

CHAPTER 9.1—9.2, 17.4: Cell Cycle Control

1. List the four essential steps of any form of cell division.

a. _____

b. _____

c. _____

d. _____

2. List the key differences between prokaryotes and eukaryotes that make these two processes different.

3. Below is a list of the phases of the cell cycle. Write a brief description of what occurs in each phase.

a. G1 _____

b. S _____

c. G2 _____

d. M _____

e. C _____

4. How does interphase fit into this cell cycle organization listed above?

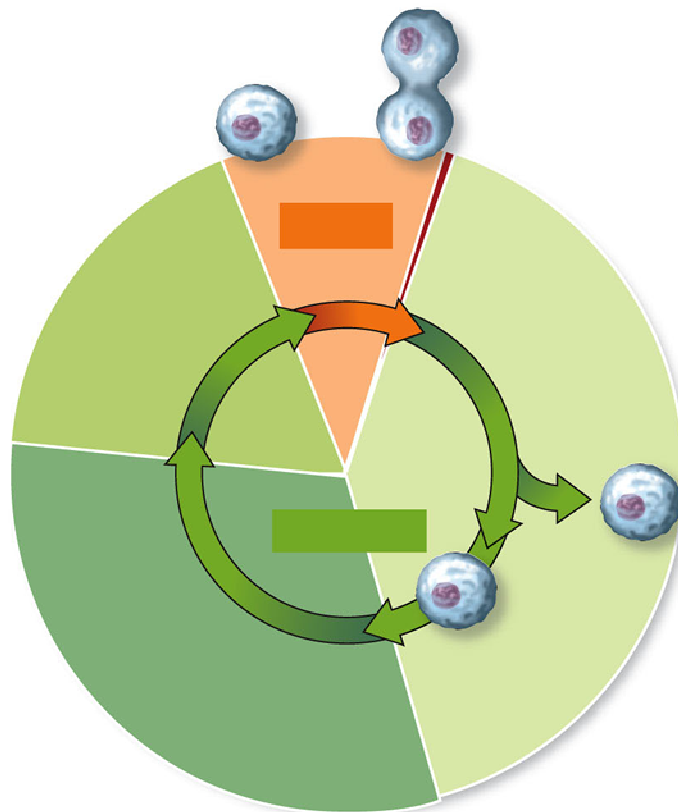
5. What is meant by the concept that cells go through a cell cycle?

6. Do all cells go through the cell cycle at the same rate or at the same frequency? Explain.

7. What is meant by the G₀ phase.

8. What is the significance of cells that are permanently in G₀ phase?

9. Label the diagram of the cell cycle. Indicate where certain checkpoints are.



10. What is the G1/S checkpoint and where does it fit into the cell cycle?

11. What cell conditions are being monitored at the G1/S checkpoint?

12. What is the G2/M checkpoint and where does it fit into the cell cycle?

13. What cell conditions are being monitored at the G2/M checkpoint?

14. Why is the regulation of the cell cycle critical to normal function in the multicellular organism?

15. For each of the following, takes notes about what type of molecule they are and their role in the cell cycle.

a. Cdk's - _____

b. cyclins - _____

c. growth factors - _____

Name: _____

Note Set 21

16. What is the relationship between cancer and mitosis?

17. What is the role of the p53 gene?

18. What are tumor suppressor genes?
