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.

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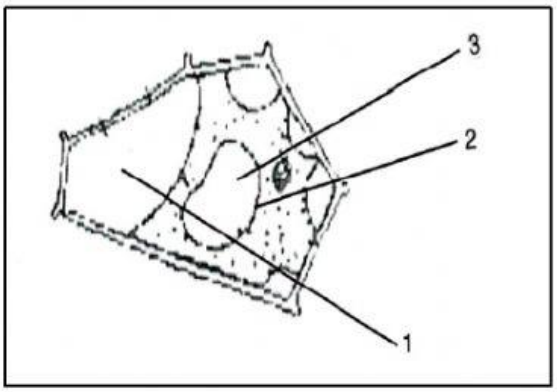
QUESTIONS 1.1.4 and 1.1.5 are based on the diagram below showing the cell placed in a strong salt solution.



1.1.4 The diagram above represents ...

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

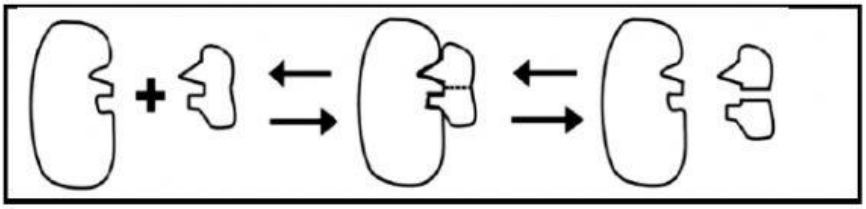
1.1.5 How will the water potential at 1, 2 and 3 compare?

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.

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1.1.8 Which of the following are characteristics of erythrocytes?

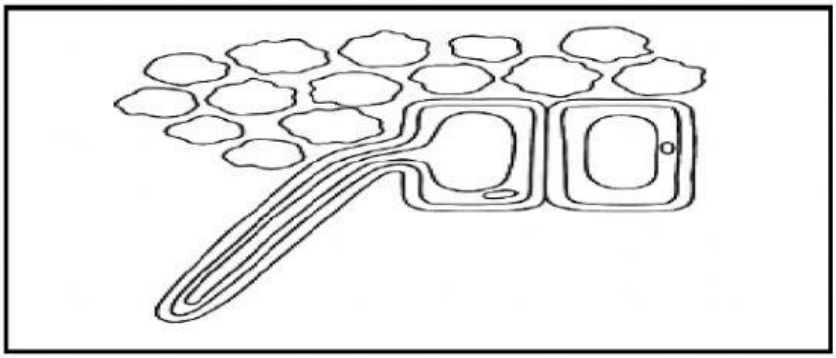
(i) Contain haemoglobin.
(ii) Destroy bacteria.
(iii) Assists in blood clotting.
(iv) Produced in spongy tissue of long erythrocytes.

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

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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)

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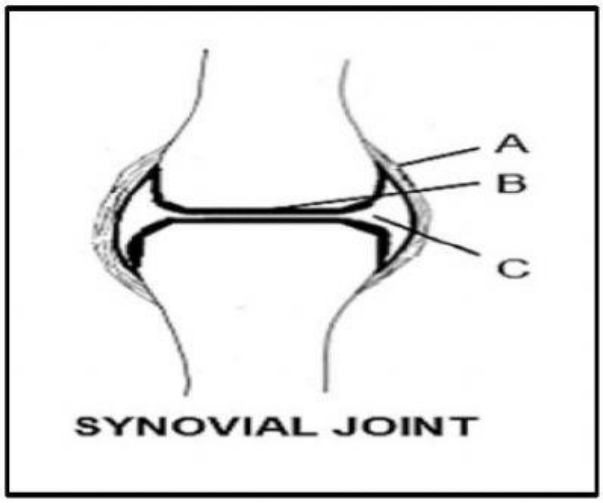
1.4 The diagram below represents a synovial joint.



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

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