**4. Cell Structure & Function homework questions**

Name and date submitted (3 pts):

Instructions: Using this as a template, create space and type or write your answers below. KEEP THE SAME NUMBERING. Turn in your completed work by the due date.

(25 questions, 100 points)

1. The smallest unit of biological structure that meets the functional requirements of “living” is the
   * + 1. organ
       2. organelle
       3. cell
       4. macromolecule
2. Which of these do all prokaryotic and eukaryotic cells share?
   1. nuclear envelope
   2. cell walls
   3. organelles
   4. plasma membrane
3. Prokaryotes depend on \_\_\_\_\_\_\_\_\_\_\_\_ to obtain some materials and to get rid of wastes
   1. Ribosomes
   2. Flagella
   3. Cell division
   4. Diffusion
4. Which of the following is found both in eukaryotic and prokaryotic cells?
   1. nucleus
   2. mitochondrion
   3. vacuole
   4. ribosome
5. The presence of a membrane-enclosed nucleus is a characteristic of
   1. prokaryotic cells
   2. eukaryotic cells
   3. living organisms
   4. bacteria
6. The cell membrane (plasma membrane) of a cell consists of
   1. Protein molecules arranged in two layers with polar areas forming the outside of the membrane
   2. Two layers of phospholipids, organized with the nonpolar tails forming the interior of the membrane
   3. Lipid molecules positioned between two carbohydrate layers
   4. Protein molecules with polar and nonpolar tails
7. The cell membrane of a certain cell will allow water, oxygen, carbon dioxide, and glucose to pass through. Because other substances are blocked from entering, this membrane is called
   1. Perforated
   2. Semi-permeable
   3. Non-conductive
   4. Permeable
8. Which of these descriptions *best* completes this concept map?



* 1. An animal cell
  2. A prokaryotic cell
  3. A virus
  4. A plant cell

1. Eukaryotic cells are differentiated from prokaryotic cells because eukaryotic cells
   1. Are much smaller
   2. Have permeable membranes
   3. Have a higher rate of reproduction
   4. Have nuclei
2. Which cellular organelle is responsible for packaging the proteins that the cell secretes?
   1. Cytoskeleton
   2. Cell membrane
   3. Lysosome
   4. Golgi apparatus
3. Which of the following is found both in eukaryotic and prokaryotic cells?
   1. Nucleus
   2. Mitochondrion
   3. Vacuole
   4. Ribosomes
4. Which of the following is not a component of the endomembrane system?
   1. Mitochondrion
   2. Golgi apparatus
   3. Endoplasmic reticulum
   4. Lysosome
5. The process by which a cell engulfs a foreign particle is known as
   1. Endosymbiosis
   2. Phagocytosis
   3. Hydrolysis
   4. Membrane synthesis
6. Describe what is meant by the “Cell Theory” or “Unified Cell Theory”? State all three (3) basic principles.
7. Describe how the surface area of a cell can influence the maximum size a cell might attain.
8. Describe the structure and function of the cell membrane (plasma membrane).
9. Describe the two functions of cilia.
10. Describe the structure of the plant cell wall. Is it living? Why or why not?
11. Describe the differences between isotonic, hypotonic, and hypertonic solutions.
12. Explain the difference between simple diffusion and facilitated diffusion.
13. Explain the difference between facilitated diffusion and active transport.
14. Describe the process of endocytosis.
15. Prokaryotic cells (bacteria) are much smaller and simpler than eukaryotic cells. What advantages might small cell size and simplicity confer on a cell?
16. How do cilia and flagella differ?
17. “Fluid Mosaic Model”: Why is it advantageous for the cell membrane to be fluid in nature?