

EXAMINATIONS COUNCIL OF ZAMBIA



Examination for General Certificate of Education Ordinary Level

Biology

5090/1

Paper 1 Multiple Choice

Tuesday

9 AUGUST 2022

Additional Materials:

Multiple Choice answer sheet

Soft clean eraser

Soft pencil (type B or HB is recommended)

Time: 50 minutes

Marks: 40

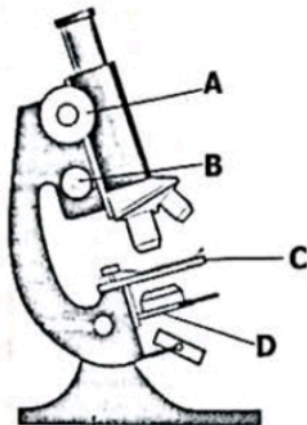
Instructions to Candidates

1. Ensure that the school/centre name and subject paper, subject code, number, centre code, your examination number and the year are correctly printed and shaded on the Answer Sheet.
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 in 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 are not allowed in the examination room.

- 1 Which of the following lists contains **only** non-living things in an environment?
- A Rocks, snails, grass
 - B Snails, water, mushroom
 - C Soil, trees, worms
 - D Sunlight, water, soil
- 2 The diagram shows a light microscope.



Which of the labelled parts moves the objective lenses quickly up and down and brings into focus the image under the low power magnification?

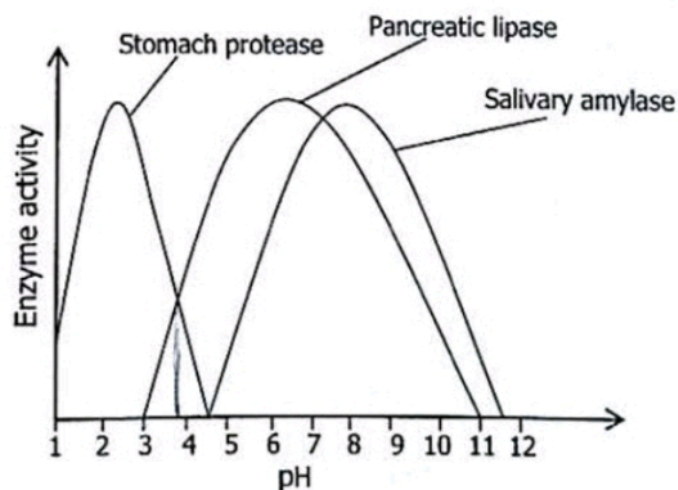
- 3 The diagram shows an animal cell.



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Which of the following components of a cell is **not** found in the cell?

- A Cell membrane
 - B Chloroplasts
 - C Cytoplasm
 - D Nucleus
- 4 The diagram shows the activity of salivary amylase, pancreatic lipase and stomach protease at different pH values.



From the graph, what is the optimum pH value for the enzyme protease?

- A 2.0
- B 3.5
- C 6.5
- D 8.0

- 5 The table shows food tests carried out to investigate the presence of reducing sugars in an apple fruit.

	Method	Result/observation
A	Benedict's solution test	Solution turns from blue colour to orange
B	Biuret Reagent test	Reagent remains blue-green in colour
C	Emulsion test	Ethanol remains clear/colourless
D	Iodine solution test	Iodine remains yellow in colour

Which of the tests shows a positive result?

- 6 Which of the following is a disorder resulting from lack of proteins in a diet of a child?
- A Anaemia
 - B Kwashiorkor
 - C Obesity
 - D Rickets
- 7 A pregnant woman was advised at the hospital to eat food containing adequate amount of iron. What is the importance of iron in the diet of a pregnant woman?
- A Formation of haemoglobin for the foetus.
 - B Formation of proteins for the growth of the foetus.
 - C Formation of strong bones of the foetus.
 - D Regulation of blood pH in the foetus.

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- 8 What are the functions of magnesium and nitrogen ions in plants?

	Magnesium ions	Nitrogen ions
A	Formation of amino acids	Formation of chlorophyll
B	Formation of chlorophyll	Formation of amino acids
C	Formation of ATP	Formation of chlorophyll
D	Formation of nitrates	Formation of ATP

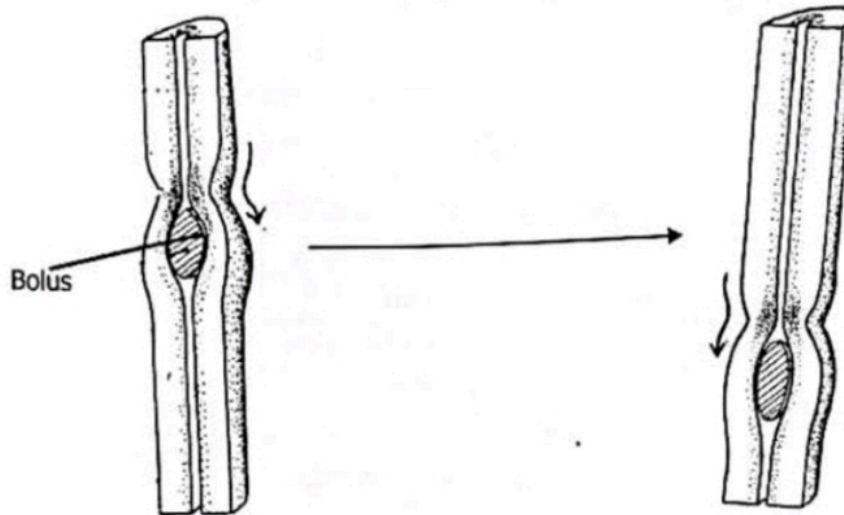
- 9 The following is the dental formula of a dog.

$$i\frac{3}{3}, c\frac{1}{1}, pm\frac{4}{4}, m\frac{2}{3}$$

How many premolars are there in the mouth of this dog?

- A 4
- B 8
- C 10
- D 16

- 10 The diagram illustrates the movement of a bolus of food through the oesophagus.



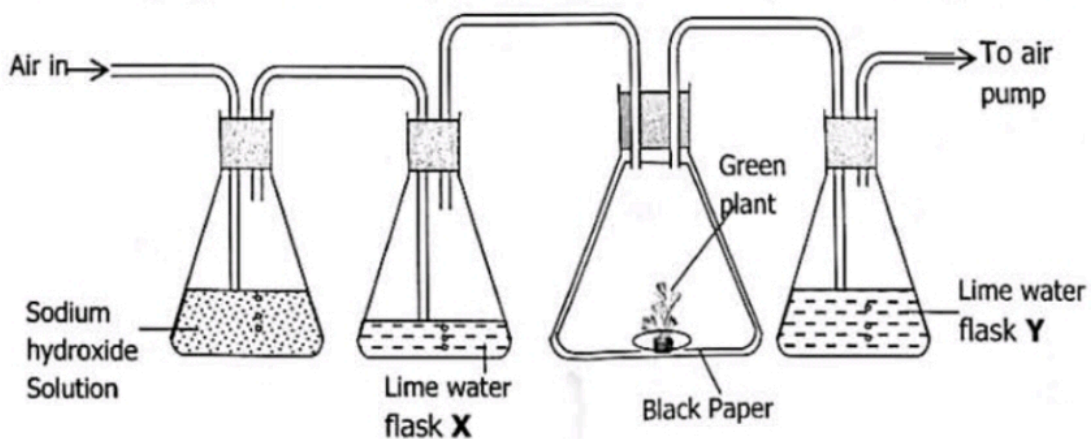
This process is referred to as ...

- A assimilation.
 - B egestion.
 - C ingestion.
 - D peristalsis.
- 11 Which of the following is **not** an effect of an ailment of the liver?
- A High blood sugar
 - B Low blood pressure
 - C Low toxin levels in the blood
 - D Poor bile formation
- 12 Which of the following occur during inhalation in fish?

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	Operculum	Pressure inside mouth	Floor of the mouth
A	Closed	Reduced	Lowered
B	Closed	Increased	Lowered
C	Open	Reduced	Raised
D	Open	Increased	Raised

- 13 The following apparatus was set up to investigate one of the products of respiration.



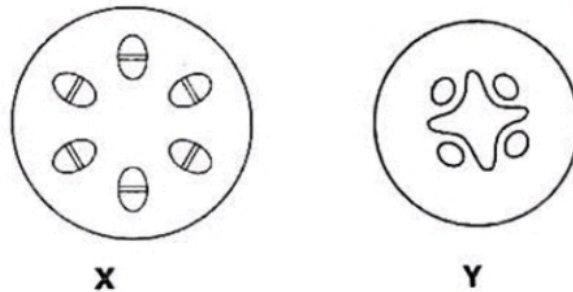
What would happen to the lime water in flasks **X** and **Y** when the pump is switched on?

	Flask X	Flask Y
A	Becomes cloudy	Becomes cloudy
B	Becomes cloudy	Stays clear
C	Stays clear	Becomes cloudy
D	Stays clear	Stays clear

14 Which of the following are symptoms of a disease?

- A** Body weight loss, toothache, headache
- B** Coughing, body weight loss, diarrhoea
- C** Diarrhoea, vomiting, high body temperature
- D** Headache, toothache, high body temperature

15 The diagrams show cross sections of a stem and root of a plant.

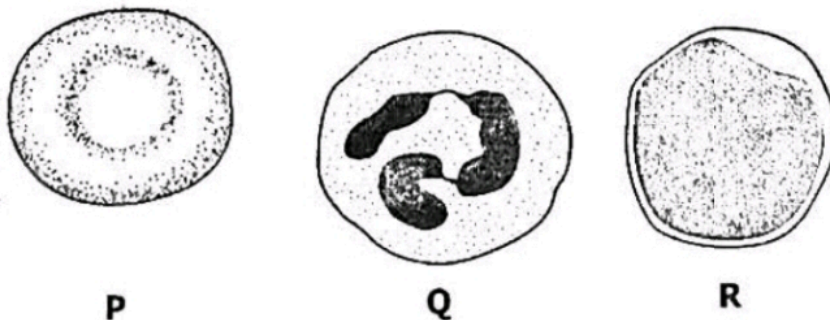


Which of the following correctly identifies the parts of the plant?

	X	Y
A	Dicot stem	Dicot root
B	Dicot root	Dicot stem
C	Monocot root	Monocot stem
D	Monocot stem	Monocot root

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16 The diagrams show some components of blood.



What are the functions of these components of blood?

	P	Q	R
A	Clotting of blood	Transport oxygen	Produce antigen
B	Produce antigen	Produce antibodies	Engulf pathogens
C	Transport oxygen	Engulf pathogens	Produce antibodies
D	Transport oxygen	Engulf bacteria	Clotting of blood

What is the function of lymph nodes?

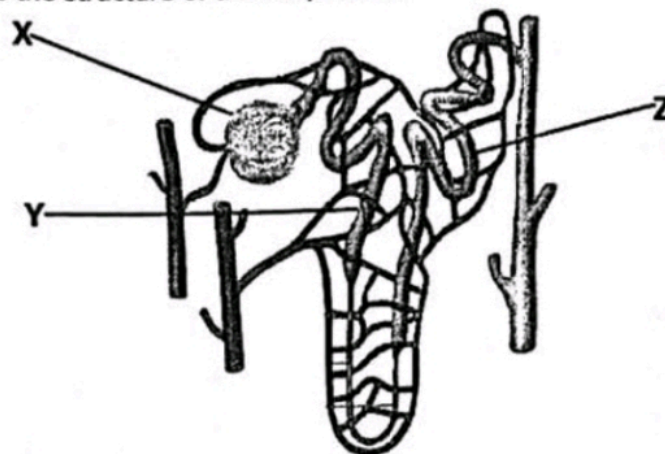
Flow of blood

Flow of lymph

Arises

Produce fatty acids and glycerol

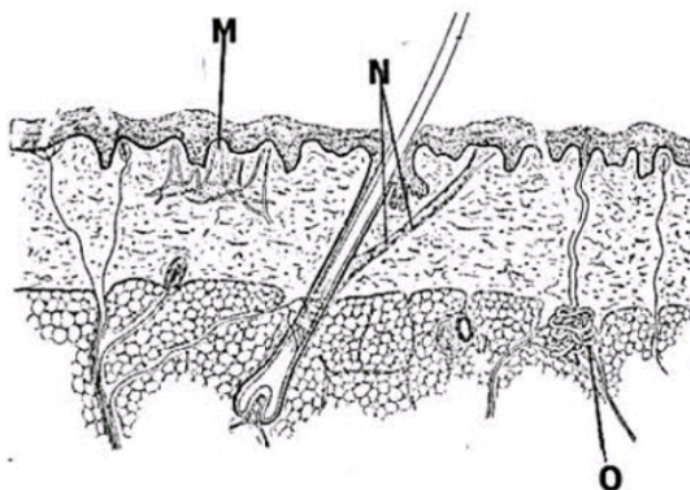
18 The diagram shows the structure of a kidney tubule.



Which of these correctly identifies where ultrafiltration, reabsorption and osmoregulation occur?

	Ultrafiltration	Reabsorption	Osmoregulation
A	X	Y	Z
B	X	Z	Y
C	Y	X	Z
D	Z	X	Y

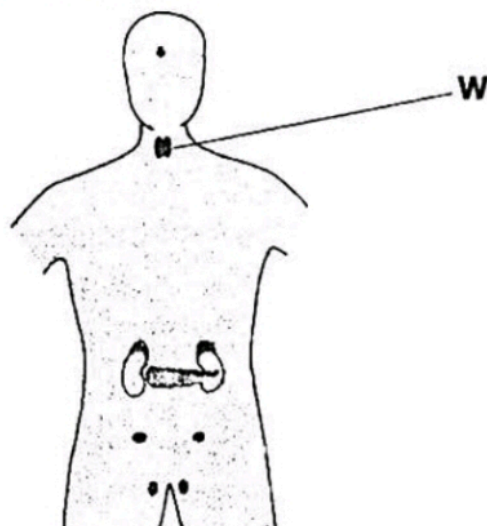
19 The diagram shows the human skin.



What happens to the parts labelled M, N, and O on a cold day in order to regulate body temperature?

	M	N	O
A	Constricts	Contracts	Does not produce sweat
B	Constricts	Relaxes	Does not produce sweat
C	Dilates	Contracts	Produces sweat
D	Dilates	Relaxes	Produces sweat

- 20 The diagram shows glands of the endocrine system.

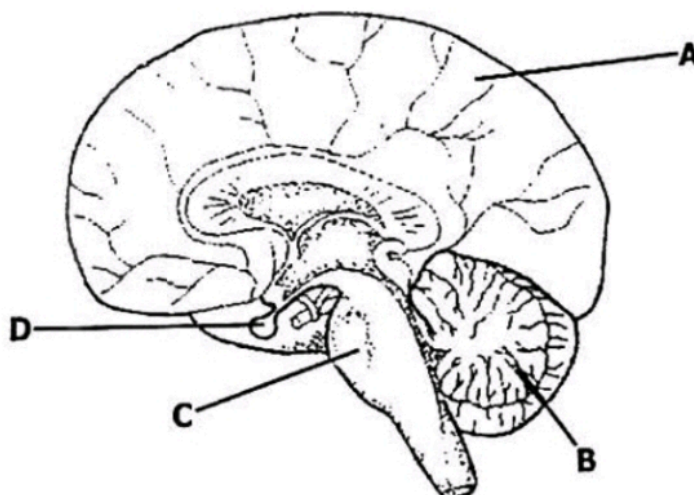


What is the name and function of the hormone produced in the structure labelled **W**?

	Hormone	Function
A	Adrenaline	Prepares the body to react to an emergency
B	Insulin	Stimulates the conversion of glucose to glycogen
C	Oestrogen	Stimulating formation of follicle cells.
D	Thyroxine	Regulating metabolic rate of the body

- 21 The diagram shows a section of the human brain.

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Which of the labelled parts is responsible for reasoning?

- 22 Deafness can best be prevented by ...
- A** cleaning ears regularly with hard materials.
 - B** cleaning ears regularly with soft materials.
 - C** listening to loud music regularly.
 - D** listening to soft music regularly.

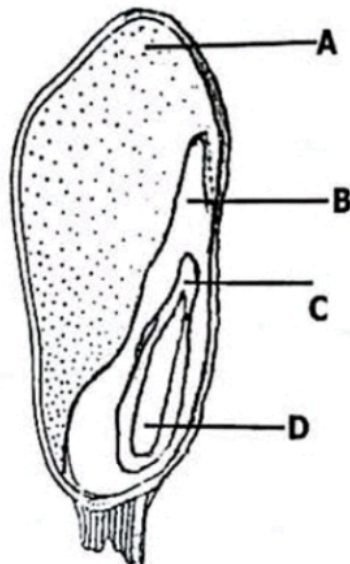
- 23 Which of the following correctly compares a ball and socket joint and a hinge joint?

	Ball and Socket Joint	Hinge Joint
A	Allows movement in all planes	Allows movement in one plane
B	Allows movement in one plane	Allows movement in all planes
C	Allows rotating movements	Bones are tightly held together by fibres
D	Bones are tightly held together by fibres	Allows rotating movements

- 24 When light is switched on in a dark room where there are cockroaches, the cockroaches move away from light and quickly hide in dark places.
This is an example of ...

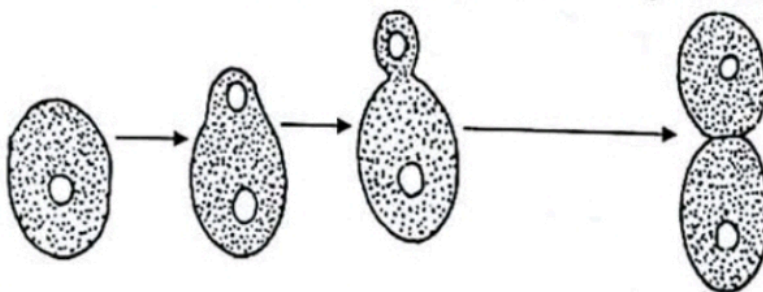
- A positive phototaxis.
- B positive phototropism.
- C negative phototaxis.
- D negative phototropism.

- 25 The diagram shows a longitudinal section through a monocot seed.



Which of the labelled parts is **not** present in a dicot seed?

- 26 The diagram shows stages of asexual reproduction in a yeast cell.



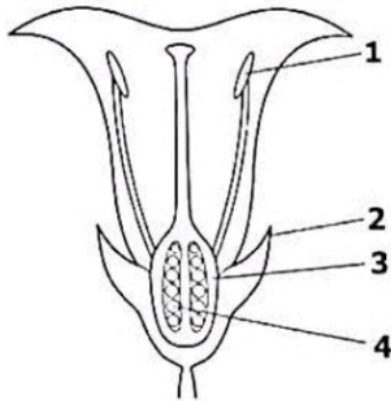
What type of asexual reproduction is illustrated in the diagram?

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

27 Which of these plant parts can be used during vegetative reproduction?

- A Fruit
- B Leaf bud
- C Ovary
- D Seed

28 The diagram shows a longitudinal section of a flower.



Which parts will continue growing after fertilisation has taken place?

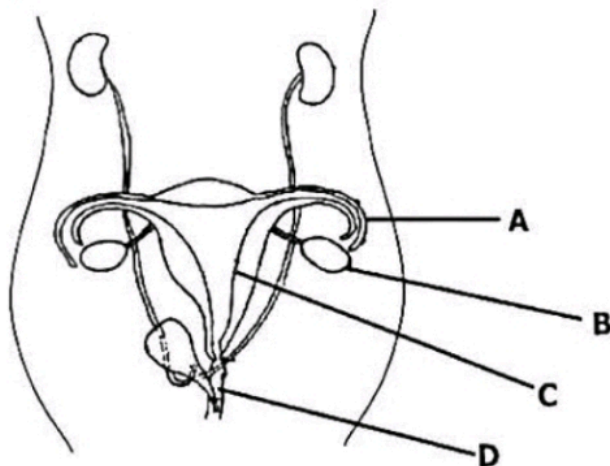
- A 1 and 2
- B 1 and 3
- C 2 and 3
- D 3 and 4

29 Which of the methods of seed/fruit dispersal carries the seeds the shortest distance?

- A Animal
- B Self
- C Water
- D Wind

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30 The diagram shows the female reproductive system and its associated structures.



Which labelled part identifies where implantation occurs?

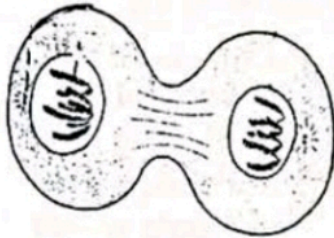
31 Which of the following is **not** a cause of infertility in human beings?

- A Alcoholism
- B Blocked oviduct
- C Ovulation disorder
- D Poor nutrition

32 What method of birth control affects the normal functioning of hormones?

- A Contraceptive pills
- B Condom
- C IUD
- D Tubal ligation

33 Which stage of mitosis is illustrated in the diagram?



- A Anaphase
- B Metaphase
- C Prophase
- D Telophase

34 Two individuals who had normal skin colour had a child who was an albino. What is the probability that they will have another child who is an albino?

- A 0.25
- B 0.50
- C 0.60
- D 0.75

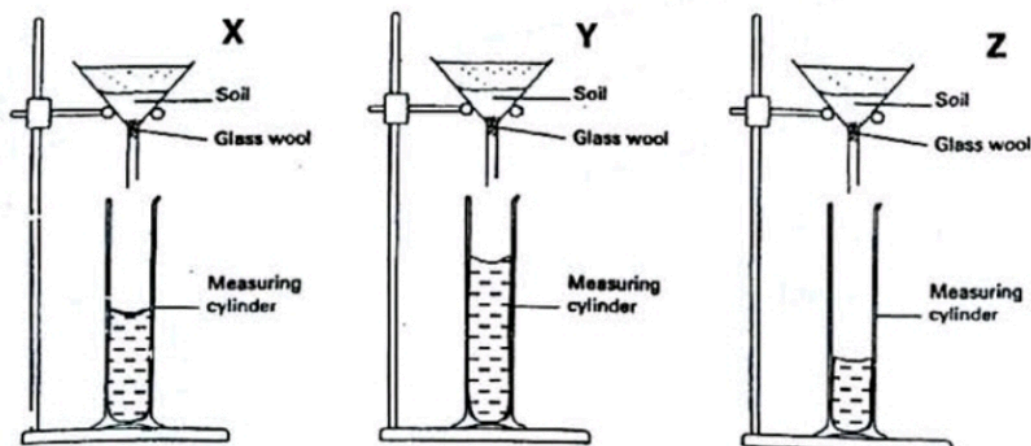
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35 Which of the following lists of organisms consists of only vertebrates?

- A Amphibians, birds, fish and protozoa
- B Arthropods, birds, reptiles and mammals
- C Birds, fish, reptiles and protozoa
- D Birds, reptiles, fish and mammals

36 An experiment was carried out to investigate the drainage of three different types of soil samples X, Y and Z. Same amount of each type of soil was placed in a funnel and same volume of water was poured into the funnels. The experiment was allowed to stand for an hour.

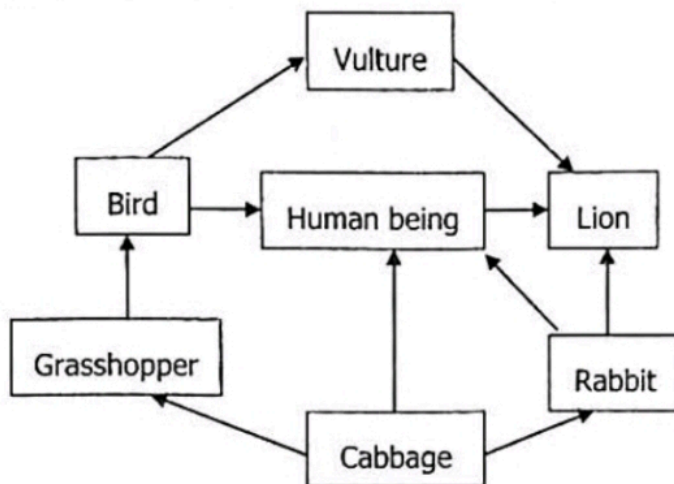
The diagrams show results of the experiment.



Which of the following identifies the different types of soil samples?

	Soil X	Soil Y	Soil Z
A	Clay	Loam	Sand
B	Clay	Sand	Loam
C	Loam	Sand	Clay
D	Loam	Clay	Sand

37 The figure shows a food web in a given ecosystem.



How many herbivores are there in this food web?

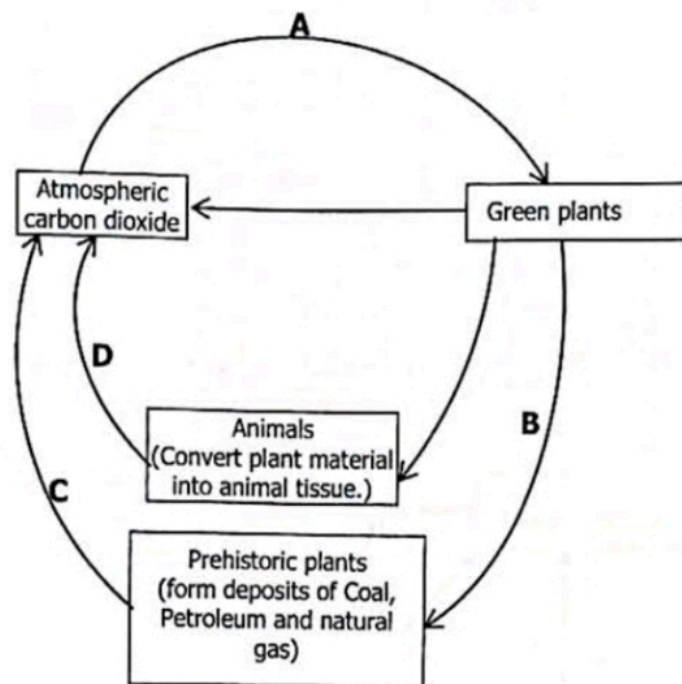
- A** 1
- B** 2
- C** 3
- D** 4

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38 The following are factors that can cause a change in the human population except ...

- A** disease.
- B** earthquakes.
- C** immigration.
- D** number of species.

39 The diagram shows the Carbon Cycle.



Which of the labelled processes removes carbon from the atmosphere?

40 What is the negative effect of over use of fertilisers in a farmland near a stream?

- A Acid rain formation
- B Eutrophication
- C Global warming
- D Soil erosion

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