

**Problem Set 5 –Equilibrium Review**

Complete all problems on separate paper. Show all work for credit.

1. Use the solubility product to calculate the solubility of CuBr in water expressed as (a) moles per liter and (b) grams per 100 mL.
2. A solution contains 0.25 M Ni(NO<sub>3</sub>)<sub>2</sub> and 0.25 M Cu(NO<sub>3</sub>)<sub>2</sub>. Can the metal ions be separated by slowly adding Na<sub>2</sub>CO<sub>3</sub>? Assume that for successful separation, 99% of the metal ion must be precipitated before the other metal ion begins to precipitate, and assume that no volume change occurs upon addition of Na<sub>2</sub>CO<sub>3</sub>. (Ignore activities.)
3. Find the pH and pOH of a 1.37 x 10<sup>-5</sup> M solution of iodoacetic acid. (Ignore activities.)
4. An acidic solution containing 0.010 M La<sup>3+</sup> is treated with NaOH until La(OH)<sub>3</sub> precipitates. At what pH does this occur?
5. In a 0.030 M solution of the weak base, B, 0.27% of B underwent hydrolysis to make BH<sup>+</sup>. Find K<sub>b</sub> for the base.