Solutions Review

Student Resource Sheet

1. Describe the difference between unsaturated, saturated, and super-saturated solutions.

2. What are properties of electrolytes?

3. Describe what happens when solutions form. Be sure to discuss the process of dissociation/ionization.

4. What does it mean if a solution/system is said to be at equilibrium?

5. What effects does dissolving a solid in water have on the freezing point and boiling point of water?

   A increases freezing point, increases boiling point
   B decreases freezing point, increases boiling point
   C increases freezing point, decreases boiling point
   D decreases freezing point, decreases boiling point

6. Which of these actions will not increase the rate at which salt dissolves in water?

   A increasing the temperature
   B agitating the solution
   C using larger particles of salt
   D using smaller particles of salt

7. When sugar is dissolved in water, which term best describes the sugar?

   A solute
   B solvent
   C concentrated
   D electrolyte

8. Which of the these will not affect a solution already at equilibrium?

   A changing the temperature
   B adding more water
   C stirring the solution
   D increasing the pressure

9. The equation for the decomposition reaction of $CaCO_3$ is shown below.

   $CaCO_3(s) + heat \leftrightarrow CaO(s) + CO_2(g)$

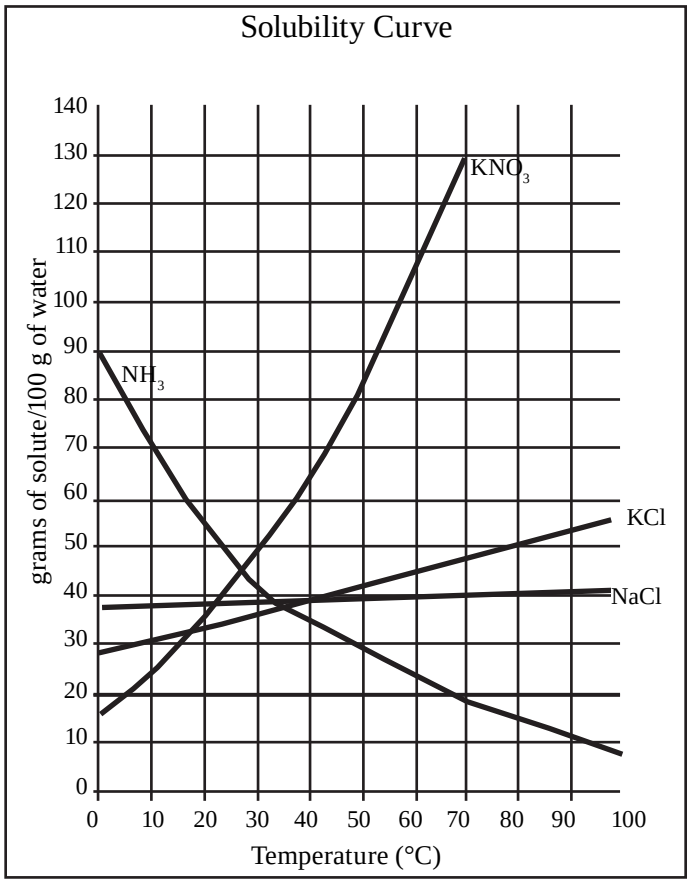
   Which of the these changes would cause the system at equilibrium to shift to the formation of more product?

   A increasing the temperature
   B adding more CO_2
   C removing CaO as it as formed
   D both A and C

10. Which of these is not a characteristic property of solutions?

   A They are homogeneous.
   B They do not separate upon standing.
   C They can be separated by filtration.
   D They do not scatter light.

Directions
Use the solubility curve for questions 11-14.



11. Which compound shows the greatest change in solubility over the range of the graph?

12. What is the solubility of NH_3 at 30 °C?

13. Why does the solubility of NH_3 decrease as temperature increases, while the other compounds all show an increase in solubility?

14. What is solubility a measure of?

BCR: Preparing a Molar Solution

A lab protocol requires 0.5 L of a solution of 2 *M* NaCl.

Problem
Write a detailed procedure for preparing this solution.

Be sure to include:
- All lab equipment needed
- The mass of NaCl needed
- Appropriate safe laboratory practices