

Q1W6-Biology 10- H.W.-Cyto-Cell Cycle

Completion

Complete each statement.

- A. cell cycle
- B. mitosis
- C. anaphase
- D. chromosomes
- E. sister chromatids
- F. spindle
- G. centromeres
- I. cancer

1. The sequence of growth and division of a cell makes up the _____.
2. The uncontrolled division of cells that results in a malignant growth is known as _____.
3. The two halves of a doubled chromosome structure are called _____.
4. The dark-staining structures that carry the genetic material are the _____.
5. The structures that hold together sister chromatids are _____.
6. The process by which nuclear material is divided equally between two new cells is _____.
7. Cells that work together to perform the same function are organized into _____.
8. In a dividing cell, the football-shaped structure consisting of thin fibers is the _____.
9. The phase of mitosis in which the sister chromatids separate from each other is _____.

Matching

Match each item with the correct statement below.

- | | |
|--------------------------|---------------------|
| a. energy | e. active transport |
| b. facilitated diffusion | f. exocytosis |
| c. endocytosis | g. carrier protein |
| d. passive transport | h. channel protein |

- _____ 10. Particle movement from an area of higher concentration to an area of lower concentration
- _____ 11. Process by which a cell takes in material by forming a vacuole around it
- _____ 12. Is used during active transport but not passive transport
- _____ 13. Process by which a cell expels wastes from a vacuole
- _____ 14. Transport protein that provides a tubelike opening in the plasma membrane through which particles can diffuse

Match each item with the correct statement below.

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

- _____ 15. movement of particles from an area of higher concentration to one of lower concentration
- _____ 16. the concentration of dissolved substances outside the cell is higher than the concentration inside the cell

- ___ 17. a segment of DNA that controls the production of a protein
- ___ 18. diffusion of water molecules through a selectively permeable membrane
- ___ 19. the concentration of dissolved substances in the solution is the same as the concentration of dissolved substances inside the cell

Multiple Choice

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

- ___ 20. Which of the following monitors a cell's progress from phase to phase during the cell cycle?
 - a. microtubules
 - b. lipid molecules
 - c. a series of enzymes
 - d. protein molecules
- ___ 21. Which of the following is not a form of passive transport?
 - a. osmosis
 - b. endocytosis
 - c. facilitated diffusion
 - d. facilitated diffusion
- ___ 22. Which of the following factors limits the size of a cell?
 - a. Amount of DNA
 - b. Speed of diffusion
 - c. Surface area of plasma membrane
 - d. All of the above
- ___ 23. Failure to control the cell cycle can be caused by —
 - a. overproduction of enzyme.
 - b. lack of enzyme production.
 - c. inappropriate expression of enzyme.
 - d. All of the above
- ___ 24. Among the following, the term that includes the others is _____.
 - a. nuclear division
 - b. cell cycle
 - c. interphase
 - d. mitosis
- ___ 25. Telophase is accompanied by the division of cytoplasm between the two daughter cells. What is this process called?
 - a. Cytokinesis
 - b. Prophase
 - c. Interphase
 - d. Metaphase
- ___ 26. The causes of cancer may include which of the following?
 - a. environmental influences
 - b. UV radiation
 - c. viruses
 - d. all of the above
- ___ 27. Which of the following structures is the most complex?
 - a. organ
 - b. tissue
 - c. organ system
 - d. cell
- ___ 28. If a cell is placed in salt water, water leaves the cell by _____.
 - a. osmosis
 - b. diffusion
 - c. active transport
 - d. phagocytosis
- ___ 29. You are conducting osmosis experiments with a test tube of human cells in solution. You add a teaspoon of table salt to the test tube. According to the principles of osmosis, what can you predict will happen to the cells?
 - a. They will not be affected.
 - b. They will swell and burst.
 - c. They will shrink and shrivel.
 - d. They will undergo rapid mitosis.
- ___ 30. The structure most responsible for maintaining cell homeostasis is the _____.
 - a. mitochondrion
 - b. cell wall
 - c. plasma membrane
 - d. cytoplasm
- ___ 31. Unlike plant cells, animal cells contain _____.
 - a. cell walls
 - b. spindles
 - c. centrioles
 - d. nucleoli
- ___ 32. As a cell grows, its _____ increases more than its _____.

- a. length, volume
- b. width, surface area
- c. volume, surface area
- d. none of these

33. A cell moves particles from a region of lesser concentration to a region of greater concentration by ____.
- a. osmosis
 - b. facilitated diffusion
 - c. active transport
 - d. passive transport
34. The longest phase of the cell cycle is ____.
- a. metaphase
 - b. mitosis
 - c. prophase
 - d. interphase

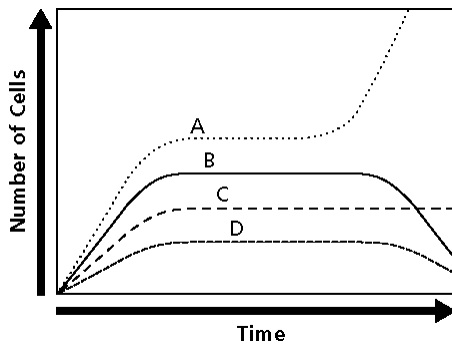


Figure 8-8

35. Which of the cells depicted in the line graph in Figure 8-8 are most likely cancerous?
- a. C
 - b. D
 - c. B
 - d. A
36. If cancer is present, what is the likely explanation for what happened to cells B and D?
- a. they died off because the cancerous cells deprived them of nutrients
 - b. they died off on due to natural causes
 - c. they thrived with the cancerous cells
 - d. they were harmed by radiation therapy
37. What cell process is responsible for the effect shown in Figure 8-5?

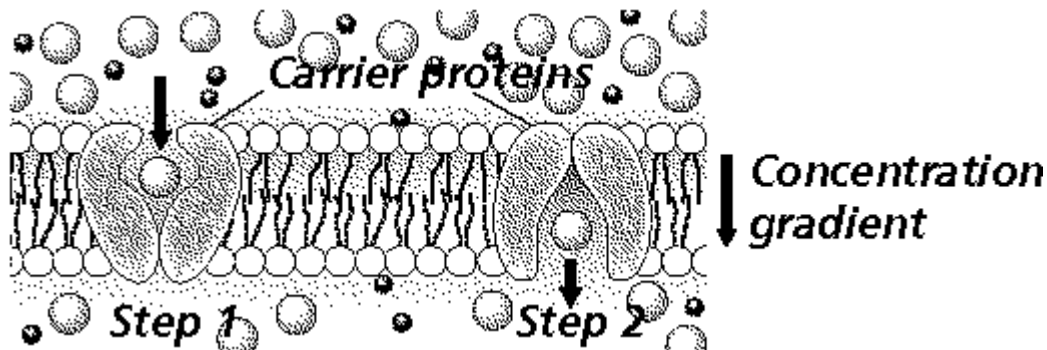


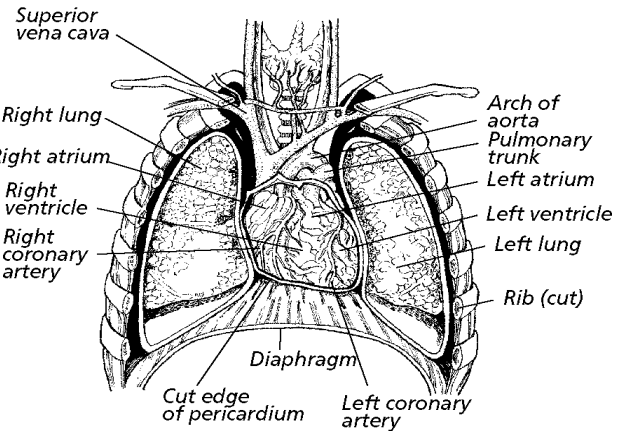
Figure 8-5

- a. facilitated diffusion
 - b. active transport
 - c. passive transport
 - d. osmosis
38. If the sides of a cell double in length, its volume increases by ____ times.
- a. six
 - b. four
 - c. two
 - d. eight

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

- a. organ system
- b. organism

- c. tissue
- d. organ



40. Which of the following is true of facilitated diffusion?

- a. It occurs against a concentration gradient and does not require energy
- b. It occurs with a concentration gradient and requires energy
- c. It occurs with a concentration gradient and does not require energy
- d. It occurs against a concentration gradient and requires energy

41. By the end of prophase, each of the following has occurred

- a. breaking down of the nuclear envelope
- b. lining up of chromosomes in the cell
- c. tighter coiling of the chromosomes
- d. disappearing of the nucleolus

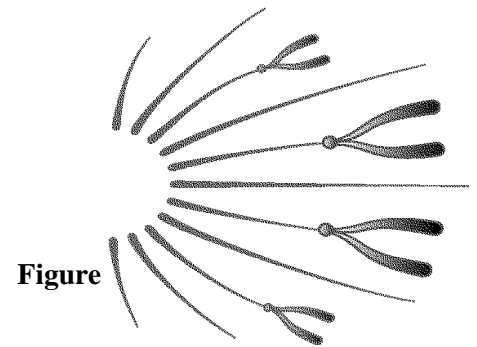
42. You are conducting osmosis experiments with a test tube of human cells in solution. You add a teaspoon of table salt to the test tube. According to the principles of osmosis, the cells will shrink and shrivel.

The solution above is —

- a. hypotonic.
- b. isotonic.
- c. passive.
- d. hypertonic.

43. The chromosomes shown in Figure 8-6 are in which state of mitosis?

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



Figure

44. 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. Homeostasis is disrupted by a cell that is too large.
- d. both a and b

45. Water moves into a cell placed in a(n) _____ solution.

- a. hypertonic
- b. hypotonic
- c. isotonic
- d. osmotic

46. In some cases, cancer can spread from one part of the body to another. What is the spread of cancer called?

- a. Osmosis
- b. Malignancy
- c. Tumorigenesis
- d. Metastasis

47. Which of the following does NOT occur during interphase?

- a. Cell metabolism
- b. Cell division
- c. Cell growth
- d. Chromosome duplication

- ____ 48. If cells are placed in a strong sugar solution, water will ____.
- stay in the cell
 - pass from the cells to the sugar solution
 - pass from the sugar solution to the cells
 - pass back and forth
- ____ 49. During which phase of mitosis are sister chromatids pulled to opposite sides of the cell?
- Metaphase
 - Prophase
 - Telophase
 - Anaphase
- ____ 50. A chromatid is attached to a spindle fiber by the ____.
- centromere
 - nucleolus
 - centriole
 - deep furrow
- ____ 51. Which conditions shown in Figure 8-4 might cause a cell to burst?

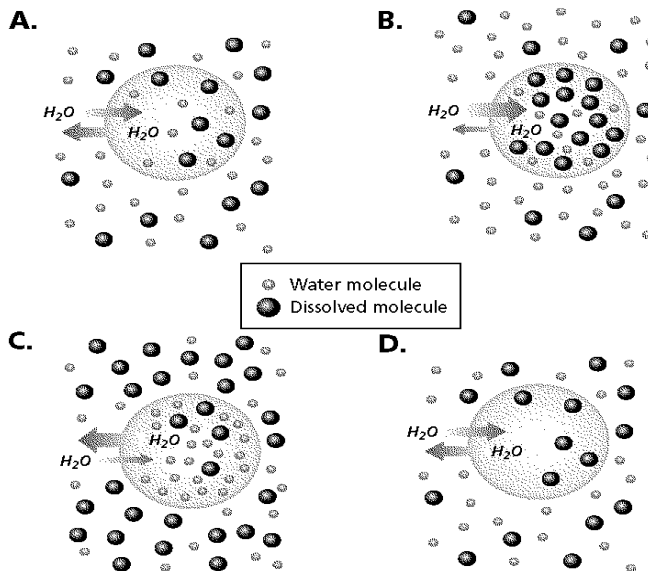


Figure 8-4

- A
 - D
 - B
 - C
- ____ 52. By what process do cells transport wastes from within the cell to the external environment?
- Facilitated diffusion
 - Passive transport
 - Endocytosis
 - Exocytosis
- ____ 53. Water moves out of a cell if the cell is placed in a(n) ____ solution.
- isotonic
 - hypertonic
 - passive
 - hypotonic
- ____ 54. A gene is a segment of DNA that controls the production of ____.
- centromeres
 - proteins
 - carbohydrates
 - microtubules
- ____ 55. If the sides of a cell double in length, its surface area becomes ____ times as large.
- eight
 - four
 - six
 - two

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