



**INDIAN SCHOOL MUSCAT**  
**CLASS – XI**  
**CHEMISTRY WORKSHEET – 01**  
**SOME BASIC CONCEPTS IN CHEMISTRY**

1.	(i) State the law of multiple proportions. (ii) Sulphur forms two gaseous oxides. One of these oxides contains 50 % Sulphur while the other contains 40 % of sulphur. Show that these data illustrate the law of multiple proportions.
2.	State the following laws: i) Avogadro's law ii) Law of constant proportion iii) Gay Lussac's law
3.	If the density of methanol is $0.793\text{kg l}^{-1}$ What is its volume needed for making 2.5l of its 0.25 M solution?
4.	Why do atomic masses of most of the elements in atomic mass unit involve fraction?
5.	200ml of 0.05M magnesium chloride is mixed with 75ml of 0.1M silver nitrate solution. Find the number of moles and mass in grams of AgCl formed. What is the limiting reagent?
6.	24g of NaOH is dissolved in 300ml water. Calculate the molarity of the solution.
7.	4.8g of $\text{O}_2$ was used to burn 0.15moles of Fe to $\text{Fe}_2\text{O}_3$ . What mass of $\text{Fe}_2\text{O}_3$ was formed?
8.	(i) What do you understand by the term limiting reagent? (ii) 6.5g of Zn was reacted with excess of dil. HCl. Calculate the amount and volume of hydrogen produced at STP.
9.	A compound contains 2.68% Mg. How many atoms of magnesium are present in 15g of the compound?
10.	Calculate the percentage of (i) copper (ii) Sulphur (iii) Oxygen and (iv) water of hydration in crystalline copper sulphate, $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
11.	A higher oxide contains 80% metal. 0.72g of lower oxide gave 0.8g of higher oxide when oxidized. Show that this is in agreement with the law of multiple proportions.
12.	1.8g of an organic compound on combustion gave 2.64g of $\text{CO}_2$ and 1.08g of water. Find the empirical formula of the compound.
13.	In three moles of ethane $\text{C}_2\text{H}_6$ , calculate the following i) Number of moles of C atoms



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	ii) Number of moles of Hydrogen atoms iii) Number of molecules of ethane.
14.	Calculate the number of atoms and molecules in 224ml of Nitrogen gas at STP.
15.	Carbon and oxygen combine to give two compounds. The carbon content in one is 42.9% and in the other it is 27.3%. How does this illustrate the law of multiple proportions?
16.	Commercially available $H_2SO_4$ contains 98% acid by mass. Find the molarity if density of the sample is 1.84g/cc. What volume of this acid is required to make 2 L of 0.1 M solution?
17.	Find the number of atoms of each type in 3.42g of sucrose ( $C_{12}H_{22}O_{11}$ ).
18.	How many atoms are there in a) 72 amu of Carbon b) 72 g of carbon?
19.	How many atoms of hydrogen are there in 51g of ammonia?
20.	400 mL each of $H_2$ and $O_2$ are mixed and ignited, find volume of water vapour formed?
21.	What mass $C^{12}$ will contain the same number of atoms as in 3.6g of $O^{16}$ ?
22.	Calculate mass of $CO_2$ containing same number of oxygen atoms as in 3g of NO.
23.	From 0.2g of $CO_2$ , $10^{21}$ molecules are removed. How many of moles of $CO_2$ remain?
24.	(i) Define the terms empirical formula and molecular formula. (ii) A hydrocarbon on burning gave 3.38g of $CO_2$ and 0.69g of $H_2O$ . 10 L of the gas at STP weighs 11.6g. Find empirical and molecular formula.
25.	Aqueous magnesium chloride solution is marketed as 20% by mass. Its density is 1.18 g/ml. Calculate  (i) The mole fraction of each component (ii) Molarity. (iii) Molality (iv) The concentration in ppm.
26.	Define (i) ppm, (ii) molarity, (iii) molality and (iv) mole fraction
27.	Calculate the mole fraction of ethanol in 0.5 m aqueous solution of ethanol.
28.	The mole fraction of glucose in water is 0.35. What is the molality of the solution?
29.	What is the effect of temperature on molarity and molality?
30.	The density of a 3M solution of NaCl is 1.25g/ml. Calculate the molality of the solution.