Worksheet: The Fundamental Unit of Life

NIOS · Class 9 · Science · 15 questions · 43 marks

Name: _____ Date: _____ Score: _____ / 43

Q1. Who proposed the cell theory and what are its three main points? *[1 mark]*

Q2. Why are mitochondria called the powerhouse of the cell? *[1 mark]*

Q3. State any two differences between prokaryotic and eukaryotic cells. *[2 marks]*

Q4. Give three differences between a plant cell and an animal cell. *[2 marks]*

Q5. What will happen to (a) an animal cell, (b) a plant cell placed in a hypertonic solution? *[2 marks]*

Q6. Match each organelle with its function: (a) Ribosome, (b) Golgi apparatus, (c) Lysosome, (d) Smooth ER, (e) Chloroplast, (f) Nucleolus. *[3 marks]*

Q7. Three raisins are dipped (i) in plain water, (ii) in concentrated sugar solution, (iii) in pure ethanol. Describe what happens in each case and why. *[3 marks]*

Q8. Why does a wilted plant recover when watered, but a salted slug doesn't recover when placed in fresh water? *[3 marks]*

Q9. Why do mitochondria and chloroplasts have their own DNA? *[3 marks]*

Q10. How do diffusion and osmosis differ from each other? Give one example of each from your own body. *[3 marks]*

Q11. Compare RER, SER, Golgi apparatus and lysosomes by stating one defining structural feature and one function each. *[4 marks]*

Q12. A doctor administers fluids to a dehydrated patient. He chooses 0.9 % saline instead of pure water. Explain his reasoning at the cell level. *[4 marks]*

Q13. If lysosomes burst by accident inside a healthy cell, what would happen? Why are they called 'suicide bags'? *[4 marks]*

Q14. Why are cells small in size (typically 10–100 µm)? Give two scientifically-grounded reasons. *[4 marks]*

Q15. You're shown a microscope image of a cell. It has a rigid, brick-shaped boundary, a single large clear central cavity, and several green oval bodies. Identify the cell type and the named organelles. *[4 marks]*