**Biology I Cells Test Review**

*Refer to the following questions and vocabulary to help you to review for the test.*

* Required vocabulary: phospholipid bilayer, transmembrane proteins, theory, organelle, cilia, flagella, semi-permeable/selectively permeable, hypo-/hyper-/isotonic, plasmolysis, cytolysis, wilting, flaccid, lyse, homeostasis, concentration gradient, passive transport, solute, solvent, dynamic equilibrium, homeostasis, microtubules, microfilaments, phagocytosis, exocytosis, endocytosis, and pinocytosis.

1. What is a theory?
2. What are the 3 tenets of the cell theory?
3. What is the difference between a prokaryote and an eukaryote?
   1. Give an example of each.
4. How does a plant cell differ from an animal cell?
   1. Draw an example of each
   2. What organelles are present in plant cells that are absent in animal cells?
   3. What organelles are present in animal cells that are absent in plant cells?
5. What are the functions of the following organelles/ cell structures?
   1. Which structures are found in eukaryotic (E) and prokaryotic (P) cells?
      1. Cytoskeleton
      2. centrioles
      3. lysosomes
      4. golgi apparatus
      5. chloroplasts
      6. mitochondria
      7. nucleus
      8. ribosome
      9. smooth endoplasmic reticulum
      10. rough endoplasmic reticulum
      11. vacuoles
      12. vesicles
      13. cilia
      14. flagella
      15. cytoplasm
      16. cell membrane
      17. cell wall
6. Draw the cell membrane and label its parts
   1. How does the properties of the phospholipid affect the transport of molecules?
      1. What does hydrophilic mean?
      2. What does hydrophobic mean?
      3. Which part of the cell membrane is polar?
      4. Which part of the cell membrane is nonpolar?
   2. What does a phospholipid bilayer mean?
   3. What does semi-permeable mean?
      1. What substance can easily move through the lipid part of a cell membrane?
      2. What substance must enter the cell membrane in a different way?
         1. Why?
         2. How do these substances enter the cell? Which structure in the membrane allows for these substances to enter and exit?
         3. How do polar and nonpolar substances enter and exit the cell?
7. What is concentration gradient?
8. What is diffusion?
   1. What is an example of a substance that easily diffuses through the cell membrane?
9. What is facilitated diffusion?
   1. Give an example.
10. What is active transport?
    1. What are the requirements for active transport to occur?
       1. What form is the energy in?
    2. Give an example
11. What is osmosis?
    1. What is the relationship between a solute and solvent?
    2. What is hypertonic?
    3. What is hypotonic?
    4. What is isotonic?
    5. What is dynamic equilibrium?
    6. How does osmosis maintain homeostasis?
    7. What is plasmolysis?
    8. If a cell swells, where is water moving, in or out of the cell?
       1. Where is hypotonic and hypertonic- in or out of the cell?
    9. What is the difference between animal and plant cells and the effect of water moving in cells?
    10. If a cell shrivels/wilts/ gets flaccid/ cytolysis/ lyse/ undergoes plasmolysis, where is water moving, in or out of the cell?
        1. Where is hypotonic and hypertonic- in or out of the cell?
    11. In general, which direction does water move- from hypotonic to hypertonic or hypertonic to hypotonic?
    12. Give an example
12. What is endocytosis?
    1. Give an example
13. What is exocytosis?
    1. Give an example
14. What is pinocytosis?
    1. Give an example
15. What is phagocytosis?
    1. What organism engaged in phagocytosis?
16. How do the cells of the multicellular organisms work together to maintain homeostasis?
    1. What is cell specialization?
       1. Give an example of cell specialization
       2. How does the DNA in a specialized cell compare with the DNA of another specialized cell?
       3. How is a stem cell capable of producing a specialized cell?
17. What are the levels of organization in multicellular organisms?
    1. Give an example of each level