Session 15 Answers

CH 105 SI

Acids & Bases Introduction

1. According to the Arrhenius Theory of acids and bases, acids give up H^+ in solution and bases give up OH^-. This means that an acidic solution has more H^+ and a basic solution has more OH^-.

2. What are non-oxygen acids and how do you name them?
   consist of a proton and a halogen anion.
   hydro-anion-ic-acid Ex: HCl hydro-chloric-acid

3. What happens when an oxyacid ionizes?
   The oxygen stays with the non-metal as part of an oxyanion.

When naming acids with polyatomic ions (oxyacids)....follow this rule:

   a. Ions that end in "–ate" such as phosphate or nitrate: acid name ends in "-ic"
      i. Ex: nitrate + hydrogen= nitric acid
   b. Ions that end in "-ite" such as nitrite: acid ends in "-ous"
      i. Ex: nitrite + hydrogen= nitrous acid

4. How do you name Arrhenius bases?
   The name of the cation + "hydroxide".

5. What is a Bronsted-Lowry acid and base? What is the difference between this and an Arrhenius acid and base?
   acid: H^+ donor
   base: H^+ acceptor
   Arrenius bases involve OH^- rather than H^+.

6. In the following equations, label the acid, base, conjugate acid and conjugate base:
   a. $H_2SO_4 + H_2O \rightarrow HSO_4^- + H_3O^+$
      acid base conj. base conj. acid
   b. $HCl + NH_3 \rightarrow Cl^- + NH_4^+$
      acid base conj. base conj. acid
   c. $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$
      base acid conj. acid conj. base