



03720509



EXAMINATIONS COUNCIL OF ZAMBIA



Examination for General Certificate of Education Ordinary Level

5090/1

Biology Paper 1 Multiple Choice

Thursday 10 AUGUST 2023

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

Time: 50 minutes

Marks: 40

Instructions to Candidates

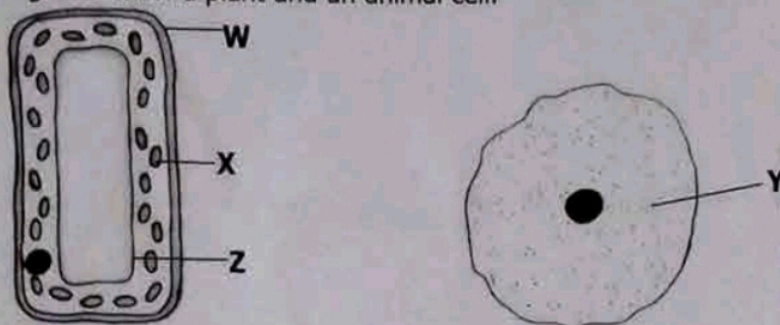
- 1 Ensure that the **school/centre name** and **subject paper, subject code, paper number, centre code, your name, examination number** and the **year** are correctly printed and shaded on the Answer Sheet provided.
- 2 There are **forty** questions in this paper. Answer **all** questions.
- 3 For each question there are four possible answers: **A, B, C** and **D**. Choose the **one** you consider correct and shade your choice using a **soft pencil** on the separate Answer Sheet.
- 4 **Read very carefully the instructions on the Answer Sheet.**

Information for Candidates

- 1 Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
- 2 Any rough working should be done in this Question Paper.
- 3 Cell phones and other electronic devices are **not allowed** in the examination room.

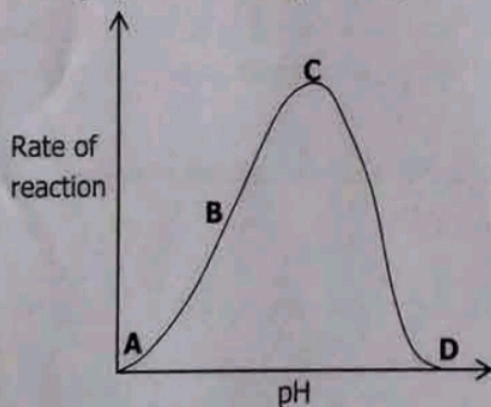
- Some lizards detach their tails when threatened by a predator. Which characteristic of living organisms is shown?
 - Excretion
 - Growth
 - Reproduction
 - Sensitivity

- The diagrams show a plant and an animal cell.



Which of the labelled structures is found in both cells?

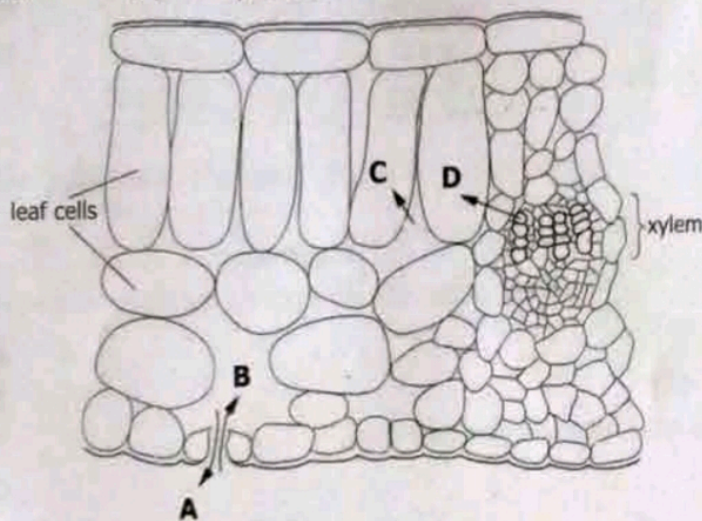
- W
 - X
 - Y
 - Z
- Which of the following is **not** a tissue?
 - Blood
 - Epidermis
 - Leaf
 - Muscle
 - The graph shows how pH affects the rate of an enzyme controlled reaction. Which letter on the graph shows the optimum pH?



- The table shows results of some food tests. Which sample shows food containing both starch and proteins?

Sample	Benedict's Solution	Biuret Reagent	Ethanol	Iodine Solution
A	Blue	Blue	Clear	Blue-black
B	Blue	Purple	Clear	Blue-black
C	Red	Blue	Cloudy	Brown
D	Red	Purple	Cloudy	Brown

- 6 Which nutrient is needed to make the haemoglobin in red blood cells?
- A Calcium
B Iron
C Roughage
D Vitamin D
- 7 A plant has weak cell walls. Which of the following nutrients was the plant lacking?
- A Boron
B Calcium
C Nitrogen
D Potassium
- 8 The diagram shows a section through a leaf. Which arrow represents the diffusion of oxygen during photosynthesis?

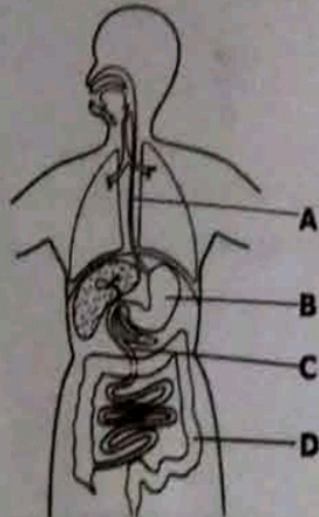


- 9 A tick feeding on the blood of a dog is an example of ...
- A commensalism.
B mutualism.
C parasitism.
D predation.

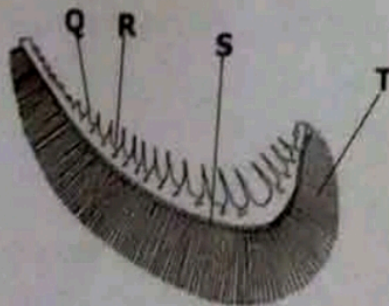
- 10 The dental formula of a dog is $i \frac{x}{3} \quad c \frac{1}{1} \quad pm \frac{4}{4} \quad m \frac{2}{3}$.
The total number of teeth in the mouth of the dog is 42. Find the value of **X**.

- A 2
B 3
C 4
D 6

- 11 The diagram shows the human alimentary canal. Which labelled structure produces gastric juice?



- 12 The diagram shows a gill of a fish.

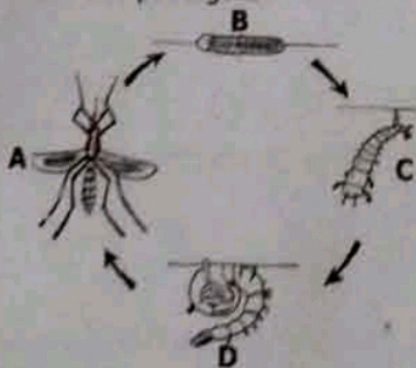


In which labelled part does gaseous exchange take place?

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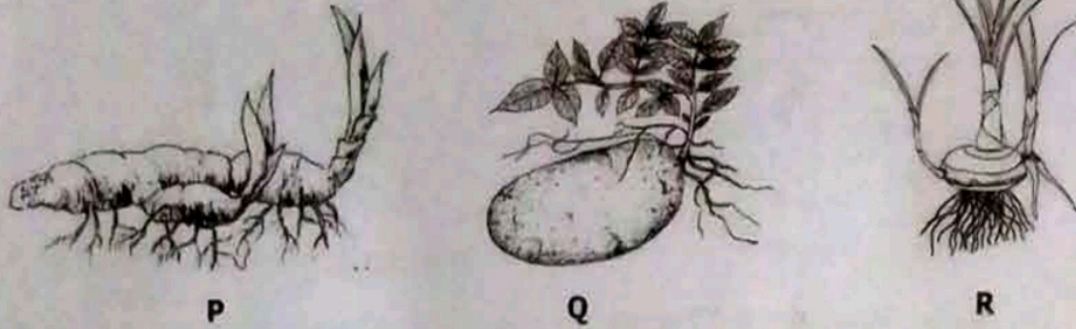
- A Q
- B R
- C S
- D T

- 13 The diagram shows the life cycle of a mosquito. Which stage in the life cycle of the mosquito transmits pathogens?



- 14 Stigma against people living with HIV and AIDS can be reduced by ...
- A fear.
 - B lack of information.
 - C myths.
 - D sensitisation.

15 The diagram shows some storage organs in plants.



Which of the following correctly identifies these organs?

	P	Q	R
A	Corm	Rhizome	Tuber
B	Corm	Tuber	Rhizome
C	Rhizome	Corm	Tuber
D	Rhizome	Tuber	Corm

16 The table shows the blood groups in human beings.

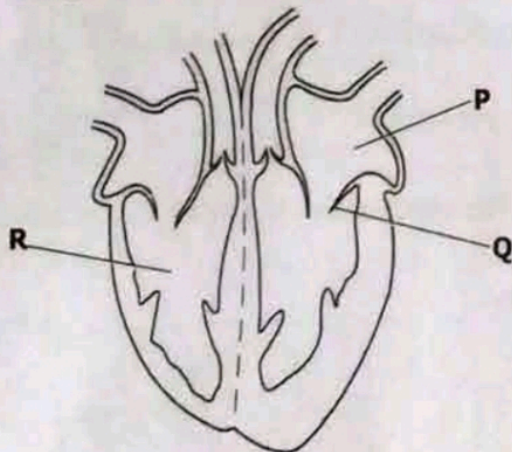
A	B	AB	O
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Which blood group can be donated to any person?

- A A
- B AB
- C B
- D O

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17 The diagram shows a section of the human heart.



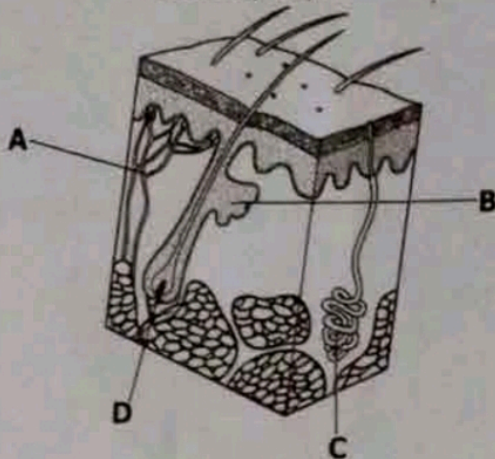
What is the function of the structure labelled Q? It ...

- A controls the amount of blood leaving the heart.
- B increases the pressure in part R.
- C prevents backflow of blood into part P.
- D prevents blood flowing into the vena cava.

18 Where is urea made and where is it removed?

	Made	Removed
A	Kidney	Bladder
B	Kidney	Kidney
C	Liver	Kidney
D	Liver	Rectum

19 The diagram shows a section through the human skin. Which labelled structure releases sweat on a hot sunny day?



20 Which one of the following is **not** an endocrine gland?

- A Pancreas
- B Salivary
- C Testes
- D Thyroid

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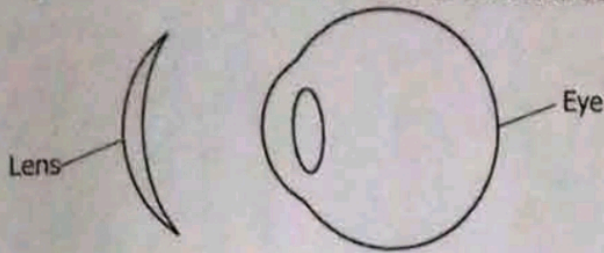
21 When the nervous system responds to a stimulus, there are several stages leading to the response. The following are the stages:

1. The central nervous system processes the information.
2. The receptors detect the stimulus.
3. A nerve impulse is sent to the central nervous system.
4. A response is produced.
5. A nerve impulse is sent to the muscles.

What is the correct order of the stages?

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

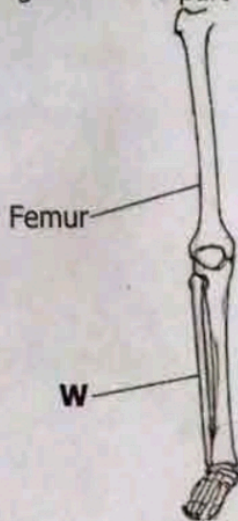
22 The diagram shows a lens that is used to correct a defect in a human eye.



Which defect is corrected by this lens?

- A Cataracts
- B Long sight
- C Presbyopia
- D Short sight

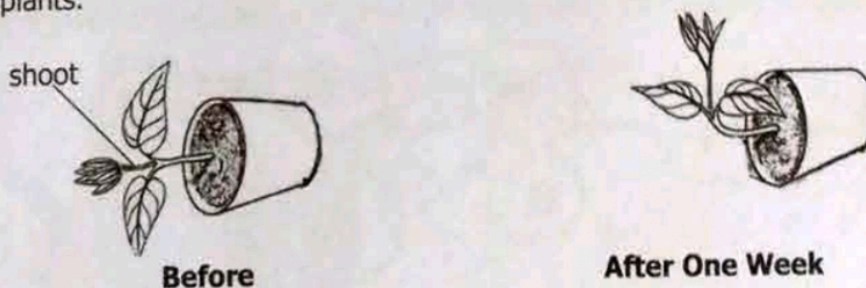
23 The diagram shows part of a mammalian skeleton.



Which of the following correctly identifies the bone labelled **W** and the type of skeleton?

	W	Skeleton
A	Fibula	Endoskeleton
B	Patella	Exoskeleton
C	Scapula	Endoskeleton
D	Tibia	Exoskeleton

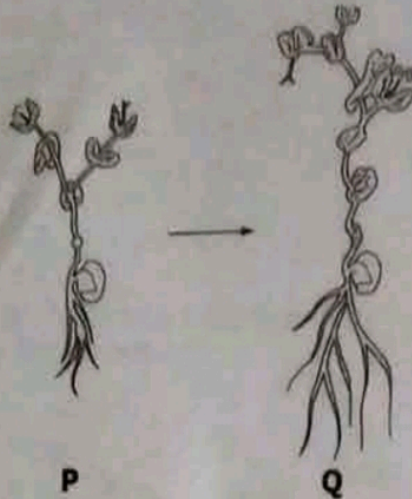
24 The diagrams show an experiment carried out in order to establish the process of tropisms in plants.



What type of tropism was exhibited by the shoot of the potted plant?

- A Negative geotropism
- B Negative phototropism
- C Positive geotropism
- D Positive hydrotropism

25 The diagram shows the early growth of a green plant.



What is occurring in the diagram from P to Q?

	Mitosis	Development
A	✓	✓
B	✓	x
C	x	✓
D	x	x

Key

✓ = occurs

x = does not occur

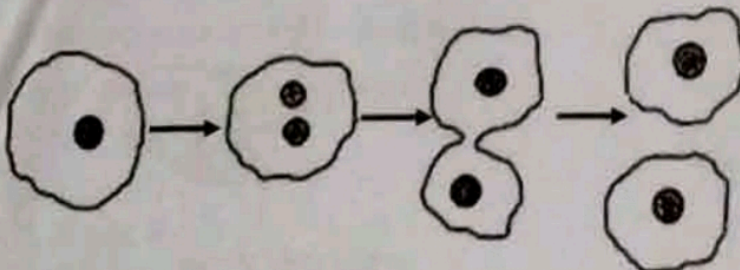
26 Some seeds were sown in four dishes under different conditions as shown in the table.

Dish	Temperature °C	Wet or dry
1	1	Dry
2	1	Wet
3	20	Dry
4	20	Wet

In which dish will the seeds germinate most rapidly?

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

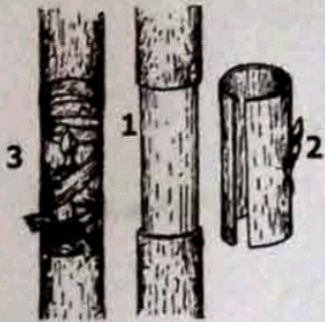
27 The diagram shows asexual reproduction in unicellular organisms.



What name is given to this type of asexual reproduction?

- A Binary fission
- B Budding
- C Fragmentation
- D Spore formation

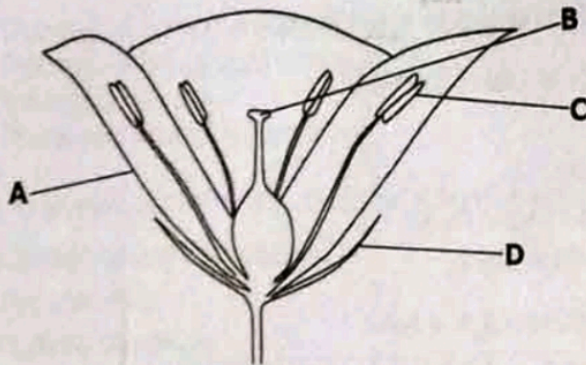
28 The diagram shows one method of artificial vegetative propagation.



What type of artificial vegetative propagation is demonstrated in the diagram?

- A Budding
- B Grafting
- C Layering
- D Stem cutting

29 The diagram shows some parts of a flower. Where are the male gametes produced?

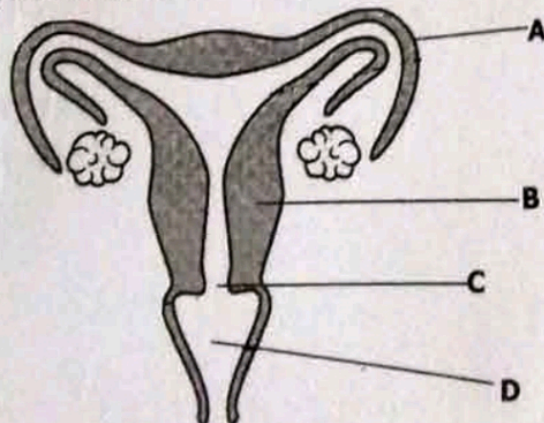


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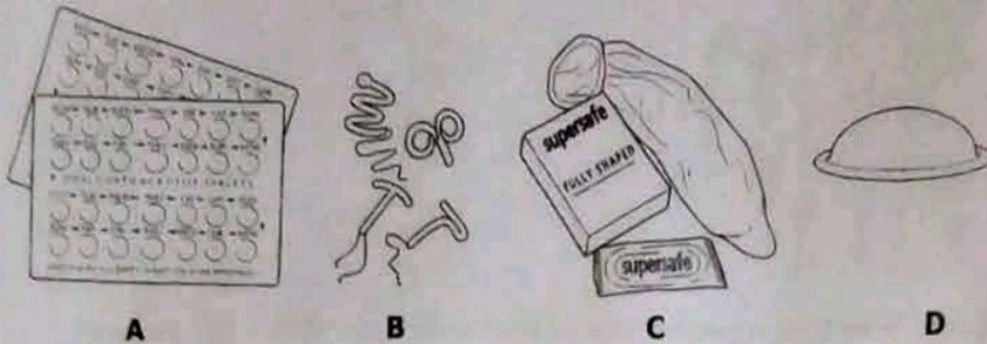
30 Which fruit will be dispersed by wind?

Fruit	Description
A	Fleshy and scented
B	Light weight and has a wing
C	Sticky and has hooks
D	Sweet tasting and brightly coloured

31 The diagram shows the female reproductive system. Where does fertilisation take place?



32 The diagrams show four methods of birth control. Which one is a hormonal method?



33 A study was made of children whose mother was blood group **O** (genotype $I^O I^O$) and the father's blood group **AB** (genotype $I^A I^B$). Which statement about their children is correct?

- A All will have the same blood group.
- B 50% will have the same blood group as their mother.
- C 50% will have the same blood group as their father.
- D None will have the same blood group as either parent.

34 Which of the following is a beneficial use of mutation?

- A Creation of nuclear plants
- B Formation of ultra-violet light
- C Making of polyploidy plants in agriculture
- D Making of x-ray machines in hospitals

35 Which of the following are characteristics of a fish?

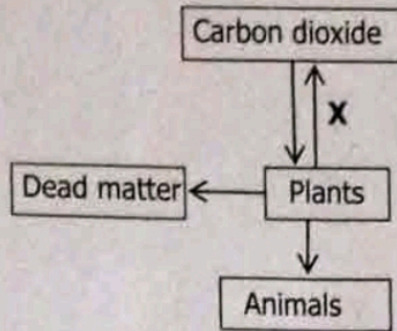
	Maintain constant body temperature	External ears	Jelly covered eggs	Scales
A	✓	✓	x	x
B	✓	x	✓	✓
C	x	✓	x	x
D	x	x	✓	✓

Key
 ✓ = present
 x = absent

36 Which factor will cause a decrease in population size?

- A Decreased death rate
- B Decreased disease
- C Decreased food supply
- D Decreased predation

37 The diagram shows part of the carbon cycle.



What does arrow **X** represent?

- A Decay
 - B Nutrition
 - C Photosynthesis
 - D Respiration
- 38 Which of the following is an effect of deforestation?
- A Decreased carbon dioxide content in the air.
 - B Decreased flooding of low laying land.
 - C Increased rainfall.
 - D Increased rate of soil erosion.
- 39 Some examples of the waste products of human activity are;
1. Discarded household rubbish.
 2. Excess fertiliser
 3. Industrial chemicals
 4. Untreated sewage

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Which of these can cause increased growth of aquatic plants?

- A 1 and 2
 - B 1 and 3
 - C 2 and 4
 - D 3 and 4
- 40 Which of the following is a sustainable use of resources?
- A Deforestation
 - B Game keeping
 - C Over fishing
 - D Over hunting