Ch4 Sec 1-8 Wksht

M/m/Dilution/Precipitation/Acid-Base Name_____

5 1. Determine which of the following compounds are soluble or insoluble in water using the solubility rules:

a. lithium hydroxide slightly sol. d. ammonium acetate sol

b. calcium sulfate not sol e. lead II chloride sol

c. potassium phosphate slightly sol. f. strontium sulfide slightly sol

6 2. Write balanced equations for the following substances dissolving in water:

a. $Na_2SO_{4(s)} \rightarrow 2Na^+_{(aq)} + SO_4^{2-}{}_{(aq)}$

b. $H_2O_{2(l)} \xrightarrow{H_2O} H_2O_{2(aq)}$

c. $HBr_{(g)} \rightarrow H^+_{(aq)} + Br^-_{(aq)}$

d. $CH_2O_{(l)} \xrightarrow{H_2O} CH_2O_{(aq)}$

7 3. Complete and balance the following and write a net ionic equation for each:

a. $K_2S_{(aq)} + Ni(NO_3)_{2(aq)} \rightarrow KNO_{3(aq)} + NiS_{(s)}$

$Ni^{2+}_{(aq)} + S^{2-}_{(aq)} \rightarrow NiS_{(s)}$

b. $BaCl_{2(aq)} + Na_2CO_{3(aq)} \rightarrow BaCO_{3(s)} + 2NaCl_{(aq)}$

$Ba^{2+}_{(aq)} + CO_3^{2-}{}_{(aq)} \rightarrow BaCO_{3(s)}$

8 4. Write a balanced equation for the formation of mercury II iodide from a precipitation reaction.

$Hg(NO_3)_{2(aq)} + 2KI_{(aq)} \rightarrow HgI_{2(s)} + 2KNO_{3(aq)}$

$Hg^{2+}_{(aq)} + 2I^-_{(aq)} \rightarrow HgI_{2(s)}$

9 5. How many grams of $Ca(ClO_3)_2$ are contained in 275 mL of a 0.18M $Ca(ClO_3)_2$ solution?

$275mL\ Ca(ClO_3)_2 \times \frac{1\ L}{1000mL} \times \frac{.18\ Mol}{1\ L} \times \frac{206.98g}{1\ mol} = 10.2g$

10 6. What is the molarity of a 53.0mL sample of a 0.38M $CoCl_2$ solution diluted to a new volume of 1.5 L?

$.38M \times .0530L = M_2 \times 1.5L$ .013M

11 7. How many grams of silver I phosphate can be expected to form when 255 mL of a 0.45M silver I nitrate solution is mixed with an excess of a sodium phosphate solution. Write a balanced equation for this reaction.

$3AgNO_{3(aq)} + Na_3PO_4 \rightarrow 3NaNO_{3(aq)} + Ag_3PO_{4(s)}$

255mL 0.45M XS ?g.

$255mL\ AgNO_3 \times \frac{1\ L}{1000\ mL} \times \frac{0.45\ mol\ AgNO_3}{1\ L} \times \frac{1\ mol\ Ag_3PO_4}{3\ mol\ AgNO_3} \times \frac{418.67\ g\ Ag_3PO_4}{1\ mol} = 16.0g\ Ag_3PO_4$