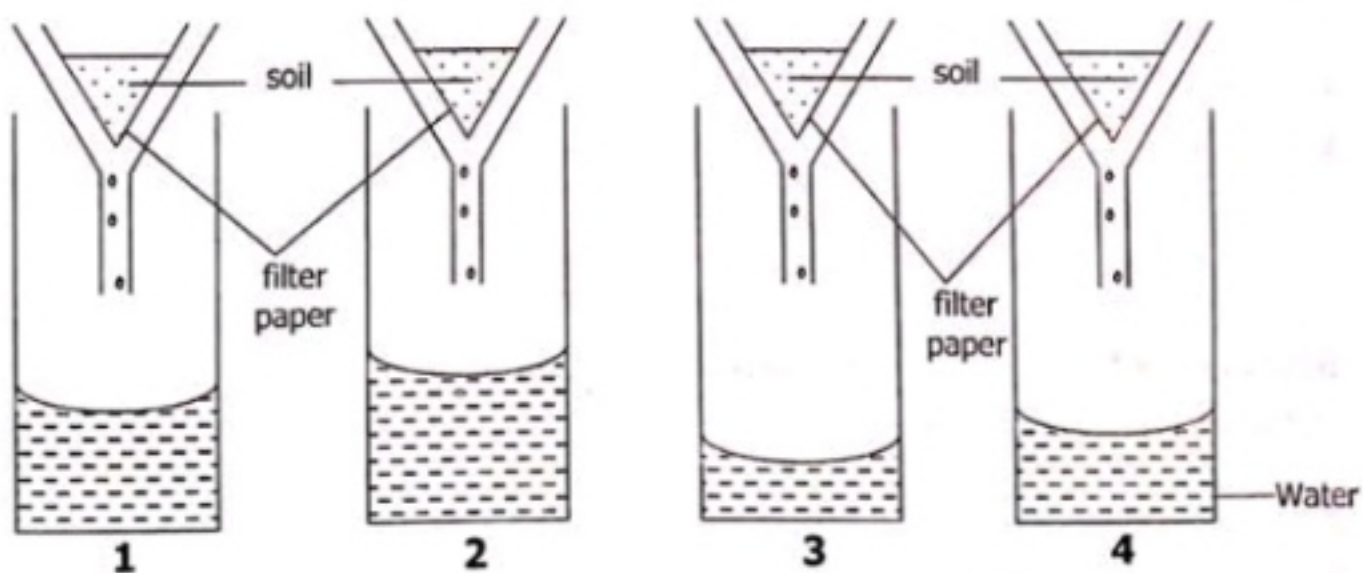
33 The following are examples of characteristics in humans.

- 1 Eye colour
- 2 Height
- 3 Body mass
- 4 Sex

Which of the above characteristics are examples of continuous variation?

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

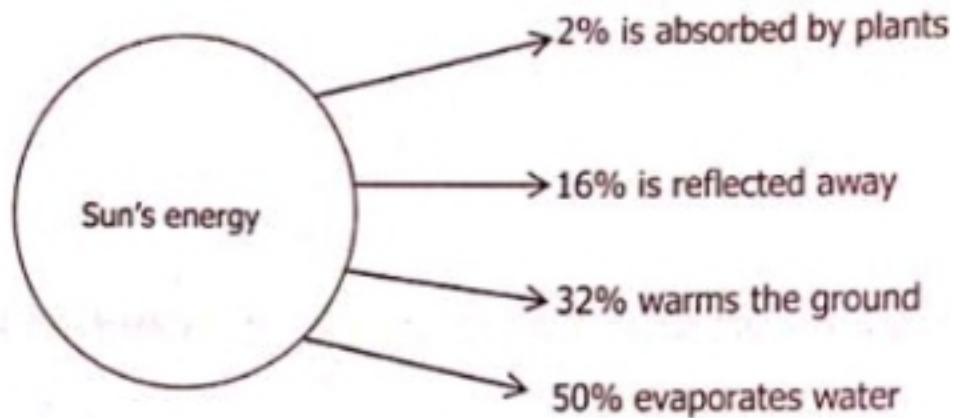
- 34 A woman has blood group **O**. Her child also has blood group **O**.
What is the likely blood group genotype of the father to the child?
- A** $I^A I^A$
B $I^B I^B$
C $I^A I^B$
D $I^A I^O$
- 35 Which of the following is the smallest and mostly used taxon in classifying living organisms?
- A** Class
B Kingdom
C Phylum
D Species
- 36 An experiment was carried out to investigate the drainage of soil samples from four different fields. Equal amounts of soil and water were used. The diagrams show the results of this investigation.



Which soil sample was clay?

- A** 1
B 2
C 3
D 4

- 37 The diagram shows what happens to the energy that enters the atmosphere from the sun.



- How much of the sun's energy is **not** used for photosynthesis?
- A less than 2%
 - B about 32%
 - C about 66%
 - D more than 98%
- 38 Plants and animals living in a particular area at a particular time are collectively called a ...
- A community.
 - B habitat.
 - C population.
 - D species.
- 39 Which of the following is undertaken to minimise the pollution of the air from motor vehicle exhaust fumes?
- A Paying carbon tax
 - B Stopping using vehicles
 - C Using air filters
 - D Using catalytic converters
- 40 Which one of the following is **not** an economic reason for maintaining biodiversity?
- A Charcoal production
 - B Sources of food
 - C Sources of medicine
 - D Tourist attraction