Review Sheet: Unit 10 **Name_____**

Fill in the blanks using the most appropriate word or phrase.

1. A solution is a _____ mixture of two or more substances.

2. Every solution is composed of a _____, which is normally present in the smaller amount and is the substance that is _____, and a _____, which is normally present in the greater amount and is the substance that does the dissolving.

3. A carbonated drink is an example of a _____ solute dissolved in a _____ solvent; the final phase is that of a _____. Air is an example of a _____ solution.

4. Liquids, such as antifreeze and water, which dissolve in one another are said to be _____, while liquids that do not dissolve in one another, such as salad oil and vinegar, are said to be _____.

5. Brass, a mixture of copper and zinc, is an example of a solid solution known as a(n) _____.

6. Because the particles in a solution are so small (molecules, _____, or _____), filtration cannot be used to separate the components nor do the components settle upon standing.

7. _____ contain particles too large to be true solutions, and upon standing, separate. They are actually _____ mixtures and (can, can not) be separated by filtration. They also exhibit the _____ _____ which is the scattering of a beam of light. _____ also exhibit the _____ _____, but do not separate upon standing.

8. The rate of solution expresses how _____ a solute dissolves in a solvent.

9. Henry's Law: The _____ of a gas dissolved in a given volume of liquid is _____ _____ to the pressure of the gas.

10. For most solutes to be dissolved in liquid solvents:
    -- as temperature increases the rate of solution _____
    -- as surface area increases, the rate of solution _____
    -- stirring or agitating the mixture _____ the rate of solution.

11. _____ are substances that conduct an electric current when dissolved. _____ are substances that do not conduct an electric current when dissolved.

12. A solution is _____ if it contains a relatively large amount of solute compared to the amount of solvent. A solution is _____ if it contains a relatively small amount of solute.

13. _____ is a measure of how much solute can dissolve in a given amount of solvent at a given temperature.

14. _____ properties depend only on the concentration of the solution. These properties include vapor pressure _____, freezing point _____, and boiling point _____.

Define each of the following words.

1. aqueous:

2. tincture:

3. emulsion:

4. colligative properties:

5. "like dissolves like":

Answer each of the following questions completely.

1. Explain how a solution can be both dilute and saturated.

2. Why do we put antifreeze in car radiators in the summer as well as in the winter?

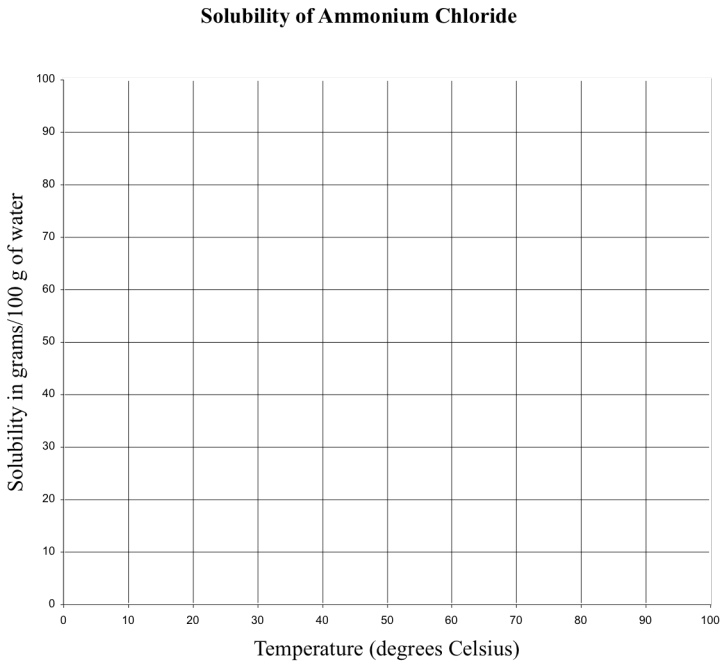
3. What will happen when a crystal of solute is added to an unsaturated solution?

4. What will happen when a crystal of solute is added to a supersaturated solution?

5. Normally, if the temperature is increased, the solubility of a solid solute _____. (For gaseous solutes, however, increasing the temperature _____ solubility.)

Use the following data to construct a solubility curve for NH_4Cl.

Grams of NH_4Cl per 100 g of H_2O	Temperature (°C)
30	0
35	15
40	25
50	50
60	70
71	90
74	95



Use your graph to answer the following questions.

1. What is the solubility of ammonium chloride at 40 °C? _____

2. If 54 g of NH_4Cl are dissolved at 68 °C, the solution is _____.

3. If 54 g of NH_4Cl are dissolved at 30 °C, how many grams don't dissolve? _____

Answer each of the following questions about molarity. Show all work on the problems.

1. Describe, IN DETAIL, how to make one liter of a 1 M NaCl solution.

2. What is the molarity of a solution that contains 15.0 g NaCl in 1.25 L of solution?

3. A solution of HCl is 0.200M. What mass of acid is dissolved in 250 mL of solution?

4. A solution of Na_2CO_3 contains 65.0 g of solute dissolved in water to make a 3.00 M solution. What is the volume of the solution, in liters?