Name:_____ AP Biology 2011 Ch 2-3 Questions

There is going to be a quick review through Chapters 2 and 3 on Monday and Tuesday 8/22 -23. You should have covered this material in your previous science classes and I consider it review material You do not have to go through and answer all of the questions below as an assignment, but I suggest that you go through and attempt to answer them at least verbally to yourself, written answers would help you even more. Look up the ones that you are shaky on and be ready to review them. You also do not have to define the key terms, but if you do not know what they mean you will not be able to pass the test on Wed August 24th on Ch. 2 -3.

Chapter 2

After reading this chapter you should be able to:

1. Define element and compound.
2. State and describe the atomic makeup of the four elements essential to life that make up 96% of living matter.
3. Describe the structure of an atom.
4. Define and distinguish among atomic number, mass number, atomic weight and valence.
5. If given the atomic number and mass number of an atom, be able to determine the number of neutrons.
6. Explain what radioisotopes are and why they are important to biologists.
7. Explain how electron configuration influences the chemical behavior of an atom.
8. Explain the octet rule and predict how many bonds an atom might form.
9. Explain why noble gases are so unreactive.
10. Define electronegativity and explain how it influences the formation of chemical bonds.
11. Distinguish among nonpolar covalent, polar covalent and ionic bonds.
12. Describe the formation of a hydrogen bond and explain how it differs from a covalent or ionic bond.
13. Explain why weak bonds are important to living organisms.
14. Describe how the relative concentrations of reactants and products affect a chemical reaction.

You should also be able to define the following CH 2 **key terms**:

Matter	electron	potential energy	covalent bond
Mass	atomic number	electron shell	polar covalent bond
Element	mass number	orbital	ionic bond
Trace element	isotope	valence electrons	cation
Compound	radioactive	chemical bond	anion
Atom	half life	molecule	ion
Proton	energy	electronegativity	hydrogen bond
neutron	Daltons		

Chapter 3

After reading this chapter you should be able to:

1. Describe how water contributes to the fitness of the environment to support life.
2. Describe the structure and geometry of a water molecule and explain what properties emerge as a result of this structure.
3. Explain the relationship between the polar nature of water and its ability to form hydrogen bonds.
4. List five characteristics of water that are emergent properties resulting from hydrogen bonding.
5. Describe the biological significance of the cohesiveness of water.
6. Distinguish between heat and temperature.
7. Explain how water's high specific heat, high heat of vaporization and expansion upon freezing affect both terrestrial and aquatic habitats.
8. Explain why water is the "universal solvent".
9. Explain the basis of the pH scale.
10. Explain how acids and bases directly or indirectly affect the hydrogen ion concentration of a solution.
11. Describe the causes of acid precipitation and explain how it adversely affects the fitness of the environment.

Key terms:

Cohesion	temperature	solvent	dissociation
Surface tension	calorie	solute	aqueous solution
Adhesion	base	kilocalorie	acid
Hydrophilic	pH scale	specific heat	mole
Hydrophobic	heat of vaporization	molecular weight	buffer
Kinetic energy	evaporative cooling	hydronium ion	hydroxide ion
acid precipitation	heat		solution