

UNIT 3 - CELLS, HISTOLOGY, INTEGUMENTARY SYSTEM

WORKSHEET - The Cell

Name _____ Period _____

1. What is a cell? List the four principal parts of the cell.

2. List four important functions of the plasma membrane.

- a.
- b.
- c.
- d.

3. What is selective permeability? How does it help the cell maintain homeostasis?

4. If red blood cells are surrounded by a hypertonic solution, how will water move in relation to the cells and why?

5. The two major portions of the cell each surrounded by a membrane are the _____ and the _____.

6. The organelles are located in the
a. Nucleolus b. Cytosol c. Cell matrix d. Cell membrane

7. Which of the following statements about the cell membrane is FALSE?

- a. An intact cell membrane is essential to the life of the cell.
- b. The cell membrane is composed of phospholipids and proteins.
- c. The cell membrane does not participate in chemical reactions.
- d. The cell membrane is selectively permeable.

8. The lipid that lends some rigidity to the cell membrane is:

_____.

9. Describe the overall structure of the cell membrane. How is this structure related to function?
10. The compound responsible for the special functions of the cell membrane is:
_____.
11. The _____ directs the overall activities of the cell.
12. The organelle that functions as a communication and transportation system for the cytoplasm is the _____.
13. The chemical activity in the endoplasmic reticulum results in:
a. synthesis of proteins
b. oxidation of glucose
c. dissemination of amino acids
d. synthesis of lipid molecules.
14. Which of the following statement about ribosomes is FALSE?
a. Ribosomes are part of the rough endoplasmic reticulum.
b. Ribosomes are made up of protein and RNA.
c. Ribosomes secrete proteins used as enzymes.
d. The secretion of ribosomes is utilized only within the cell.
15. The mitochondria are also called the _____ of cells.
16. The enzymes of the lysosome function to:
a. Control cell reproduction
b. Digest bacteria, food and damaged cell parts.
c. Release energy from glucose
d. Control the Citric Acid Cycle.
17. Peroxisomes are found most commonly in the cells of the:
a. Liver
b. Kidneys
c. Heart muscle
d. Brain
18. Which of the following statement about the centrosome are true?
a. It is located near the nucleus.
b. The centrioles of the centrosome function in reproduction of the cell.
c. The centrosome is concerned with the distribution of genetic material.
d. All of the above.
19. Mobile, hairlike projections that extend outward from the surface of the cell are called _____ or _____.
20. Thin, threadlike structures found within the cytoplasm forming the cytoskeleton of the cell are called _____ and _____.

21. The genetic material in the nucleoplasm of the nucleus is _____.
22. List substances (compounds) that enter and exit the cell through the cell membrane.
23. The process that allows the movement of gases and ions from areas of higher concentration to areas of lower concentration until equilibrium has been achieved is called _____.
24. The process by which substances are moved through the cell membrane by a carrier molecule is called _____.
25. The process by which water moves across a semi-permeable membrane from areas of higher concentration to areas of lower concentration is called _____.
26. A hypertonic solution is one that
- a. Contains a greater concentration of solute than the cell.
 - b. Contains the same concentration of solute as the cell.
 - c. Contains a lesser concentration of solute than the cell.
27. The process by which molecules are forced through a membrane by hydrostatic pressure that is greater on one side than the other side is called _____.
28. The process that uses energy to move molecules or ions across a concentration gradient from an area of lower concentration to an area of higher concentration is called _____.
29. A process that allows cells to take in molecules of solids by surrounding them to create a vesicle is called _____.
30. The process that ensure duplication of DNA molecules during cell reproduction is _____. During this process, there is no reduction in the number of chromosomes found in a particular cell.
31. The process used in the formation of the gametes (egg and sperm cells) that divides the chromosome number in half is known as _____.

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WORKSHEET - The Cell ANSWERS

1. A cell is the basic unit of structure and function. The four principal parts of the generalized animal cell include the plasma membrane, the cytosol, the organelles, and the nucleus.

2.
 - a. Provides a flexible boundary that encloses the cellular contents separating them from the extracellular fluid.
 - b. Facilitates contact with other body cells and the external environment.
 - c. Provides receptor sites for hormones, neurotransmitters, enzymes, nutrients, and antibodies.
 - d. Mediates the entrance and exit of materials into and out of the cell.

3. Selective permeability means the cell will allow some substances to enter and exit the cell — but not everything. This allow the cell to bring in nutrients and chemicals it needs while removing waste products from its internal environment.

4. The water will move out of the red blood cells and into the fluid causing the cells to shrink. The reason is because there is a greater concentration of water within the blood cells than the surrounding fluid. Water will move from areas of higher concentration to areas of lower concentration by osmosis.

5. Nucleus, cytosol

6. B. Cytosol

7. C. The cell membrane does participate in many chemical reactions.
See the answer to question #2

8. Phospholipid

9. The cell membrane is composed of a phospholipid bilayer which contains many globular proteins which act as gates or channels. The only substances that can move freely in to and out of the cell are those that are lipid soluble. The protein carriers regulate the diffusion of all other substances.

10. Proteins (which act as the gates or channels within the cell membrane).

11. Nucleus

12. Endoplasmic reticulum

13. A: synthesis of proteins
(It also can do D: synthesis of lipid molecules which be used in the cell membrane).
14. D: The proteins used can be transported outside of the cell for use in other areas.
15. Powerhouse (because it produces the ATP or energy for the cells).
16. B: lysosomes digest bacteria, food, and damaged cell parts
17. A: liver and B: kidneys
18. D: all of the above statements about the centrosome are true.
19. Cilia, flagella
20. Microtubules and microfilaments
21. Chromosomes
22. Lipid soluble compounds such as oxygen and carbon dioxide
23. Diffusion
24. Facilitated diffusion
25. Osmosis
26. If contains a greater concentration of solute than the cell (which results in a lower concentration of water than the cell. Hence, the water will flow out of the cell and into the fluid).
27. Filtration
28. Active transport
29. Phagocytosis
30. Mitosis
31. Meiosis