Test Review for chapter 11 – "Solutions"

1. Define

Solution_____
_____

Solvent:_____
_____

Solute:_____
_____

2. Give an example of

A solid solution_____

A liquid solution_____

A gaseous solution_____

3. The word aqueous means _____

4. At 25°C, the maximum amount of NaCl that will dissolve in 100 g of water is 36.2 g NaCl. This solution would therefore be:
unsaturated/saturated/supersaturated (circle correct answer).

5. For most solids, their solubility: increases/decreases/remains the same as temperature goes up.

6. For most gases, their solubility: increases/decreases/remains the same as temperature goes up.

7. Circle which of the following are polar gases (the others would be nonpolar):

HCl CO_2 O_2 CH_4 H_2 I_2 NH_3

8. For most gases, their solubility: increases/decreases/remains the same as pressure goes up.

This is known as _____ Law

9. What is the molarity of a solution containing 5.035 grams of $FeCl_3$ in water to make 500.0 mL of solution?

10a. The solubility of lithium chloride is 86.2 g per 100 mL water at 20°C. What does this mean?

10b. If you increase the temp from 20 to 30°C, how will that affect the solubility of the LiCl?

11. Which gases are more soluble in water, polar or non-polar gases? List some of each.

12. What is Henry's Law?

13. A sugar solution is prepared by dissolving 25.0 g of sugar into 100.0 g of water. What is the % sugar by mass?

14. What are colligative properties of solutions? List some.

15. How do boiling point and freezing point compare for solutions and a pure solvent?

16. What makes something a solution? Give examples. How is a colloid different?

17. What is the molality of a solution that contains 1.80 mol KCl in 288 g of water?

18. A solution contains 19.4 g of H_2SO_4 in 0.251 L of H_2O (assume density of water is 1.00 g/mL). What are the mole fractions of the H_2SO_4 and the H_2O ?

19. If 31.65 g of NaCl is dissolved in 220.0 mL of water, what will be the bp of the solution? Assume the NaCl completely dissolves in the water; that the density of water = 0.994 g/mL; and that K_b for water = 0.510 °C kg/molal