

Assessment

Chapter Test

Cell Growth and Division

In the space provided, write the letter of the description that best matches each term.

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|--|---|
| _____ 1. chromatin | a. protein molecule that aids the packing of DNA |
| _____ 2. centromere | b. preparations are made for the nucleus to divide |
| _____ 3. gene | c. a mass of rapidly dividing, abnormal cells |
| _____ 4. chromosome | d. combination of DNA and proteins in eukaryotes |
| _____ 5. histone | e. the region where sister chromatids are attached |
| _____ 6. centrosome | f. DNA is duplicated in the nucleus |
| _____ 7. cancer | g. the cell grows and carries out routine functions |
| _____ 8. synthesis (S) phase | h. group of diseases involving uncontrolled cell growth |
| _____ 9. first gap (G ₁) phase | i. segment of DNA that codes for RNA and a protein |
| _____ 10. second gap (G ₂) phase | j. organelle in eukaryotes that migrates to one of the poles during mitosis to direct chromosome movement |
| _____ 11. tumor | k. structure in which genetic material is packaged |

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 12. Why do cells divide after they reach a certain size?
- to maintain a large surface area-to-volume ratio
 - to ensure protein-making instructions can be copied from DNA in a timely manner
 - to be able to get rid of cell wastes with ease
 - All of the above
- _____ 13. The repeating sequence of growth and division through which many eukaryotic cells pass is called
- | | |
|--------------------|-------------|
| a. a checkpoint. | c. mitosis. |
| b. the cell cycle. | d. cancer. |
- _____ 14. Before cell division begins, both prokaryotes and eukaryotes need to
- | | |
|--------------------------------|---------------------------------|
| a. copy their DNA. | c. make extra histone proteins. |
| b. duplicate their centrioles. | d. go through cytokinesis. |

Chapter Test *continued*

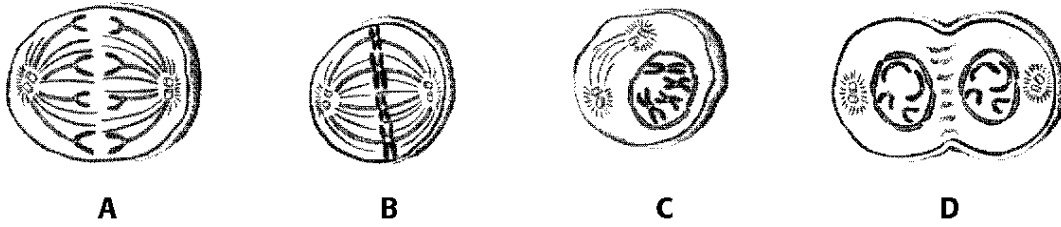
- _____ 15. Multicellular organisms use cell division to
- grow in size.
 - increase the size of their organs.
 - replace damaged cells.
 - All of the above
- _____ 16. As a cell from a multicellular organism prepares to divide, each DNA molecule and its associated proteins coil to form a
- centriole.
 - chromatid.
 - cell plate.
 - All of the above
- _____ 17. The four stages of mitosis include
- interphase, metaphase, anaphase, and telophase.
 - prophase, interphase, metaphase, and anaphase.
 - telophase, anaphase, prophase, and metaphase.
 - metaphase, interphase, telophase, and prophase.
- _____ 18. Which of these happens during interphase?
- The cell doubles its genetic material.
 - The membrane around the cell nucleus dissolves.
 - The cell divides into two daughter cells.
 - Both (a) and (b)
- _____ 19. Which work together to move chromosomes during cell division?
- centrosomes and the spindle
 - genes and the spindle
 - nucleosomes and genes
 - nucleosomes and sister chromatids
- _____ 20. How do feedback signals affect the cell cycle?
- They can trigger the next phase of the cell cycle.
 - They can delay the next phase of the cell cycle.
 - They can reorder the phases of the cell cycle.
 - Both (a) and (b)
- _____ 21. Uncontrolled cell growth harms an organism by
- destroying DNA.
 - interfering with chemo.
 - damaging healthy tissues.
 - All of the above

Determine the order in which the following stages of the cell cycle take place. Write the number of each step in the space provided.

- | | |
|----------------------------|---------------------------|
| _____ 22. anaphase | _____ 26. first gap phase |
| _____ 23. second gap phase | _____ 27. prophase |
| _____ 24. telophase | _____ 28. metaphase |
| _____ 25. synthesis phase | _____ 29. cytokinesis |

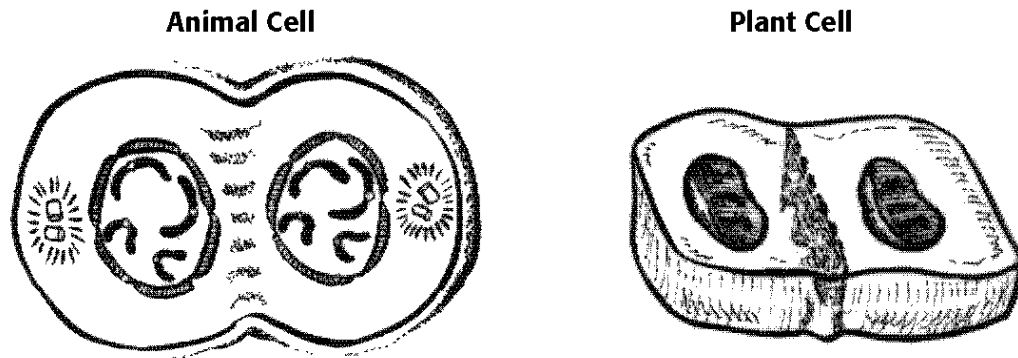
Chapter Test *continued*

Questions 30 and 31 refer to the figure below, which shows the stages of mitosis.



- _____ 30. Which of the following correctly indicates the order in which mitosis occurs?
- A, B, C, D
 - B, A, C, D
 - C, B, A, D
 - A, C, B, D
- _____ 31. Which stage shows metaphase?
- A
 - B
 - C
 - D

Questions 32–34 refer to the figures below.



- _____ 32. The phase of the cell cycle that these cells are in is
- first gap (G_1) phase.
 - synthesis (S) phase.
 - interphase.
 - cytokinesis.
- _____ 33. The structure in the center of the animal cell that pinches the cell in half is called a
- belt of protein threads.
 - cell plate.
 - centromere.
 - spindle.
- _____ 34. The structure in the center of the plant cell that causes the cell to divide into two cells is called a
- belt of protein threads.
 - cell plate.
 - centromere.
 - spindle.