**Unit 9 Notes**

**Acids and Bases**

Acid – A substance that produces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions (H+) in solution, a proton donor.

Properties of Acids: \_\_\_\_\_\_\_\_\_ taste, \_\_\_\_\_\_\_\_ pH(<7), turns litmus paper \_\_\_\_\_\_\_\_\_\_

Base – A substance that produces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions (OH-) in solution, a proton acceptor.

Properties of Bases: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ taste, feel \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, high \_\_\_\_\_(>7), turn litmus paper blue

Conjugate acid – the substance formed when a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is added to a base

Conjugate base – the remaining substance when a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is lost from an acid

Example: HA(aq) + H2O(l) 🡪 H3O+(aq) + A-(aq)

Acid Base Conjugate Conjugate

 Acid Base

H3O+  is also known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ion

pH - scale used to measure the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an acid. Based on the \_\_\_\_\_\_\_\_ or the concentration of Hydrogen ions. pH scale ranges from 0-14

pOH – scale used to measure the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a base. Based on the \_\_\_\_\_\_\_\_\_ or the concentration of the Hydroxide ions. pOH scale ranges from 0-14



**Formulas**

Kw formula: [H+][OH-] = 1.0 x 10-14  pH and pOH formula: pH + pOH =14

 pH formula: pH = -log[H+] pOH formula: pOH = -log[OH-]

[H+] formula: [H+] = 10-pH [OH-] = 10-pOH

Examples:

Calculate the pH value and identify the solution as acidic, basic, or neutral:

a. A solution in which [H+] = 1.0 x 10-9 M b. a solution in which [OH-] = 1.0 x 10-6 M

Calculate the pH and pOH of the following solutions:

a. 1.0 x 10-3 M OH- b. 1.0 M H+

The pH of blood is about 7.4 what is the pOH and the [H+] of human blood?

The pOH of water is 6.59 in a fish tank. What is the [OH-] and the[H+] of the water?