21. Soda-pop is an example of w___ l type of solute/s___ nt combination ___ u examine the c___ n dioxide and water mixture?
    a. Liquid-liquid
    (b.) Gas-liquid
    c. Solid-liquid
    d. Liquid-solid

22. Soda-pop is an example of which type of solute/solvent combination if you examine the sugar and water mixture?
    a. Liquid-liquid
    b. Gas-liquid
    (c.) Solid-liquid
    d. Liquid-solid

23. If the following reaction is in equilibrium which of the following changes would cause the reaction to shift towards the reactants?
$$2 H_2 (g) + O_2 (g) \rightarrow 2 H_2O (g) + heat$$
    a. Addition of water
    b. Decrease of pressure
    c. decrease of temperature
    (d.) all of these

24. How many ions will be created when Na_2CO3 dissociates? Na_2CO_3
    a. 2
    (b.) 3
    c. 4
    d. none

25. Molarity is expressed as:
    a. moles of solute/ liters of solvent
    b. moles of solvent/ liters of solution
    (c.) moles of solute/ liters of solution
    d. moles of solvent/ liters of solute

Complete the following word problems on your answer sheet, remember to show your work. (4pts each)

26. Kool aide is prepared by mixing 272g of sugar ($C_6H_{12}O_6$) in water to make 2.00 L of solution. What is the molarity of the solution (with out the Kool aide flavor mix)?

$$272g \times \frac{1 mol\ C_6H_{12}O_6}{180.18g\ C_6H_{12}O_6} = 1.51 mol \qquad \frac{1.51 mol}{2.00L} = \boxed{0.755M}$$

27. What is the molarity of a 825ml solution that contains 30.0g of acetic acid (CH_3COOH)?

$$30.0g \times \frac{1mol}{60.06g} = 0.500 mol \qquad \frac{0.500 mol}{0.825L} = \boxed{0.605M}$$

Sf

28. How many grams of sodium chloride are required to prepare 1.00L of a 0.80M solution?

$$0.80M = \frac{n}{1.00L} \qquad n = 0.80 mol \qquad 0.80 mol \times \frac{58.44g}{1 mol} = \boxed{46.8g\ NaCl} \rightarrow 47g$$

29. Calculate the number of grams of KCl required to prepare 200ml of a 0.40M solution.

$$0.40M = \frac{n}{0.200L} \qquad n = 0.080 mol \qquad 0.080 mol \times \frac{74.55g}{1 mol} = \boxed{5.96g\ KCl} \rightarrow 6.0$$

30. What is the molality of a solution containing 256g of CaCl in 800g of water?

$$256g\ CaCl \times \frac{1 mol}{75.53g} = 3.39 mol \qquad \frac{3.39 mol}{0.800 kg} = \boxed{4.24m} \rightarrow 4m$$