Chemistry Unit 7

HW 4.5 – Quick Review of Unit 7 So Far

1. Determine the molarity of a solution of the following solutions:
   1. 30.0 g of sodium carbonate in 2 L of solution
   2. 14.7 g of ammonium hydroxide in 500 ml solution
2. How many grams of magnesium chloride are contained in 50.0 ml of a .2 M solution of magnesium chloride in water?
3. Determine the molality of each of the following solutions:
   1. 230.5 g of hydrochloric acid in 3.0 kg of water
   2. 28.2 g of potassium nitrate in 1.5 L of water
4. How many kilograms of water must be added to 75.5 g of lithium bicarbonate to form a .5 m solution?
5. Find the percentage by mass of each of the following solutions:
   1. 30 g of sugar (C12H22O11) in 100 g of water
   2. 0.75 g of silver nitrate in 13 g of water
6. If you dissolve 25 g of barium hydroxide in 5 liters of water, what is the concentration in percentage by mass?
7. Using the Solubility Curves of Solids graph, determine the solubility of ammonium chloride at 30 °C, 55 °C and 75 °C.
8. Using that same graph, if 100 g of potassium nitrate were added to 100g of water at 50 °C, how would the solution be described (saturated, unsaturated or supersaturated)?
9. At what temperature would the solution be saturated?
10. If a saturated solution of potassium nitrate at 60 °C in 100 g of water is cooled to 10°C, what mass of solid potassium nitrate would precipitate out of solution?
11. If 3L of 12 M hydrochloric acid is diluted to 10L, what is the molarity of the new solution?
12. How much 16M sulfuric acid would be needed to form 2L of .5 M solution? How much water?
13. How much of the above .5M sulfuric acid solution is needed to make 1.5 L of .25 M solution?
14. Write the total ionic equation for the following solutions:
    1. Sodium chloride in water
    2. Ammonium sulfide in water
15. 35 g of sodium bicarbonate dissolved in 350 ml of solution.
    1. How many moles of sodium are involved?
    2. What is the total molarity of the solution?
    3. What is the molarity of sodium ions?
16. 5 mol of calcium nitrate are dissolved in 3 L of solution.
    1. What mass of calcium nitrate is involved?
    2. What is the molarity of the nitrate ions in solution?
    3. What is the molarity of the calcium ions in solution?
17. 2 moles of potassium bromide and 1.5 mols of calcium bromide are dissolved in enough water to make 1L of solution. Write the total ionic equation for the dissolutions.
18. What is the concentration of all the ions involved in #17.
19. If 30 g of sodium hydroxide and 40 g of sodium sulfate are put into 2 L of solution, what is the concentration of each ion in the solution?
20. Write the total ionic equation for the following. Then write the net ionic equation:
    1. Lithium chloride is mixed with silver nitrate
    2. Zinc nitrate is combined with ammonium hydroxide
    3. Calcium acetate and sodium phosphate are mixed