

## **Module 04: Cellular Function — Study Questions**

1. What are the three main principles of cell theory?
2. Who were some of the scientists that contributed to the development of cell theory?
3. Why is the cell considered the basic unit of life?
4. What is the main structural difference between prokaryotic and eukaryotic cells?
5. Give two examples of organisms with prokaryotic cells and two with eukaryotic cells.
6. What structures do both prokaryotic and eukaryotic cells have in common?
7. What is the function of the nucleus, and why is it called the "control center" of the cell?
8. How do ribosomes differ from other organelles, and what is their function?
9. Compare the functions of rough endoplasmic reticulum and smooth endoplasmic reticulum.
10. What is the role of the Golgi apparatus in processing and packaging proteins?
11. What would happen to a cell if its lysosomes stopped functioning?
12. What is the primary function of mitochondria, and why are they called the "powerhouses" of the cell?
13. Explain the endosymbiotic theory and describe evidence that supports it.
14. Why do plant cells have both mitochondria and chloroplasts?
15. What three structures are found in plant cells but not in typical animal cells?
16. How does the cell wall provide advantages to plant cells?
17. What are the three main components of the cytoskeleton, and what does each do?
18. How do cilia and flagella differ in structure and function?