Review Guide for Chemistry/Lipid/Membrane and Transport Test

(Organic Chemistry) Be able to:

* Draw Bohr Models and Lewis Dot Diagrams for Carbon, Hydrogen and Oxygen and determine how many bonds each element can make based on those.
* Draw out Hydrocarbons of various lengths showing all atoms and bonds or with the Kinky model.
* Show the dehydration synthesis and hydrolysis of molecules.
* Identify examples of organic and inorganic molecules.

(Lipids) Be able to:

* Identify the properties of lipids, and differentiate them from other biological molecules like carbohydrates.
* Draw the basic shapes of and distinguish between the 4 types of lipids: fatty acids, triglycerides, phospholipids and steroids.
* Identify the types of fatty acids: saturated and unsaturated by looking at the full molecule or the Kinky model of the molecule. Know the properties of each.
* Show how dehydration synthesis is used to connect together fatty acids and glycerol to make a triglyceride.
* Compare and contrast the structures of a triglyceride and phospholipid.
* Describe the functions of steroids like hormones and cholesterol in the cell.

(Cell Membrane) Be able to:

* Describe the function of the cell membrane for the cell.
* Explain how the fluid mosaic model demonstrates the structure of the membrane.
* Explain how the hydrophilic and hydrophobic properties of a phospholipid create a phospholipid bilayer.
* Label which parts of the membrane are hydrophilic or hydrophobic.
* Identify, describe the functions of and give examples for the three types of proteins: Receptor, Marker and Channel.
* Explain how the properties of the cell membrane make it semi-permeable.

(Transport) Be able to:

* What is the driving force behind Passive transport?
* What is the driving force behind Active Transport?
* What is a concentration gradient?
* What kinds of processes go “with” the gradient, and which go “against” the gradient?
* What is special about phospholipids?
* Compare the words isotonic vs. hypotonic vs. hypertonic.
* When is a cell likely to undergo Cytolysis? Plasmolysis?
* How does temperature affect diffusion?
* How is osmosis more specific than diffusion? Explain the subtle difference.
* Differentiate pinocytosis and phagocytosis.
* What is turgor pressure?
* What are the three kinds of permeability? Which type of permeability is the cell membrane?
* What kinds of molecules need help (like a channel protein) to pass through the membrane? Why?