Class 11 Time : 1 hr.
16-5-2015 First Unit Test in CHEMISTRY M. Marks : 20

1. Define Mole. What is the volume occupied by 1 mole of any gas at STP? (1)

2. Name the concentration term used to express number of moles of solute per kilogram of the solvent? Give the mathematical expression for the same. (1)

3. What is meant by mole fraction? For a solution of components A and B, what is the mole fraction of A if that of B is 0.025? (1)

4. Calculate the mass of
   a) an atom of silver. (Atomic Mass Ag = 108g)
   b) $112cm^3$ of H_2 gas at STP. (Atomic Mass H = 1g) (2)

5. State and explain law of multiple proportions with the help of an example. (2)

6. Calculate the mass of iron which will be converted into its oxide (Fe_3O_4) by the action of 18g of steam on it, according to the chemical equation
   $3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$
   (Atomic mass Fe = 56g, H = 1, O = 16) (2)

7. Balance the following chemical equations:
   a) $SO_2 + H_2S \rightarrow S + H_2O$
   b) $Al_4C_3 + H_2O \rightarrow Al(OH)_3 + CH_4$ (2)

8. Calculate the number of molecules present
   a) in 34.2g of cane sugar ($C_{12}H_{22}O_{11}$) (Atomic Mass, C=12)
   b) in one drop of water having mass 0.05g. (3)

9. a) Concentrated aqueous sulphuric acid is 98% H_2SO_4 by mass and has a density of $1.84gcm^{-3}$. Calculate its Molarity. (Molar mass H_2SO_4 = 98g)
   b) Calculate the volume of concentrated hydrochloric acid of molarity 12.38 M required to make 1.00L of 0.10M HCl. (2+1)

10. a) Define Limiting Reagent.
    b) If 20g of $CaCO_3$ is treated with 20g of HCl, how many grams of CO_2 will be produced as per the chemical equation (molar mass CaCO3 = 100g, HCl = 36.5g)

    $CaCO_3 + 2HCl \rightarrow CaCl_2 + H_2O + CO_2$ (1+2)

-x-x-x-x-x-