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

Q1. State ONE difference between a eukaryotic and a prokaryotic cell.

[1 mark]

Q2. A student observes a cell with a large permanent vacuole, a cell wall and mitochondria, but no chloroplasts. State the cell type and give THREE reasons for your answer.

[3 marks]

Q3. Describe the function of THREE organelles found in both animal and plant cells.

[3 marks]

Q4. Describe THREE structural features of a bacterial cell that differ from a plant cell.

[3 marks]

★ HIGHER TIER

Q5. ★ Explain how cells become specialised. Name TWO specialised cells and describe how their structure relates to their function.

[4 marks]

Total: 14 marks

Q1 (1 mark)

State ONE difference between a eukaryotic and a prokaryotic cell.

• Eukaryotic: membrane-bound nucleus; prokaryotic: no nucleus / circular DNA in cytoplasm [1] — accept: no membrane-bound organelles in prokaryotes

Q2 (3 marks)

A student observes a cell with a large permanent vacuole, a cell wall and mitochondria, bu…

• Plant cell [1]

• Has a cell wall (made of cellulose) [1]

• Has a permanent vacuole [1]

• Absence of chloroplasts indicates a non-photosynthetic plant cell (e.g. root cell) [1] — any 3 features with identification

Q3 (3 marks)

Describe the function of THREE organelles found in both animal and plant cells.

• Nucleus: contains DNA/chromosomes, controls cell activities [1]

• Mitochondria: site of aerobic respiration, produces ATP/energy [1]

• Ribosomes: site of protein synthesis [1]

Q4 (3 marks)

Describe THREE structural features of a bacterial cell that differ from a plant cell.

• Bacterial cell has no membrane-bound nucleus [1]

• Bacterial cell has circular DNA / may have plasmids [1]

• Bacterial cell has no chloroplasts or mitochondria (no membrane-bound organelles) [1]

Q5 (4 marks) [★ HT]

★ Explain how cells become specialised. Name TWO specialised cells and describe how their …

• Differentiation: genes are switched on or off causing structural changes [1]

• Red blood cell: no nucleus → more space for haemoglobin; biconcave → large surface area for O■ diffusion [1]

• Nerve cell: very long axon → rapid long-distance signal transmission; many dendrites → many connections [1]

• Sperm cell: flagellum → swimming; many mitochondria → energy for movement [1] — any 2 cells, 1 mark each for adaptation linked to function