CHE 112 - Homework - Ch 15b

OER 15.1-15.3 **Common Ion Effect and Coupled Equilia** Score: _____/40

Name: _____ Date: _____

[10 pt] 1. Will the solubility of BaF_2 (I)ncrease, (D)ecrease, or remain the (S)ame on addition of the following compounds? Explain.

(a) Write the equilibrium reaction for the dissociation of BaF_2.

(b) HCl 1(b) _____

(c) KF 1(c) _____

(d) $NaNO_3$ 1(d) _____

(e) $Ba(NO_3)_2$ 1(e) _____

[10 pt] 2. Will the solubility of Ag_2CO_3 (I)ncrease, (D)ecrease, or remain the (S)ame on addition of the following compounds? Explain.

(a) Write the equilibrium reaction for the dissociation of Ag_2CO_3.

(b) $AgNO_3$ 2(b) _____

(c) HNO_3 2(c) _____

(d) Na_2CO_3 2(d) _____

(e) NH_3 2(e) _____

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You will probably need lots of room to complete the next few problems, attach a sheet of paper showing your work.

[5 pt] 3. Calculate the molar solubility of SrF_2 ($K_{sp} = 4.3 \times 10^{-9}$) under the following conditions. Explain your work.

(a) pure water. 3(a) _____

(b) 0.010 M NaF. 3(b) _____

[5 pt] 4. Calculate the molar solubility of $Fe(OH)_2$ ($K_{sp} = 4.87 \times 10^{-17}$) under the following conditions. Explain your work.

4(a) pure water. 4(a) _____

(b) 0.10 M HF (Hint: wa). 4(b) _____

[5 pt] 5. Given that K_{sp} for AgI is 8.5×10^{-17}, calculate the molar solubility of AgI in:

(a) pure water. 5(a) _____

(b) 0.10 M NaCN, K_f for $Ag(CN)_2)^-$ is 3.0×10^{20} 5(b) _____

[5 pt] 6. Given that K_{sp} for $Cr(OH)_3$ is 6.3×10^{-31}, calculate the molar solubility of $Cr(OH)_3$ in:

(a) pure water. 6(a) _____

(b) 0.50 M NaOH, K_f for $Cr(OH)_4)^-$ is 8.0×10^{29} 6(b) _____