**Cells, Part 1 Study Guide**

1. How do you calculate the **total** power magnification on a compound microscope? Multiply the objective lens by the eyepiece
2. What type of cell is below? How can you tell? Plant…. Shape and large central vaculoe
3. Label the organelles and their functions in the box below:

|  |  |  |
| --- | --- | --- |
| Letter | Name | Function |
| A | Cell Wall | Structure and support |
| B | chloroplasts | photosynthesis |
| C | nucleus | Holds genetic info. Controls all cell functions |
| D | mitochondria | Breaks the sugar into energy |
| E | cytoplasm | Holds the organelles |
| F | Central vacuole | Stores water |



B

A

C

D

E

F

1. Which organelle transforms sunlight into food/glucose? chloroplasts
2. What happens to a plant cell when placed in a salt solution? Shrinks… hypertonic solution
3. Label the following structures of a plasma (cell) membrane): 

Z= phospholipid bilayer Y= hydrophobic tails

X= protein channel for facilitated diffusion W= phosphate head…hydrophyllic

1. Why is the plasma membrane a fluid mosaic model? Can move and is flexible
2. Which part of the plasma membrane is hydrophobic? What does this mean? The tails… water haters
3. Explain what selectively (semi) permeable means? Can choose what diffuses… can control what goes in and out of the cell
4. What is the primary building block (macromolecule) of the cell membrane? lipids
5. What type of cell is below? Animal
6. Label organelles and their functions in the box below:

|  |  |  |
| --- | --- | --- |
| Letter | Name | Function |
| A | Nucleus | Holds DNA and controls all cell functions |
| B | Nucleolus | Makes ribosomes |
| C | Ribosomes | Makes proteins |
| D | Mitochondria | Breaks the sugar into energy |
| E | Cell membrane | Regulates what goes in and out of the cell |
| F | Golgi body | Packages proteins |

E

D

F

C

B

A



1. If this cell did not have any of organelle “D”, what would happen to the cell and why? No energy.. .it would die
2. Define osmosis. Diffusion of water from high to low concentration
3. What is the primary difference between active and passive transport? Active transport requires energy in the form of ATP to go from low to high concentration
4. Over time, what will happen to the water molecules in the container? Water will move towards the sugar side 

**Review BioChemistry and Intro to Biology/Classification:**

1. What are the 4 macromolecules? Carbs, Lipids, Proteins and Nucleic Acids
2. What is stored in nucleic acids? Genetic information
3. What is the difference between the independent and dependent variables? Independent is manipulated by the experimenter… dependent is what is the result of the experiment and is measured
4. Put the following in order of smallest structure to largest structure: tissue, cells, organ systems, organs, organellles

Organelles, cells, tissues, organs, organ systems

1. What is glycogen? Stored carbohydrates in animals if not used initially ..stored in liver and muscle cells