

Name _____ Period ____ Date _____

Cell Structure & Function Study Guide

Part A. Cell Structures

1. What are the three principles of the Cell Theory? (notes)

a. _____

b. _____

c. _____

2. Why are cells so small? What is a limiting factor to cell size? Explain by drawing a diagram of a 1cm^3 cell compared to a 10cm^3 cell (use colors). (p.54)

3. What are three features ALL cells have in common? (p.55)

a. _____

b. _____

c. _____

4. How do prokaryotic and eukaryotic cells differ? How do animal and plant cells differ? (p.55-57)

5. For each of the following cellular structures, indicate its major function. (p.58-67, notes)

nuclear pores _____

chromatin _____

nucleolus _____

smooth ER _____

peroxisome _____

microtubule _____

actin microfilament _____

intermediate filament _____

centrioles _____

extracellular matrix _____

6. Trace the path of protein production from a secretory cell, starting with the nucleus (label the organelles involved, use colors). (p.62)

7. How are adjoining cells arranged in plants and animals? How do they communicate? Explain by drawing a diagram of adjoining animal cells and plant cells (label junctions, use colors). (p.66)

8. Describe the theory of endosymbiosis. Explain its relevance to eukaryotic cell structure. (notes)

Part B. Cell Membrane

1. Describe the fluid mosaic model of the plasma membrane: what portions account for its fluidity, what portions account for the mosaic pattern? (p.80)

2. In animal cells, how can membrane fluidity be increased or reduced by cholesterol? (p.80)

3. Describe the plasma membrane in terms of its orientation of: proteins and lipids: (p.80)

a. peripheral _____

b. integral _____

c. phospholipids _____

4. List and briefly define the different roles of membrane proteins. (p.80-81, notes)

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

5. What types of molecule easily cross the membrane? (p.81) _____

6. How are molecules that do not easily cross the membrane transported? (p.82-84)

7. Define the following types of molecular movement: (p.82-84)

a. diffusion _____

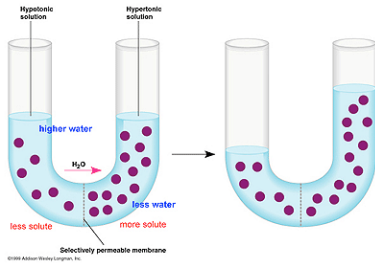
b. osmosis _____

c. facilitated diffusion _____

d. active transport _____

e. passive transport _____

8. What is happening in the following diagram? (p.82)



9. What do animal and plant cells do when placed in solutions that are: (p.83)

a. hypotonic _____

b. hypertonic _____

c. isotonic _____

10. How does the *Paramecium* maintain osmoregulation, a correct balance of electrolytes within its cell? (p.83)

11. The sodium-potassium pump uses _____ to pump _____ OUT of the cell and _____ INTO the cell. (p.84)

12. How does a cell use differences in membrane potential to power a process? (research)

13. What is cotransport? Give an example. (notes)

14. Describe the difference between exocytosis and endocytosis by drawing and labeling a diagram. (p.84-85)

15. Describe receptor-mediated endocytosis by drawing and labeling a diagram. (research)