  
 **Mustansiriyah University – Collage of Science**

**Department of Chemistry – First Grade – First Term (2018 – 2019)**

**Subject: - Analytical Chemistry Examiner: - Dr: KHITAM JABER NABHAN**

**Q1 – Define Five of the following terms: -**

1. **Saturated Solution, 2- (%, 3- Density, 4- Quantitative Analysis,**

**5-Molality, 6- Mole Fraction (X).**

**Q2 – Answer the questions:-**

1. **Calculate the volume of a 0.232 N solution contains (a.) 3.17 milliequvalent of solute (b.) 6.5 equivalent of solute?**
2. **A solution contains (10 gm) Iodic Acid and (125 gm) Water, Calculate the concentration of solution expressed as: -**

**(a-) Mole fraction (X) of Iodic Acid. (b-) Molality.**

**Q3 – Answer the questions:-**

**a. How many (cm3) of concentrated sulfuric acid, of density 1.84 gm/ cm3 and containing 98 % by weight , should be taken to make 1 L of 2 N solution?**

**b. Calculate the formal concentration of: (a) an aqueous solution that contains (1.80 gm) of ethanol in 750 mL. (b) An aqueous solution that contains (0.365 gm) of Hydrochloric Acid in (50.0 mL) (the acid is 75.0 % ionized in this solution).**

**Q4 – Answer the questions:-**

**a. Calculate the hydrogen ion concentration of the solutions, pH values (3.47)?**

**b. Calculate the millimoles of (0.5 L) Sodium Sulfate in (1000 ppm)?**

**c. Calculate the weight in gram for (25 mL) dilute Nitric Acid (200 gm\mL)?**

**A.wt: - O =16, Na = 23, P = 31, Ca = 40, N = 14, Cl = 35.5, I = 127, H = 1, C = 12, and S = 32.**

**(WITH MY BEST WISHES)**