1. Define the following terms

**Test Review – Chem and Biochem**

* 1. Atom

The basic unit of a chemical element

* 1. Element

A substance that cannot be chemically separated or broken down to a more simple substance

* 1. Compound

Substance that contains two or more elements

* 1. Molecule

Two or more atoms bonded together

1. Draw a covalent bond. Draw an ionic bond



* 1. How is a covalent bond different than an ionic bond?

Covalent bonds share electrons and ionic bonds are attracted to differing charges.



1. Write out any chemical equation. Label which chemicals are the products and which chemicals are the reactants.

H + OH 🡪 H20

H+OH reactants, H2O Products

1. Define what makes something acidic.

Spare H+ ions

1. Draw a pH scale below. Make sure to label the numbers and what end is acidic and what end is basic.



1. If a compound is mostly based in carbon then you can call it an organic compound.
2. How many valence electrons does carbon have? This directly relates to the number of bonds that carbon make.

4 valence electrons yields 4 bonds

1. Define hydrocarbon.

Molecule containing only hydrogen and carbon

1. Draw the following functional units
   1. Hydroxyl
   2. Carbonyl
   3. Carboxyl
   4. Amino
   5. Phosphate
   6. Methyl
2. Define dehydration synthesis

Two monomers are attached and a water molecule is created

* 1. What two types of molecules are affected by dehydration synthesis? What happens to those molecules?

Two monomers are affected, they are joined together

1. Define hydrolysis

A polymer is separated by using a molecule of water

* 1. What two types of molecules are affected by hydrolysis? What happens to those molecules?

The polymer is separated into two smaller units

1. What is a carbohydrate?

Macromolecules that are better known as sugars. Contain mostly hydrogen, carbon and oxygen

* 1. What is the monomer? What is the polymer?

Monosaccharide and Polysaccharide

1. What is a generic formula for a carbohydrate?

C6H12O6

1. What is a lipid?

Large macromolecule that does not react/disolve with water

* 1. What are the 4 main categories of lipid?

Fats, phospholipid, steroid, wax

1. What types of lipids are used to protect cells?

Phospholipids

1. What is a protein?

A macromolecule that is composed of amino acids

* 1. What is the monomer of a protein? What is the polymer of a protein?

Amino Acid and polypeptide

* 1. What are the major uses for proteins?

Structure, enzymes, signaling and energy

1. What is the type of bond that is created when two amino acids link?

Peptide bond

1. What are the three main functional groups that are on an amino acid?

Carboxyl, amino and R’ group