

## Module 07: Mitosis — Study Questions

1. What are the main stages of the cell cycle, and what happens during each?
2. Why do cells need to divide?
3. What occurs during the S phase of interphase?
4. Why is it important for a cell to grow and prepare before dividing?
5. Why must DNA be replicated before a cell divides?
6. What is the semi-conservative model of DNA replication?
7. What role does DNA polymerase play in replication?
8. Why is it important that DNA replication is highly accurate?
9. What is the difference between chromatin and chromosomes?
10. After DNA replication, what holds the two copies of a chromosome together?
11. What is a centromere, and where is it located?
12. What are the four main stages of mitosis? List them in order.
13. What happens to the nuclear envelope during prophase?
14. During which stage do chromosomes line up in the middle of the cell?
15. What happens during anaphase that ensures each daughter cell gets one copy of each chromosome?
16. What is the mitotic spindle, and what is its function?
17. What is cytokinesis, and when does it occur?
18. How does cytokinesis differ between animal cells and plant cells?

19. What are cell cycle checkpoints, and why are they important?

20. How is cancer related to problems with cell cycle control?