Chemistry 12

Name: _____

Date: _____

BLK:

Solubility Worksheet – concepts, separating ions

1. Decide whether each of the following are electrolytes or not (yes or no) when dissolved in water. (5 marks)

   a. $AgNO_3$

   b. CH_3CH_2COOH

   c. CH_3CH_2OH

   d. $Ba(OH)_2$

   e. NH_4Cl

2. Calcium fluoride has a solubility of 6.87 grams/L at a certain temperature. Express this solubility in moles per litre. (1 mark)

3. You dissolve 3.20×10^{-2} moles of $Fe(NO_3)_3$ into water to make 2.00 L of solution. (1 mark)

   a. Write the dissociation equation.

   b. Determine the $[Fe^{3+}]$ and $[NO_3^-]$

4. 67.0 mL of 0.25 M $BaCl_2$ is mixed with 25.0 mL of 0.30 M NaCl. Determine the final $[Cl^-]$ in the new mixture. (2 marks)

5. Write the net ionic equation(s) for the reaction(s) when equal volumes of 0.20 M $Sr(OH)_2$ and 0.20 M $Fe_2(SO_4)_3$ are mixed. (1 mark)

6. A 1.0 M solution of sodium sulphide is added to a 1.0 M solution of copper(II) chloride resulting in the formation of a precipitate. (4 marks)

   a. Identify the precipitate. _____

   b. Write the complete ionic equation for the reaction.

   c. Write the net ionic equation.

   d. Identify all spectator ions. _____

7. A solution which contains only one of the following anions: SO_4^{2-}, S^{2-}, or OH^- is tested with various reagents and the following results are obtained:

Reagent	Results
0.2M $Be(NO_3)_2$	no precipitate
0.2M $Mg(NO_3)_2$	no precipitate
0.2M $Sr(NO_3)_2$	precipitate

Which anion does the solution contain? _____ (1 mark)

8. A solution contains SO_4^{2-} and Cl^-. Outline an experimental procedure to remove each individually from the solution, and identify the reagents used in the procedure. (2 marks)