

## Worksheet: The Fundamental Unit of Life

Uttar Pradesh State Board · 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]*

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

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

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

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

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

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**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]

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

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

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

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

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**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]

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

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**Q14.** Why are cells small in size (typically 10–100  $\mu\text{m}$ )? Give two scientifically-grounded reasons. [4 marks]

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**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]

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