

Chapter 8 Test

Multiple Choice

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

- Water moves into a cell placed in a(n) _____ solution.
 - osmotic
 - hypertonic
 - hypotonic
 - isotonic
- Water moves out of a cell if the cell is placed in a(n) _____ solution.
 - hypertonic
 - isotonic
 - hypotonic
 - passive
- If cells are placed in a strong salt solution, water will _____.
 - pass from the sugar solution to the cells
 - pass from the cells to the sugar solution
 - stay in the cell
 - pass back and forth
- A cell moves particles from a region of lesser concentration to a region of greater concentration by _____.
 - facilitated diffusion
 - passive transport
 - osmosis
 - active transport
- If a cell is placed in salt water, water leaves the cell by _____.
 - osmosis
 - diffusion
 - active transport
 - phagocytosis
- Which of the following is not a form of passive transport?
 - facilitated diffusion
 - endocytosis
 - diffusion
 - osmosis
- The structure most responsible for maintaining cell homeostasis is the _____.
 - cytoplasm
 - mitochondrion
 - cell wall
 - plasma membrane
- The causes of cancer may include which of the following?
 - environmental influences
 - genetics
 - viruses
 - all of the above
- A gene is a segment of DNA that controls the production of _____.
 - carbohydrates
 - microtubules
 - centromeres
 - proteins
- Which of the following makes up the spindle formed during mitosis?
 - a series of enzymes
 - microtubules
 - lipid molecules
 - protein molecules
- If the sides of a cell double in length, its volume increases by _____ times. (Hint: assume a cube-shaped cell for easy calculation)
 - two
 - four
 - six
 - eight

12. If the sides of a cell double in length, its surface area becomes _____ times as large. (Hint: assume a cube-shaped cell for easy calculation)
- a. two
 - b. four
 - c. six
 - d. eight
13. Which of the following explains why a cell's size is limited?
- a. Volume increases faster than surface area.
 - b. Surface area increases faster than volume.
 - c. Diffusion is too slow to move materials in a cell if it's too big.
 - d. both a and c
14. As a cell grows, its _____ increases more than its _____.
- a. length, volume
 - b. width, surface area
 - c. volume, surface area
 - d. none of these
15. Among the following, the term that includes the others is _____.
- a. interphase
 - b. cytokinesis
 - c. mitosis
 - d. cell cycle
16. 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
17. Unlike plant cells, animal cells contain _____.
- a. cell walls
 - b. centrioles
 - c. nucleoli
 - d. chromosomes
18. The longest phase of the cell cycle is _____.
- a. prophase
 - b. interphase
 - c. metaphase
 - d. mitosis
19. A chromatid is attached to a spindle fiber by the _____.
- a. nucleolus
 - b. deep furrow
 - c. centromere
 - d. centriole
20. During which phase of mitosis do the chromosomes line up at the equator of the cell?
- a. prophase
 - b. metaphase
 - c. anaphase
 - d. telophase

21. Which conditions shown in Figure 8-4 might cause a cell to burst?

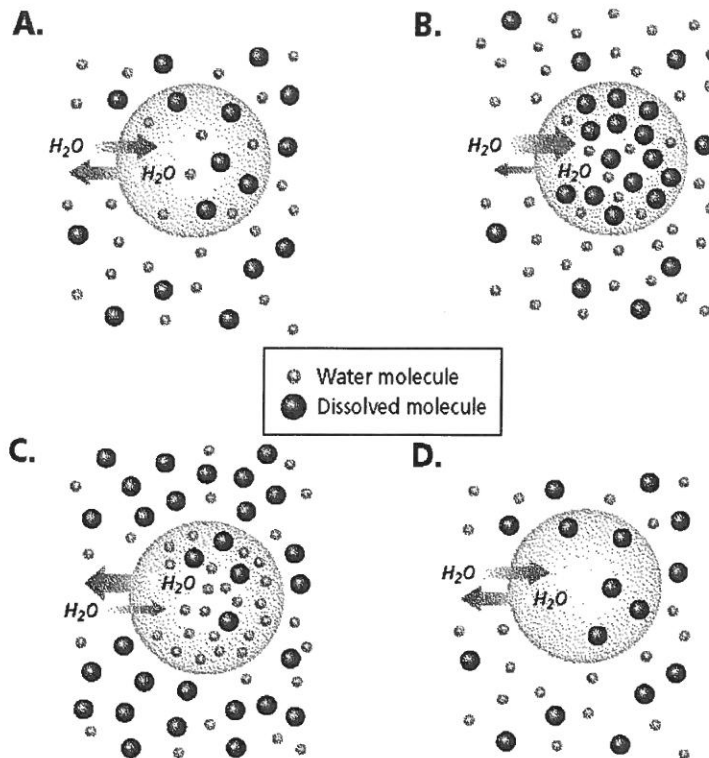


Figure 8-4

- | | |
|------|------|
| a. A | c. C |
| b. B | d. D |

22. What cell process is responsible for the effect shown in Figure 8-5?

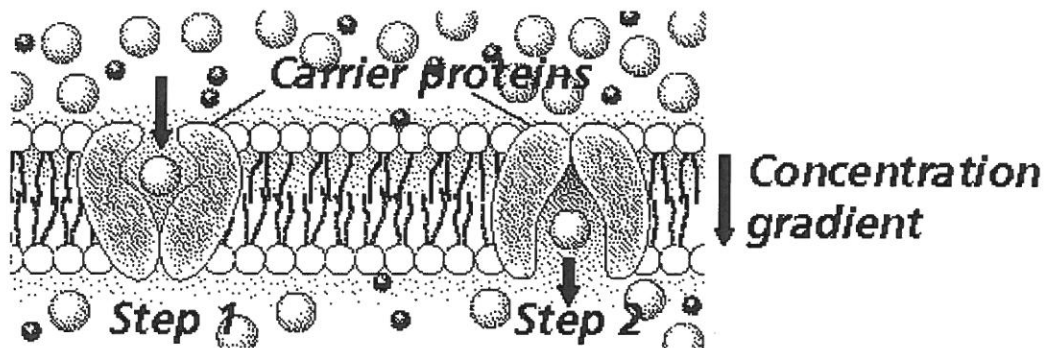


Figure 8-5

- | | |
|----------------------|--------------------------|
| a. active transport | c. facilitated diffusion |
| b. passive transport | d. osmosis |

23. The chromosomes shown in Figure 8-6 are in which phase of mitosis?

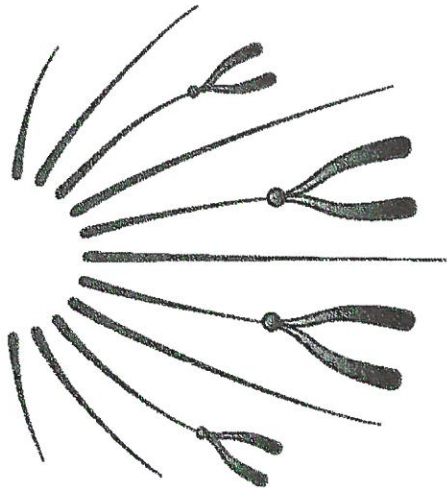
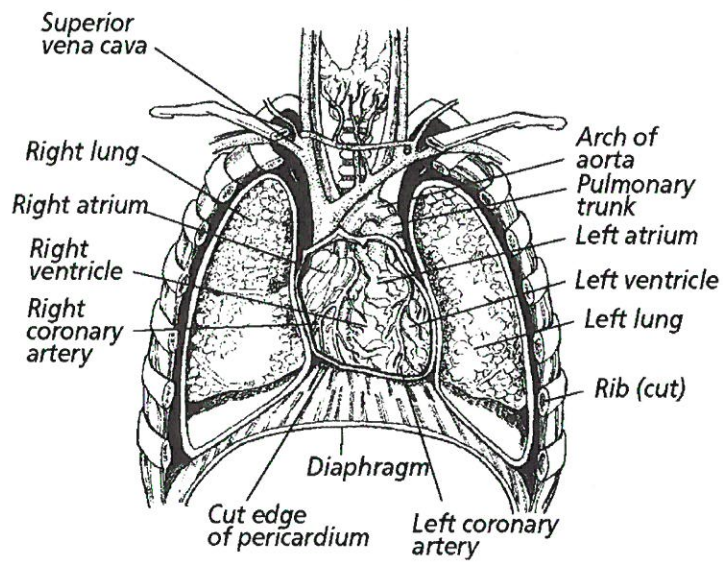


Figure 8-6

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

24. What level of organization is shown in Figure 8-7?



- a. tissue
- b. organ
- c. organ system
- d. organism

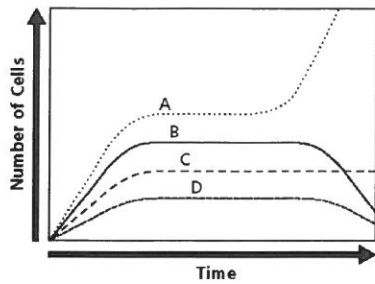


Figure 8-8

25. Which of the cells depicted in the line graph in Figure 8-8 are most likely cancerous?
- A
 - B
 - C
 - D
26. If cancer is present, what is the likely explanation for what happened to cells B and D?
- they thrived with the cancerous cells
 - they were harmed by radiation therapy
 - they died off on due to natural causes
 - they died off because the cancerous cells deprived them of nutrients
27. The structures that hold together sister chromatids are
- chromosomes
 - spindle fibers
 - centromeres
 - nucleolus
28. In a dividing cell, the football-shaped structure consisting of thin fibers is the
- spindle
 - plasma membrane
 - nuclear membrane
 - centriole
29. The process by which nuclear (genetic) material is divided equally between two new cells is
- interphase
 - mitosis
 - active transport
 - osmosis
30. The dark-staining structures that carry the genetic material during mitosis are the
- chromatin
 - mitochondria
 - centromeres
 - chromosomes
31. The uncontrolled division of cells that results in a malignant growth is known as
- Alzheimer's disease
 - bursitis
 - cancer
 - diabetes
32. Each half of a doubled chromosome structure is called a
- spindle fiber
 - sister chromatid
 - centromere
 - daughter cell
33. The sequence of growth and division of a cell makes up the
- cell cycle
 - mitosis
 - interphase
 - DNA
34. The phase of mitosis in which the sister chromatids separate from each other is
- prophase
 - metaphase
 - anaphase
 - telophase
35. Cells that work together to perform the same function are organized into
- tissues
 - organs
 - organ systems
 - organisms

Matching

Match each item with the correct statement below.

- | | |
|---------------|------------------------|
| a. exocytosis | d. isotonic solution |
| b. gene | e. osmosis |
| c. diffusion | f. hypertonic solution |

36. movement of particles from an area of higher concentration to one of lower concentration
37. the concentration of dissolved substances outside the cell is higher than the concentration inside the cell
38. the concentration of dissolved substances in the solution is the same as the concentration of dissolved substances inside the cell
39. a segment of DNA that controls the production of a protein
40. diffusion of water molecules through a selectively permeable membrane
41. release of wastes or cell products from inside to outside a cell

Short Answer

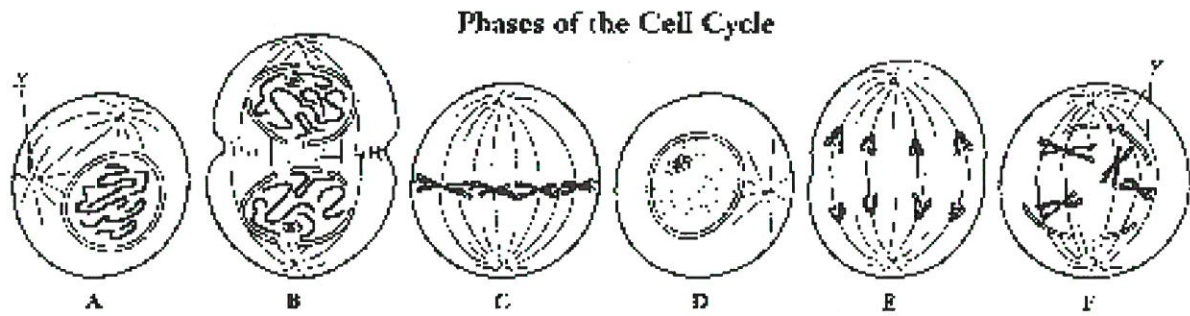


Figure 8-3

42. Sequence the six diagrams in Figure 8-3 in order from first to last, beginning with D.