

## SECTION A

### QUESTION 1

1.1.1 The common function of calcium and phosphorus in mammals is that it ...

- A forms part of nucleic acid.
- B plays a role in the synthesis of proteins.
- C prevents rickets.
- D is involved in the formation of haemoglobin.

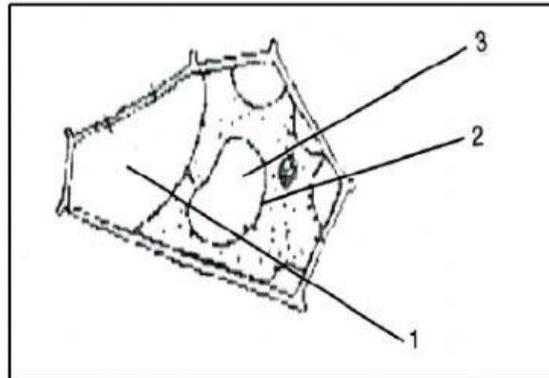
1.1.2 Which of the following substances are absorbed by the root hairs from the soil?

- (i) Mineral ions
  - (ii) Nitrates
  - (iii) Oxygen
  - (iv) Humus
  - (v) Water
- A Only (i) and (ii)
  - B (i), (ii), (iv) and (v)
  - C (i), (ii), (iii), (iv) and (v)
  - D (i), (ii), (iii) and (v)

1.1.3 In which of the following processes is mitosis NOT involved?

- A Production of sperms in the testes.
- B Replacement of cells in a cut through the skin.
- C Growth of an organism.
- D Production of identical daughter cells.

QUESTIONS 1.1.4 and 1.1.5 are based on the diagram below showing the cell placed in a strong salt solution.



1.1.4 The diagram above represents ...

- A diffusion.
- B osmosis.
- C plasmolysis.
- D turgor pressure.

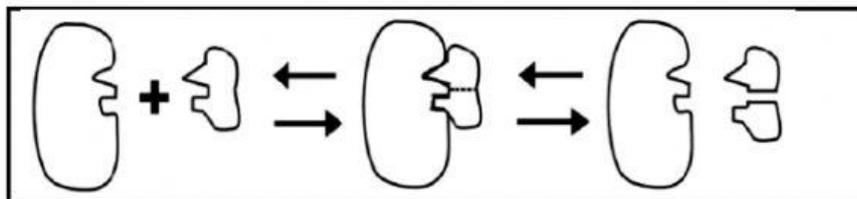
1.1.5 How will the water potential at 1, 2 and 3 compare?

- A Water potential at 2 and 3 higher than 1.
- B Water potential at 1, 2 and 3 are equal.
- C Water potential at 3 is higher than at 1 and 2.
- D Water potential at 1 is higher than at 2 and at 2 is higher than at 3.

1.1.6 Tomatoes are red because ...

- A more oxygen is absorbed by ripe tomatoes.
- B many chloroplasts are formed.
- C pigments are formed in cell sap.
- D many chromoplasts are formed.

1.1.7 Which property of enzymes is represented by the sequence of diagrams below?



- A Enzymes can speed up a chemical reaction.
- B Enzymes can lower the activation energy.
- C Enzymes are proteins.
- D Enzymes are specific in their function.

1.1.8 Which of the following are characteristics of erythrocytes?

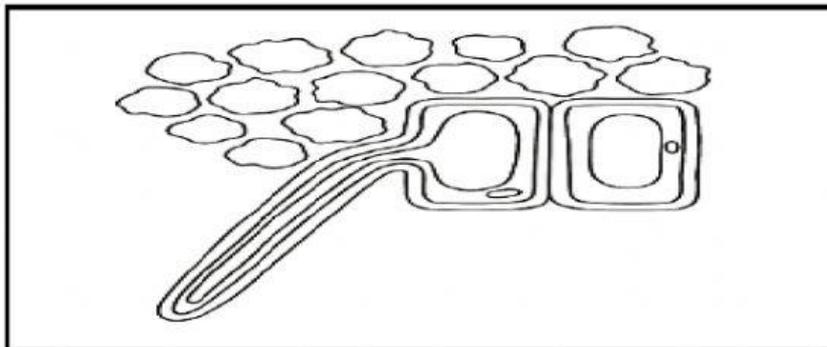
- (i) Contain haemoglobin.
- (ii) Destroy bacteria.
- (iii) Assists in blood clotting.
- (iv) Produced in spongy tissue of long erythrocytes.

- A (i) and (iv)
- B (ii) and (iii)
- C (iii) and (iv)
- D (i) and (ii)

1.1.9 The table below shows differences between plant and animal cells. Which comparison is **incorrect**?

	Plant cell	Animal cell
A	Large vacuole	Vacuole is small or absent
B	Cell membrane present	Cell membrane absent
C	Cellulose cell wall present	No cellulose cell wall
D	Chloroplasts present	No chloroplasts

1.1.10 Study the diagram below.



The main function of the plant organ in the diagram above is ...

- A transportation of water from roots to leaves.
- B storage of water and mineral salts.
- C increasing surface area for absorption.
- D movement of substances throughout the plant. (10 x 2) (20)

1.2 Give the correct **biological term** for each of the following descriptions.

1.2.1 Carbohydrate made up of three or more monosaccharides

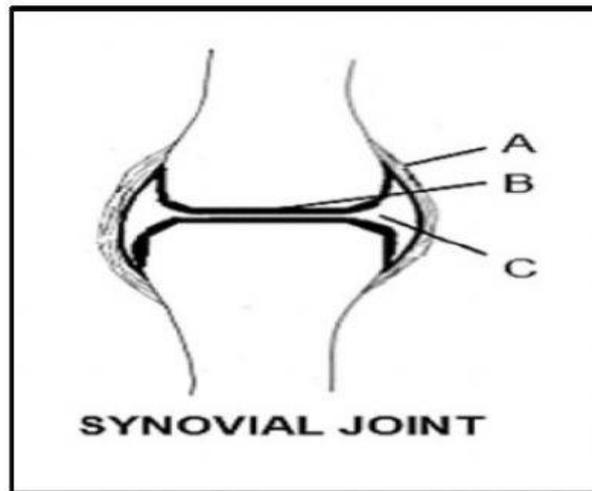
1.2.2 The chemical element in haemoglobin that is essential for the transport of oxygen

- 1.2.3 The waxy layer that covers the leaf, preventing excessive loss of water through evaporation
- 1.2.4 An opening through which the spinal cord leaves the skull
- 1.2.5 Blood group known as a universal donor
- 1.2.6 Use of chemical agents to treat cancer
- 1.2.7 Fats mainly derived from plants and are liquid at room temperature
- 1.2.8 The type of tissue in the vascular bundle causing secondary thickening
- 1.2.9 A collection of cells of the same type performing the same function
- 1.2.10 The loss of water in the form of vapour through aerial parts of a plant  
(10 x 1) (10)

COLUMN A		COLUMN B	
1.3.1	Reactions in which enzymes are involved	A:	Catabolic
		B:	Anabolic
1.3.2	The medium in which chemical reactions take place in the body	A:	Enzymes
		B:	Water
1.3.3	The scientist who invented the electron microscope in 1939	A:	Robert Hooke
		B:	Max Knott

(3 x 2) (6)

1.4 The diagram below represents a synovial joint.



1.4.1 Label parts A and B. (2)

1.4.2 Identify the synovial joint illustrated in the diagram above. (1)

1.4.3 Explain what would happen if fluid in the cavity labelled C dries out. (2)

1.4.4 Name TWO diseases that can affect the joints. (2)

1.5 Complete the table below that is based on chemical tests for organic food compounds:

Organic compounds	Chemical Reagents	Change for a positive result
Starch	1.5.1	Brown iodine solution turns blue-black colour
Proteins	1.5.2	1.5.3
1.5.4	Ether	1.5.5
1.5.6	1.5.7	Orange-brown colour results

(7)

TOTAL SECTION A: 50