

chapter 03

True / False Questions

1. The most important advantage of transmission electron microscope (TEM) over light microscope (LM) is its higher resolution.

True False

2. If a cell doubled in diameter, it would have twice as much cytoplasm to maintain.

True False

3. In the plasma membrane, glycolipids and glycoproteins face toward the cytoplasm, while peripheral proteins always face toward the ECF.

True False

4. A cell's second messengers serve to transport material through the plasma membrane.

True False

5. Microvilli and cilia differ in their function but have the same internal structure.

True False

6. Ligand-gated channels are membrane proteins that open or close in response to the binding of a chemical.

True False

7. The greater the concentration gradient the faster the diffusion rate.

True False

8. The $\text{Na}^+\text{-K}^+$ ATPase is a countertransport antiport carrier, which always requires energy.

True False

9. The sodium-glucose transport protein (SGLT) is one example of an active transport process involving a uniport carrier.

True False

10. One example of pinocytosis is the uptake of low-density lipoproteins (LDLs) by endothelial cells.

True False

11. Both the nucleus and the mitochondrion are surrounded by two layers of unit membrane.

True False

12. The nucleus is the largest organelle in most cells.

True False

13. Ribosomes are made of proteins and RNA.

True False

14. The Golgi complex makes peroxisomes but not lysosomes.

True False

15. A crystal of calcium phosphate in the cytoplasm of a cell should be classified as an inclusion.

True False

Multiple Choice Questions

16. All of the generalizations below constitute the modern cell theory *except*

A. an organism's structure and all of its functions are ultimately due to the activities of its cells.

B. all cells come only from preexisting cells.

C. all cells occupy space.

D. all organisms are composed of cells and cell products.

E. the cell is the basic structural and functional unit of life.

17. _____ cells are thick in the middle and tapered toward the end.

- A. Squamous
- B. Stellate
- C. Columnar
- D. Spheroid
- E. Fusiform

18. Most human cells range from 10 to 15 micrometers in diameter. What limits how large a cell can be?

- A. a cell's lifespan
- B. nutrients available in the environment of a cell
- C. the relationship between its volume and length
- D. the relationship between its length and surface area
- E. the relationship between its volume and surface area

19. The fluid outside of a cell is called

- A. cytosol.
- B. intracellular fluid.
- C. extracellular fluid.
- D. cytoplasm.
- E. nucleoplasm.

20. The flat-shaped cells found covering the skin are

- A. cuboidal.
- B. columnar.
- C. cylindrical.
- D. squamous.
- E. spherical.