Higher Combined version — Higher Tier (★) included; Separate-only (◆) removed.

Q1. Define osmosis. State what type of molecule moves.

[2 marks]

Q2. Explain what happens to a plant cell when placed in a concentrated salt solution.

[3 marks]

Q3. Explain why root hair cells use active transport to absorb mineral ions.

[2 marks]

Total: 7 marks

Q1 (2 marks)

Define osmosis. State what type of molecule moves.

• Movement of WATER MOLECULES [1] from high to low water potential through a partially permeable membrane [1]

Q2 (3 marks)

Explain what happens to a plant cell when placed in a concentrated salt solution.

• The salt solution has a lower water potential than the cell [1]
• Water moves out of the cell by osmosis [1]
• Cell membrane pulls away from cell wall (plasmolysis) — cell becomes limp/flaccid [1]

Q3 (2 marks)

Explain why root hair cells use active transport to absorb mineral ions.

• Concentration of minerals in soil water often lower than in root cells [1]
• Active transport uses ATP and carrier proteins to move minerals against the concentration gradient [1]