Name: _____ Date: _____ Block: _____

AQUEOUS CHEMISTRY QUIZ

1. Identify each reactant and product in the following reaction as the appropriate acid, base, conjugate acid & conjugate base. $H_2O + HF \leftrightarrow H_3O^+ + F^-$

   H_2O _____ HF_____ H_3O^+ _____ F^- _____

2. Soda water is a solution of carbon dioxide in water. This solution contains a
   (a) gaseous solute dissolved in a gaseous solvent (c) gaseous solute dissolved in a liquid solvent
   (b) liquid solute dissolved in a liquid solvent (d) liquid solute dissolved in a gaseous solvent

3. Which of the following substances would be the *strongest* electrolyte?
   (a) 2.0 M KCl (b) 1.0 M KCl (c) 2.0 M SO_2 (d) 1.0 M SO_2

4. Water is a polar molecule. Which of the following solutes will NOT dissolve in water and why?
   (a) NaCl because it is ionic (c) HCl because it is an acid
   (b) I_2 because it is nonpolar (d) $CuSO_4$ because it is also polar

5. An ice-skating rink has tubes under its floor to freeze the water. Salt water is cooled well below the freezing point of water and pumped through the tubes to freeze the water in the rink. Why can the salt water be cooled so low without freezing?
   (a) Salt has a very low freezing point
   (b) Adding salt to water creates a solution, which lowers the freezing point of water
   (c) Movement of salt water through the tubes keeps it in the liquid state.
   (d) The salt water is constantly absorbing energy from its surroundings.

6. Three salt water solutions are prepared to the following concentrations; 1.0 M, 2.0 M and 3.0 M. Which solution would have the highest boiling point and why?
   (a) 1.0 M because it has a lowest concentration (c) 3.0 M because it has the highest concentration
   (b) 2.0 M because salt dissociates into ions (d) All will have the same boiling point

7. A solution is created so that more solute will easily dissolve when added. This solution is
   (a) unsaturated (b) saturated (c) supersaturated (d) none of the above

8. Identify each of the following as an acid (A) or base (B)

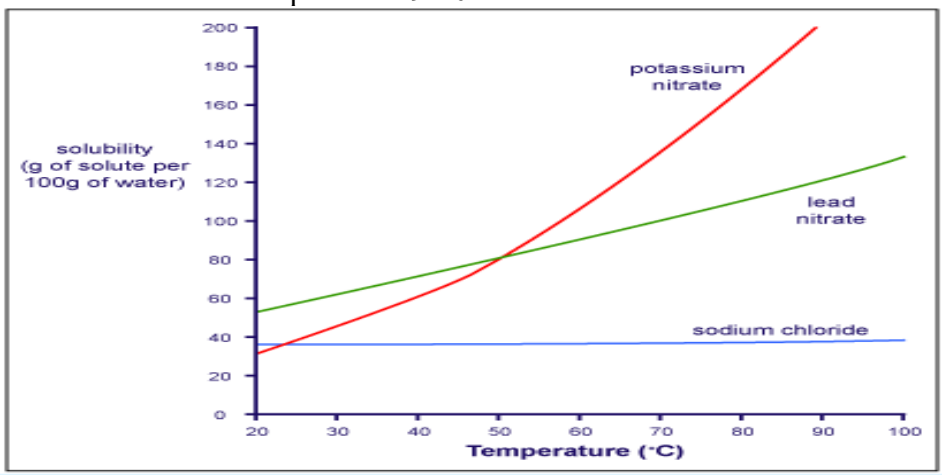
   _____ (a) A substance that produces H^+ ions in solution. _____ (d) H_2SO_4

   _____ (b) A substance that turns red litmus paper blue _____ (e) a substance with a pOH of 2.4

   _____ (c) A substance with a pH of 5.25 _____ (f) KOH

9. Predict the products and states of matter when aqueous solutions of sodium chloride and silver sulfate.

Use the solubility curve below to answer questions 9-10.



10. Which of the following statements is supported by the graph above?
    (a) At 20ºC, more KNO_3 will dissolve than NaCl.
    (b) Temperature has little effect on the solubility of NaCl
    (c) $Pb(NO_3)_2$ becomes less soluble as it is heated
    (d) KNO_3 is insoluble in water.

11. How much KNO_3 will dissolve at 60ºC?
    (a) 40 g (b) 65 g (c) 80 g (d) 110 g

12. (a) How many grams of KNO_3 are present in a 125 mL solution with a concentration of 2.00 M?

    (b) If the solution in part (a) needs to be diluted to a volume of 0.350 L, what will be the new concentration of the solution?

13. What is the pH of a solution with a hydroxide (OH^-) ion concentration of 2.0×10^{-5}?