**Chapter 19 Quiz Review**

1. Write three major qualities of an acid. Do the same for a base. (pH, litmus paper color change, physical property)
2. List all of the major strong acids and bases. What is significant to know about these strong acids/bases in terms of their dissociation in water?
3. By definition, what does an acid do? What does a base do?
4. Name the following acids and bases in the first column. Identify the acid/base in the second column.
   1. HF e. Sulfuric acid
   2. H2CO3 f. Calcium hydroxide
   3. NaOH g. Hydrochloric acid
   4. H3PO4 h. Ammonia
5. For e-h in question 4, show what will happen when they react with water. In your equations, include the labels for acid, base, conjugate acid and conjugate base.
6. What does the pH measure? How are you able to find the pH of a substance if you are given the:
   1. [H+]
   2. pOH
7. You are given 98.5 grams of sulfuric acid, in a 500 mL solution with water.
   1. What is the concentration of sulfuric acid? (M = mol/L)
   2. What is the [H+]? Why will this concentration be different than the concentration of sulfuric acid?
   3. What is the pH of this substance? What is the pOH of this substance?
8. How are Ka and pKa related? How would you solve for Kb if you were given Ka?
9. How are pH/pOH related? What about pKa and pKb? If you know the pH, how do you find [H+]?
10. You react a .005M solution of carbonic acid with water at equilibrium. The Ka of your reaction is 1.7x10-5.
    1. Write a balanced chemical equation, and write a K equation for the reaction described.
    2. What is the pKa of this reaction? What about the Kb? pKb?
    3. Find the hydronium concentration of this reaction? Additionally, find the pH of this substance.
11. You react a .03 M solution of magnesium hydroxide with water at equilibrium. You are given that the hydroxide concentration is .0005 M.
    1. Write a balanced chemical equation, and write a K equation for the reaction described
    2. With this information, calculate the Kb of your base.
    3. Additionally, calculate the pKb and the pOH of your base.
12. For the following, you are dissolving a solid salt in water. Write the balanced equation for these salts, and predict the pH of the salt using the products.
    1. BaCl2
    2. Na2CO3
    3. FeSO4
13. *You are initially given 0.75 moles of NH3 to make a 0.5 L solution. If the Kb of ammonia is 1.8x10-5, determine how much hydroxide will be needed to establish equilibrium. (This is an ICE Table problem).*
    1. *Also, determine the pH of your base at equilibrium.*