

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level

Biology

5090/1

Paper 1 Multiple Choice

Monday

30 JULY 2018

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.

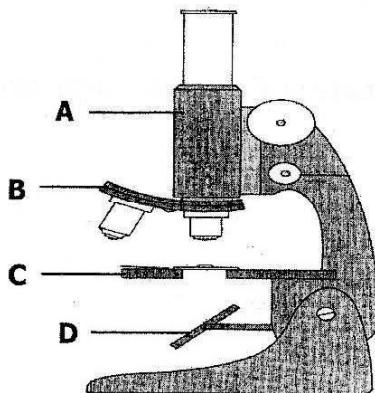
Information for Candidates

Each correct answer will score one mark.

Any rough working should be done in this Question Paper.

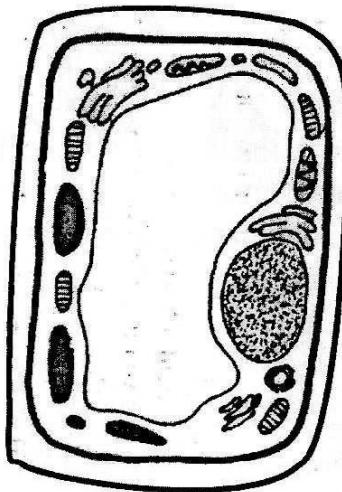
Cell phones are not allowed in the examination room.

- 1** The diagram shows a light microscope.



Which labelled part supports the objective lens and is rotated to bring the lens of desired magnification into position?

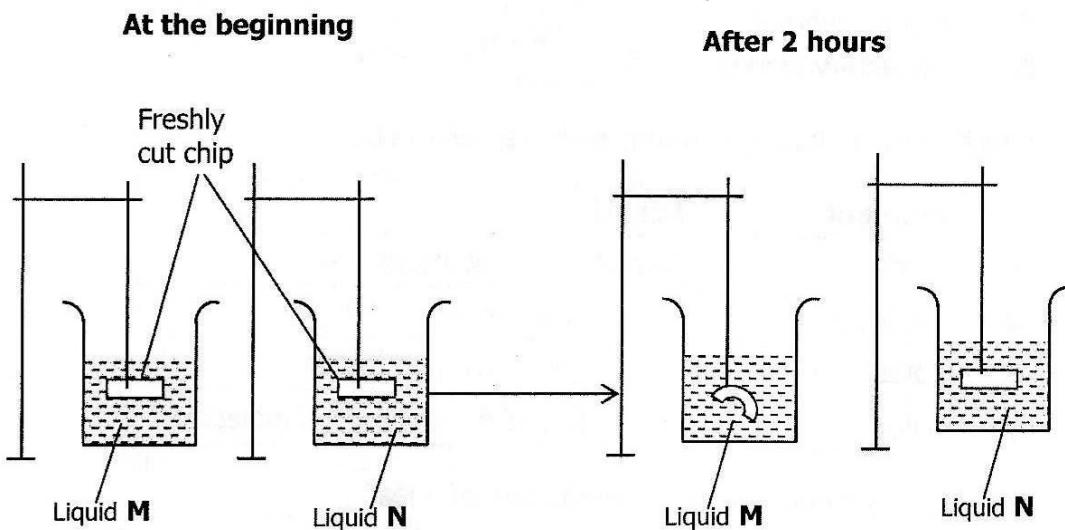
- 2** The diagram shows a cell as seen under an electron microscope.



What type of cell is shown?

	Type of cell	Reason
A	Animal	Outer layer is cell membrane
B	Animal	No chromosomes are visible
C	Plant	Presence of cytoplasm
D	Plant	Cell wall is visible

- 3 The diagram shows freshly cut potato chips, one chip suspended in liquid **M** and another suspended in liquid **N**.



Which one of the following correctly identifies liquids **M** and **N**?

	Liquid M	Liquid N
A	Concentrated sugar solution	Pure water
B	Dilute sugar solution	Concentrated sugar solution
C	Pure water	Concentrated sugar solution
D	Pure water	Dilute sugar solution

- 4 Which of the following best describes the function of enzymes?
- A To accelerate metabolic activities.
 - B To breakdown food molecules.
 - C To catalyse digestion.
 - D To make biochemical reactions possible.
- 5 Which combination of chemical elements is present in a protein molecule?

	Carbon	Hydrogen	Nitrogen	Oxygen
A	✓	✓	X	X
B	✓	✓	✓	X
C	✓	✓	X	✓
D	✓	✓	✓	✓

Key

✓ = element present

X = element absent

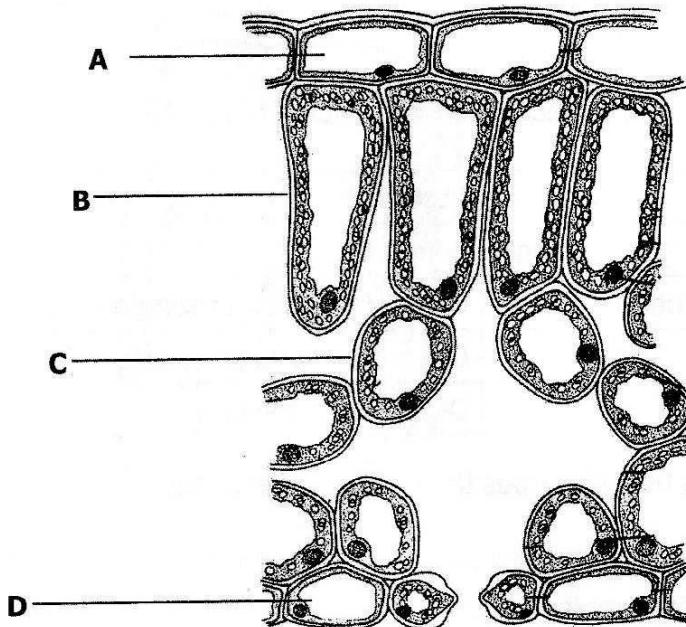
6 Which of the following people need a lot of carbohydrates in their diet?

- A** Lacting mother
- B** Malaria patient
- C** Manual worker
- D** Sedentary worker

7 Which of the following correctly shows a plant nutrient and its function?

	Element	Function
A	Calcium	Formation of middle lamina
B	Nitrogen	Activates enzymes
C	Potassium	Formation of ATP and NADP
D	Sulphur	Forms part of the chlorophyll molecule

8 The diagram shows the internal structure of a leaf.



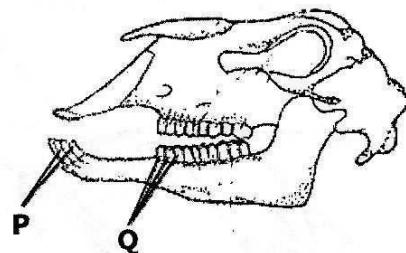
In which labelled cells is the rate of photosynthesis highest on a sunny day?

9 What type of nutrition is carried out by a Rhizopus?

- A** Chemotrophic
- B** Parasitic
- C** Phototrophic
- D** Saprophytic



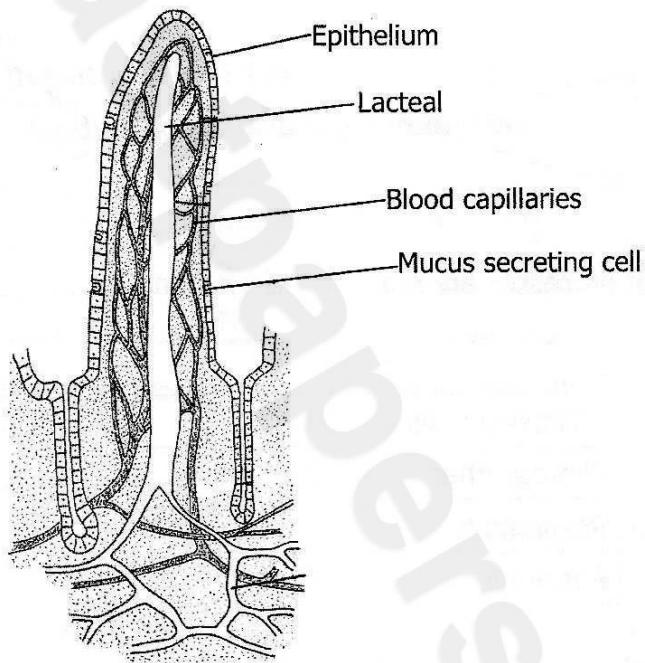
- 10** The diagram shows a skull of a herbivore.



What type of teeth are represented by **P** and **Q**?

	P	Q
A	Canines	Molars
B	Canines	Incisors
C	Incisors	Premolars
D	Incisors	Molars

- 11** The diagram shows a villus.

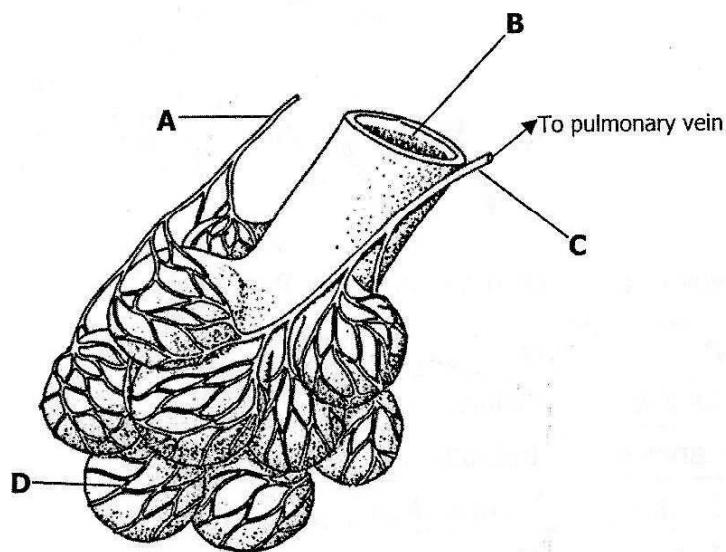


In which of the labelled structures are amino acids and glucose absorbed and transported?

- A** Lacteal
- B** Blood capillaries
- C** Epithelium
- D** Mucus secreting cell

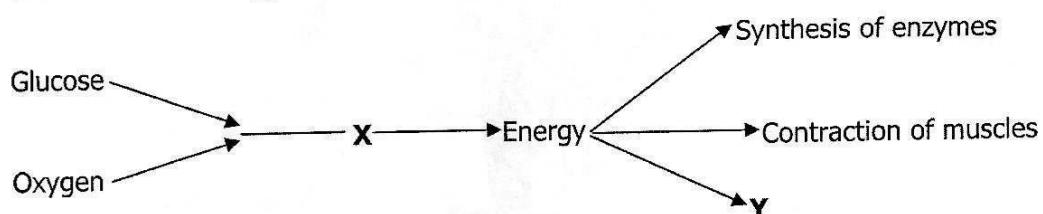


- 12** The diagram shows some of the structures in a human lung.



At which point is the oxygen concentration lowest?

- 13** Glucose is an energy source needed for body processes to occur.



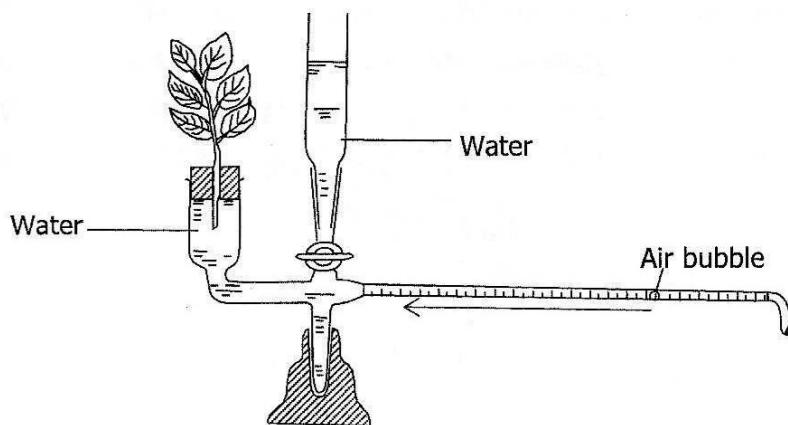
What processes are represented by X and Y?

X	Y
A Photosynthesis	Growth
B Photosynthesis	Respiration
C Respiration	Growth
D Respiration	Photosynthesis

- 14** Which of the following forms of drug abuse leads to the highest risk of infection with the Human Immuno-deficiency Virus (HIV)?

- A** Cannabis (dagga) smoking
- B** Cigarette smoking
- C** Drinking alcohol
- D** Injecting heroin

- 15** The diagram shows a potometer.



Which of these factors will cause the fastest movement of the air bubble in the direction shown?

- 16** Mary has blood group **A**.

Which of the following is true about Mary's blood?

	Antigens on red blood cells	Antibodies in plasma
A	Antigen A	Anti-B antibodies
B	Antigen B	Anti-A antibodies
C	Antigen A and B	Both anti-A and anti-B antibodies
D	No antigen	No antibodies

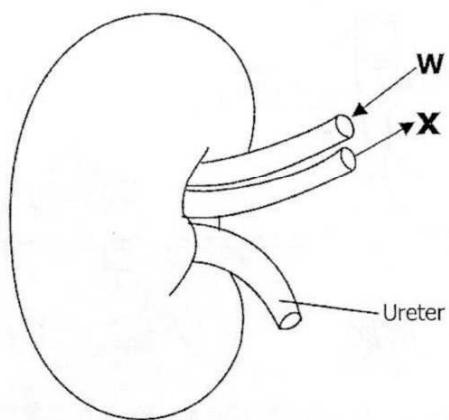
- 17** The table shows features of some blood vessels and the direction of blood flow in them.

	Feature		Direction of blood flow
	Muscle	Lumen	
1	Thick	Narrow	Away from the heart
2	Thick	Wide	Away from the heart
3	Thin	Narrow	Towards the heart
4	Thin	Wide	Towards the heart

Which blood vessel is the pulmonary artery?

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

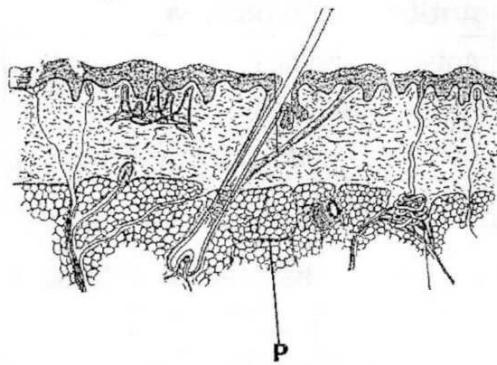
- 18** The diagram shows a human kidney and its blood supply.



Compared with the blood in vessel **W**, the blood in vessel **X** has ...

- A** less urea and less oxygen.
- B** less urea and more oxygen.
- C** more urea and less oxygen.
- D** more urea and more oxygen.

- 19** The diagram shows part of the human skin.



What is the function of layer **P**?

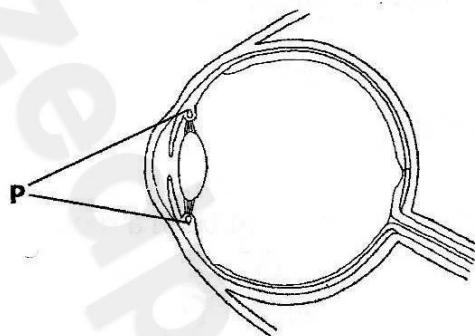
- A** Insulation against the cold
- B** Manufacture of skin pigment
- C** Rapid cell division
- D** Reducing water loss

- 20** Which hormone is responsible for regulation of water in the human body?

- A** Adrenaline
- B** Anti-diuretic hormone
- C** Glucagon
- D** Insulin

- 21 What are the physical effects of heroin?
- A Addiction occurs rapidly and rate of breathing increases.
 - B Causes anxiety and panic and increases sensitivity to pain.
 - C Reduces rate of breathing and causes anxiety and panic.
 - D Reduces sensitivity to pain and addiction occurs rapidly.

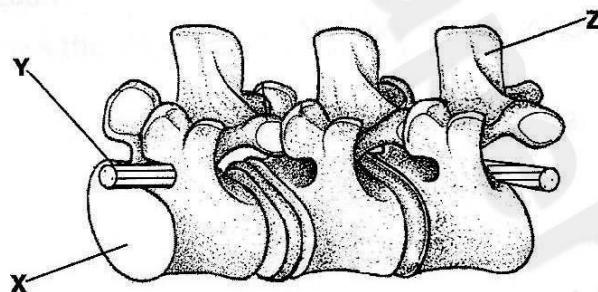
- 22 The diagram shows a section through the human eye.



What happens when muscle **P** contracts? The lens becomes ...

- A thicker to focus near objects.
- B thicker to focus distant objects.
- C thinner to focus distant objects.
- D thinner to focus near objects.

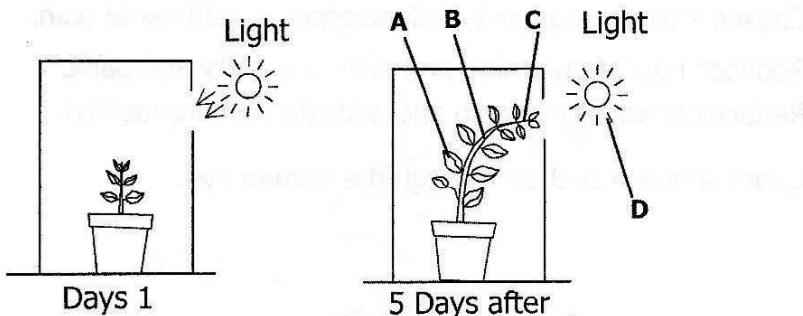
- 23 The diagram shows part of a vertebral column.



What are the parts labelled **X**, **Y** and **Z**?

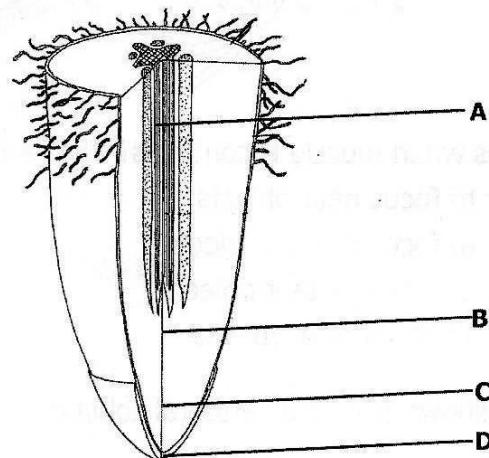
	Centrum	Neural spine	Spinal cord
A	X	Y	Z
B	X	Z	Y
C	Y	X	Z
D	Y	Z	X

- 24** The diagram shows two stages in the growth of a plant exposed to light from one side of a box.



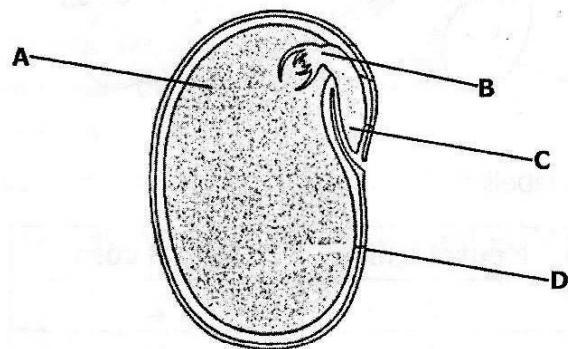
Which labelled part is the effector?

- 25** The diagram shows a longitudinal section through a root.



Which one is the region of cell division?

- 26** The diagram shows a longitudinal section of a seed.

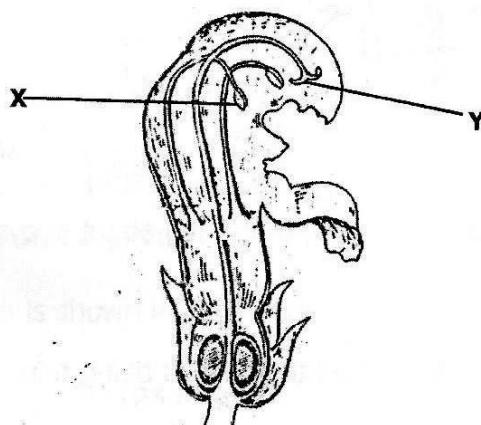


Which labelled structure would show the greatest loss in dry mass during the first week of germination?

27 Which of the following is true regarding vegetative propagation?

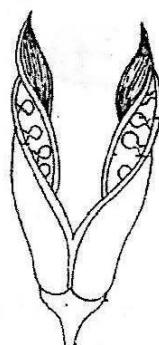
- A** Occurs naturally and artificially producing genetically identical plants.
- B** Occurs naturally and artificially producing genetically different plants.
- C** Occurs only artificially producing genetically similar plants.
- D** Occurs only naturally producing genetically similar plants.

28 The diagram shows a longitudinal section through a flower.



Which process occurs when pollen is transferred from **X** to **Y**?

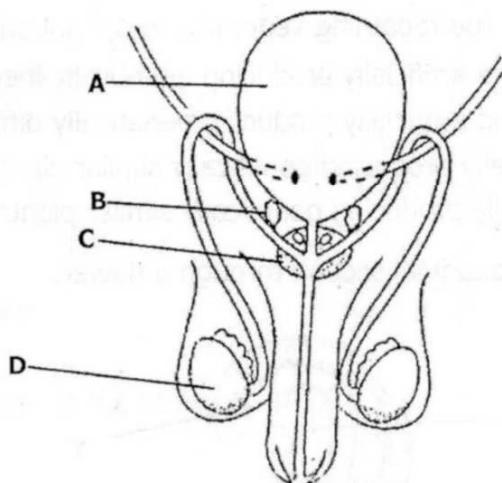
- A** Dispersal
 - B** Fertilisation
 - C** Pollination
 - D** Reproduction
- 29** The diagram shows the structure of a fruit in pea plants.



What method of dispersal is illustrated in the diagram?

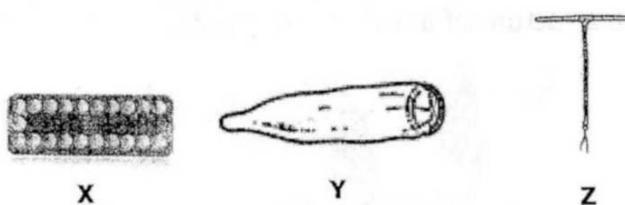
- A** Animal dispersal
- B** Self dispersal
- C** Water dispersal
- D** Wind dispersal

- 30** The diagram shows the male reproductive system.



In which structure are hormones that bring about secondary sexual characteristics produced?

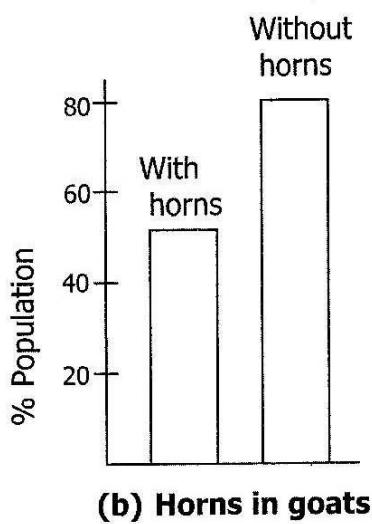
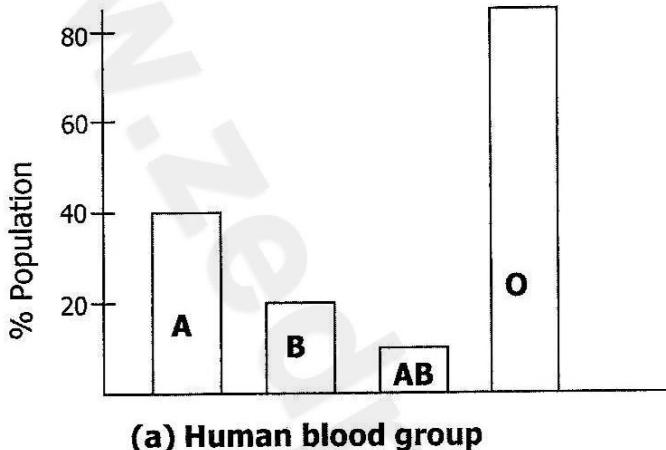
- 31** Which structure contracts when the baby is being born?
- A** Cervix
B Placenta
C Umbilical cord
D Uterus
- 32** The diagrams represent different methods of birth control.



Which birth control method is represented by **X**, **Y** and **Z**?

	X	Y	Z
A	Hormonal	Mechanical	Mechanical
B	Hormonal	Mechanical	Surgical
C	Mechanical	Mechanical	Surgical
D	Mechanical	Surgical	Mechanical

- 33 The bar chart (a) shows the percentage of each blood group in a human population, while the bar chart (b) shows the percentage of goats with horns and those without horns.

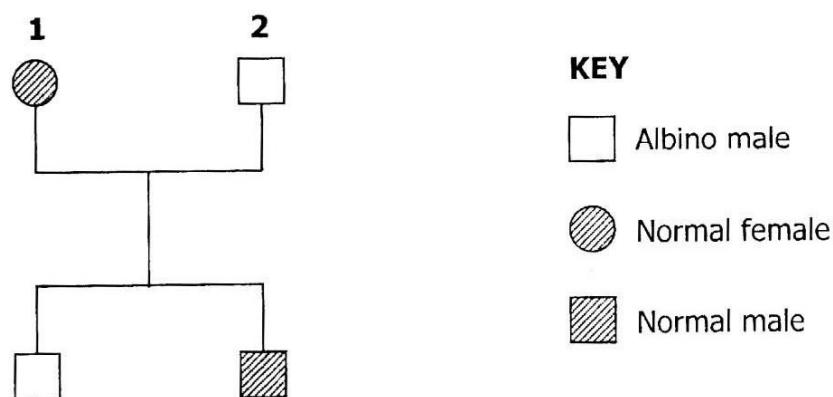


Which type of variation is shown in each population?

	Human blood groups	Horns in goat
A	Continuous	Continuous
B	Continuous	Discontinuous
C	Discontinuous	Continuous
D	Discontinuous	Discontinuous



- 34** The diagram shows the inheritance of albinism in a family. Albinism is caused by a recessive allele.



What are the genotypes of the parents **1** and **2**?

	1	2
A	Heterozygous	Heterozygous
B	Heterozygous	Homozygous dominant
C	Homozygous recessive	Heterozygous
D	Homozygous recessive	Homozygous recessive

- 35** The table shows some characteristics of four different vertebrates.

Which vertebrate is a reptile?

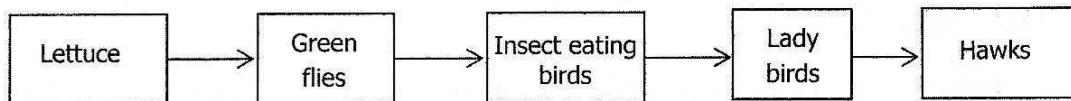
	Fins	Legs	Scales	Hair
A	✓	X	✓	X
B	X	✓	✓	X
C	X	✓	X	X
D	X	✓	X	✓

Key
 ✓ = Feature present
 X = Feature absent

- 36** Which soil component is important in giving soil a good crumb structure?

- A** Clay particles
- B** Humus
- C** Silt
- D** Sand particles

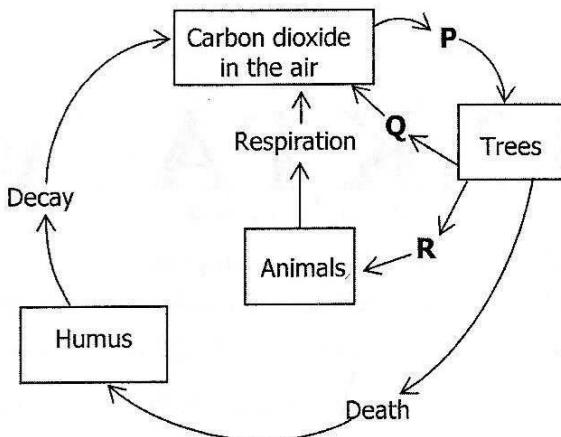
- 37** The diagram shows a food chain.



If the hawks are removed from this food chain, what is likely to happen to the number of the other organisms in this chain?

	Green flies	Insect eating birds	Lady birds
A	Decrease	Increase	Decrease
B	Decrease	Increase	Increase
C	Increase	Decrease	Decrease
D	Increase	Decrease	Increase

- 38** The diagram shows part of the carbon cycle in a forest. The letters **P**, **Q** and **R** represent different processes that occur during the carbon cycle.



Which of these processes are reduced in rate as a result of deforestation?

- A** P only.
 - B** P and Q only.
 - C** Q and R only.
 - D** P, Q and R.
- 39** Which pollutants of water can lead to eutrophication?
- A** Fertilizers and herbicides.
 - B** Fertilizers and sewage.
 - C** Herbicides and insecticides.
 - D** Insecticides and sewage.
- 40** What is the reason for conserving plant species?
- A** To absorb oxygen from the air.
 - B** To decrease rainfall.
 - C** To obtain drugs for medicinal use.
 - D** To release carbon dioxide into the air.



**DOWNLOAD ECZ
PAST PAPERS
FROM YOUR
PHONE OR PC**

www.zedpastpapers.com