

Biology Chapter 9 Test: Cellular Reproduction

True/False

Indicate whether the statement is true or false.

- ___ 1. The cell cycle is divided into interphase and mitosis.
- ___ 2. During prophase in an onion root tip cell, centrioles migrate to the poles of the cell.
- ___ 3. In plant cells, cytokinesis begins with a furrow that pinches the cell.
- ___ 4. Stem cells are only of one type: embryonic.

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 5. By the end of prophase, each of the following has occurred except _____.
 - a. tighter coiling of the chromosomes
 - b. breaking down of the nuclear envelope
 - c. disappearing of the nucleolus
 - d. lining up of chromosomes in the cell
- ___ 6. The chromosomes shown in Figure 9-1 are in which state of mitosis?

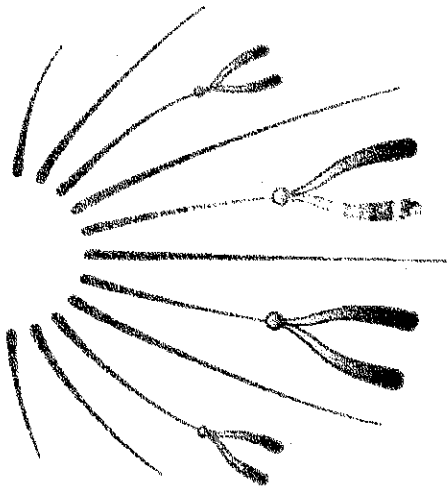


Figure 9-1

- a. prophase
- b. metaphase
- c. anaphase
- d. telophase

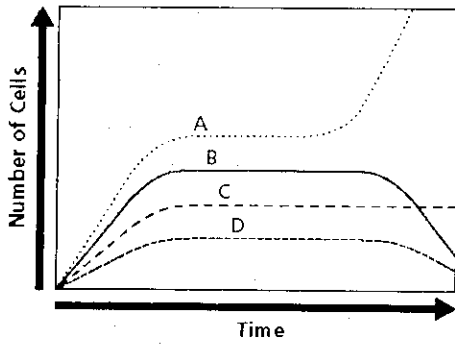


Figure 9-2

- _____ 7. Which of the cells depicted in the line graph in Figure 9-2 are most likely cancerous?
- | | |
|------|------|
| a. A | c. C |
| b. B | d. D |
- _____ 8. Which of the following does *not* occur as a cell grows larger and larger in size?
- difficulty obtaining nutrients
 - difficulty eliminating wastes
 - ratio of surface area to volume increases
 - diffusion across the cell membrane is impaired
- _____ 9. Why is the synthesis stage called this?
- because protein synthesis is taking place
 - because DNA synthesis is taking place
 - because it combines several smaller stages into one
 - because the chromosomes come together
- _____ 10. Which of these has occurred by the end of prophase?
- Sister chromatids are separated.
 - The spindle is beginning to form.
 - The cell membrane has begun to pinch inward.
 - The nuclear membrane has disappeared.

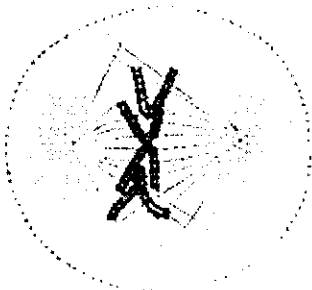


Figure 9-4

- _____ 11. Figure 9-4 illustrates which stage of mitosis?
- | | |
|--------------|--------------|
| a. anaphase | c. prophase |
| b. metaphase | d. telophase |

- _____ 12. How is the alignment of chromosomes, shown in Figure 9-4, on the equatorial plate of the cell maintained?
- They are always located there, since that is where the nucleus was.
 - Tension between opposite spindle fibers pulls them there.
 - The pressure of the cytoplasm moves them there.
 - The chromosomes are attracted to each other and meet there.
- _____ 13. Which of the following occurs in telophase?
- chromosomes condense
 - chromosomes line up
 - chromosomes move to opposite poles
 - chromosomes relax
- _____ 14. A cell has 12 chromosomes. How many chromosomes will each daughter cell have?
- 4
 - 6
 - 12
 - 24
- _____ 15. The cell cycle is regulated by
- cyclins
 - enzymes
 - hormones
 - sugars
- _____ 16. What is cancer caused by?
- cell-membrane damage
 - metabolic poisoning
 - mutation
 - immune-system damage
- _____ 17. What is the role of cyclin-dependent kinases in the cell cycle?
- They stop the cycle if something has gone wrong.
 - They catalyze the condensation of the chromosomes.
 - They provide the energy for the actions of the spindle fibers.
 - They initiate various stages of the cell cycle.

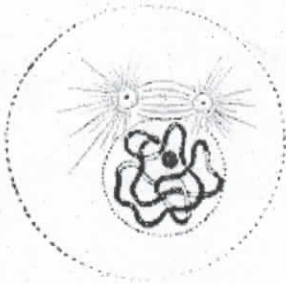


Figure 9-5

- _____ 18. The cell in Figure 9-5 is undergoing mitosis. Which stage of mitosis will follow this one?
- anaphase
 - metaphase
 - prophase
 - telophase
- _____ 19. DNA replication occurs during
- anaphase.
 - interphase.
 - metaphase.
 - prophase.
- _____ 20. Which of the phases of mitosis has the shortest duration?
- anaphase
 - cytokinesis
 - metaphase
 - prophase

- ___ 21. A cell that undergoes repeated mitosis without cytokinesis would have
- a. many daughter cells.
 - b. fewer chromosomes.
 - c. many nuclei.
 - d. cancerous properties.
- ___ 22. Why is it important for the chromosomes to condense during mitosis?
- a. to facilitate DNA replication
 - b. to facilitate chromosome movement
 - c. to facilitate cytokinesis
 - d. to facilitate spindle formation
- ___ 23. The typical growth period of a cell occurs during which stage of the cell cycle?
- a. Gap 1
 - b. Gap 2
 - c. synthesis
 - d. mitosis
- ___ 24. Some cancers have a genetic component to them, if a parent has a cancer the children are more likely than the average population to develop the cancer. Why might this be?
- a. Cancers require more than one mutation to occur.
 - b. Cancers are inherited but remain dormant until a certain age.
 - c. Parents and children are often exposed to similar environmental factors.
 - d. Cancers are often recessive traits and require alleles from both parents.
- ___ 25. A stem cell has potential medical uses because it
- a. undergoes mitosis.
 - b. is not specialized in structure and function.
 - c. is similar to a cancer cell, providing a study system.
 - d. undergoes apoptosis.