Chemistry 152
Worksheet 5

Name: _____

A. (1.0 pts.) At 25°C, the molar solubility of $BaCO_3$ is $5.1x10^{-8}$moles/L. Calculate the value of K_{sp} for $BaCO_3$ at 25°C.

B. (2.0 pts.) Calculate the molar solubility of $Co(OH)_2$ at 25°C. K_{sp} for $Co(OH)_2$ is $1.1x10^{-15}$.

C. (2.0 pts.) Calculate the molar solubility at 25°C of $Ni(OH)_2$ in a solution having pH of 11.56. K_{sp} for $Ni(OH)_2$ at 25°C is $5.5x10^{-16}$.

D. (2.0 pts.) K_{sp} for $PbCl_2$ at 25°C is $1.2x10^{-5}$. Will a precipitate of $PbCl_2$ form in a solution having $[Pb^{2+}] = 2.0x10^{-4}$M and $[Cl^-] = 0.020$M. Show your work.

E. (1.0 pts.) Determine the $[Cu^{2+}]$ at equilibrium in a solution having $[Cu(NH_3)_4]^{2+} = 0.10$M and $[NH_3] = 0.25$M. K_d for $Cu(NH_3)_4^{2+}$ is $1.8x10^{-12}$.

F. (2.0 pts.) Write balanced net ionic equations expected when aqueous solutions of each of the following are mixed. Indicate the form of the equation constant in terms of other constants such as K_a, K_b, K_w, K_{sp}, and K_d.

*1. $Ba(NO_3)_2 + K_2SO_4$

2. $Zn(NO_3)_2 + NH_4$ (xs)

3. $H_2S + BiCl_3$

4. $Cr(OH)_3 + NaOH$ (xs)