Chem 1 Dr. Casagrande / Mrs. Rinaldi

Chapter 19 Review Sheet: Acids & Bases

Be able to answer the following questions or explain the following concepts:

1. Identify the physical and chemical properties of acids and bases.
2. Classify solutions as acidic, basic, or neutral based on the relative levels of $[H^+]$ and $[OH^-]$.
3. Describe the Arrhenius and Brønsted models for acids and bases.
4. Identify the acid, base, conjugate acid, and conjugate base in a reaction.
5. ~~Determine whether an acid is mono-, di-, or triprotic and write the ionization reactions for a polyprotic acid.~~
6. Relate the strength of an acid or base (strong or weak) to its degree of ionization (fully or partially ionized) and its other properties, such as electrical conductivity.
7. ~~Write an acid ionization (dissociation) reaction equation and write the acid ionization constant expression (K_{eq}) for it.~~
8. Compare the strengths of weak acids or bases from the values of their acid or base ionization constants (K_a or K_b).
9. Relate the strength of an acid or base to its strength as an electrolyte.
10. Given the $[H^+]$ or $[OH^-]$, calculate the other from $K_w = [H^+][OH^-] = 1.0\times10^{-14}$.
11. Given the $[H^+]$ calculate pH or given the $[OH^-]$ calculate pOH.
12. Classify solutions as acidic, neutral, or basic based on their pH.
13. Given pH or pOH, determine the other from pH + pOH = 14.
14. Describe what an acid-base neutralization reaction is.
15. Write a neutralization reaction for a given acid-base system.
16. Explain what titration is and how neutralization reactions are used in acid-base titrations.
17. Explain why, at the equivalence point, mol H^+ = mol OH^-
18. Describe what an indicator is and explain how it determines the endpoint of a titration.
19. Determine the concentration an unknown solution being titrated given its volume and the volume and concentration of the known solution.
20. Describe the dangers of hydrofluoric acid (*An Invisible Fire* article) and the general treatment for accidental exposure.
21. Describe the causes and effects of acid rain and explain what has been done to reduce it.

Chapter 19 Chapter Assessment pp. 630-632 #42, 47, 50, 52, 53, 58, 62, 63, 64, 83, ~~85,~~ 87, 88, 89, 90, 95, 96.

Answers to Chapter Assessment Problems (do work first, then check your answers):
87a. $[OH^-]=1.0\times10^{-10}$ M; b. $[H^+]=7.7\times10^{-13}$ M; 88a. pH=4.00; b. pH=10.24; 89a. pOH=12.00, pH=2.00; b. pOH=1.89, pH=12.11; 90a. pH=1.56; b. pH=0.55; c. pH=11.87; d. pH=13.64; 95. M_{HF}=0.5015 M; 96. M_{NaOH}=0.1738 M