SOLUBILITY: Chapter 16

1. A) Write the equation for Iron III chloride dissolving in water.
   B) If 0.1 mole of the salt dissolves in a liter of water, what is the concentration of all ions in solution?

2. Ammonium Sulfate dissolves in water.
   A) Write a balanced equation.
   B) If 1.32 grams of the salt dissolve in 500 ml of water, what is the concentration of each ion?

3. If 1 liter of solution is made by adding .1 n aluminum bromide and .1 n sodium bromide to the 1 liter, what are the concentrations of EACH ION?

4. Write the equation for the reaction of iodide ions with
   A) Aqueous silver ion B) Aqueous lead ion

5. When a solution of barium chloride and potassium chromate are mixed, a precipitate of barium salt is formed.
   A) Write the equation(s)
   B) If 1 liter of .5m barium chloride is mixed with 1 liter of .2m potassium chromate, (assume the precipitate is negligible solubility) calculate the concentration of all remaining ionic species.

6. Predict what will happen when equal volumes of .25M Na_2SO_3 and .25M $MgSO_4$ are mixed. Write all reactions that take place (if any).

7. What ions could be present in a solution if samples give:
   A) a ppt. when either $CL^-_{(aq)}$ or $SO_4^{-2}{}_{(aq)}$ is added
   B) ppt.s with CL^- but not with SO_4^{-2}
   C) ppt.s with SO_4^{-2} but not with CL^-

8. Write equations for all reactions (include ionic) for .5M solutions of:
   A) Sodium hydroxide and aluminum chloride
   B) Silver nitrate + ammonium bromide
   C) Barium chloride and sodium sulfate

9. Some 1M NaBr solution is added to a sample solution which is 0.1 M in the following ions: Ag^+; Fe^{+2}; Ca^{+2}; Cu^+. Ppt. A forms and is filtered out. A sulfide solution is added to the filtrate and a black ppt B forms. This ppt is also filtered and 1M sodium carbonate is added yielding ppt. C. What is the empirical formula of ppts. A, B,& C?

10. Make a statement about solubilities of compounds containing the following ions.
    A) Carbonate, CO_3^{-2}, with alkali ions.
    B) Carbonate, CO_3^{-2}, with alkaline earth ions
    C) Sulfide, S^{-2}, with Alkaline earth ions.