Name: _____ / **20 Pts.**

Chemistry worksheet: Solution Concentration

Show all your work with proper units and sig figs. Box final answer!

a.) Calculate the molarity of a solution that contains 3.50g of $Zn(C_2H_3O_2)_2$ in 250.0 ml of solution.

b.) A solution is prepared by dissolving 10.0g of camphor in 120.0 g of toluene. What is the mass percent of this solution?

c.) Find the molarity of a solution that contains 0.250g of sodium chromate in 100.0 ml of solution.

d.) What is the molality of a solution that contains 1.38 moles of ethylene glycol in 812 g of water?

e.) 23.0 g of potassium sulfate is dissolved into 360 ml of solution. What is the molarity of this solution?

f.) How many grams of $MgCl_2$ are needed to prepare 300.0 ml of a 0.400*M* solution?

g.) What is the Na^+ concentration, $[Na^+]$, in a 0.250 *M* Na_3PO_4 solution?

h.) 12.0 ml of a 3.00*M* sulfuric acid solution is diluted to a new total volume of 47.0 ml. What is the new molarity of this solution?

i.) 2.00 mg of $Ni(NO_3)_2$ is dissolved into 25.00 ml of solution. What is the Ni^{2+} and NO_3^- ion concentration?

j.) What volume of a 0.500 *M* $MnCl_2$ solution is needed to prepare 200.0 ml of a 0.150 *M* $MnCl_2$ solution?

k.) 250.0ml of a 0.0100 *M* solution of the salt mercuric nitrate sits out in an open beaker. After several days the volume of solution is reduced to 208.0 ml. What is the molarity of this new solution after evaporation. If this solution is rediluted to 300.0 ml, what is the new molarity after dilution?

l.) What mass of vitamin C (formula mass 176 g/mol) is needed to prepare a 450.0 ml of a 2.09 *M* vitamin C solution?

m.) What is the molarity of a solution that contains 25.0 ml of ethanol, C_2H_5OH, (D= 0.89 g/ml) in 50.0 ml of solution?

n.) A dietician needs to prepare a solution that is 0.250 *M* K^+ from the salt KCl. What mass is needed for each liter of solution?

o.) Calculate the percent by mass of a solution that contains 18.60g of Rochelle salt in 85.0g of water.

p.) 1.20g of 4-nitro-2-tolueneulfonic acid dihydrate (M.M.= 253 g/mol) is dissolved into 50.0g of water. What is the molality of the solution?