Date Planned : __ / __ / __	Daily Tutorial Sheet - 1	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration :_____

1. Naturally occurring boron consists of two isotopes whose atomic weights are 10.01 and 11.01. The atomic weight of natural boron is 10.81. Calculate the percentage of each isotope in natural boron. **(1978)**

2. 2.76 g of silver carbonate on being strongly heated yields a residue weighing: **(1979)**

(A) 2.16 g **(B)** 2.48 g **(C)** 2.32 g **(D)** 2.64 g

3. When the same amount of zinc is treated separately with excess of sulphuric acid and excess of sodium hydroxide, the ratio of volume of hydrogen evolved is : **(1979)**

(A) 1 : 1 **(B)** 1 : 2 **(C)** 2 : 1 **(D)** 9 : 4

4. The largest number of molecules is in : **(1979)**

(A) 36 g of water **(B)** 28 g of CO

(C) 46 g of ethyl alcohol **(D)** 54 g of nitrogen pentaoxide (N_2O_5)

5. The total number of electrons in one molecule of carbon dioxide is : **(1979)**

(A) 22 **(B)** 44 **(C)** 66 **(D)** 88

6. Accounts for the following. Limit your answer to two sentences, "Atomic weights of most of the elements are fractional". **(1979)**

7. The vapour density (hydrogen = 1) of a mixture consisting of NO_2 and N_2O_4 is 38.3 at 26.7°C. Calculate the number of moles of NO_2 in 100 g of the mixture. **(1979)**

8. The number of electrons present in 18 mL of water is _____. **(1980)**

9. The modern atomic mass unit is based on the mass of _____. **(1980)**

10. **(a)** 1.0 L of a mixture of CO and CO_2 is taken. This mixture is passed through a tube containing red hot charcoal. The volume now becomes 1.6 L. The volumes are measured under the same conditions. Find the composition of mixture by volume. **(1980)**

(b) A compound contains 28 per cent of nitrogen and 72 per cent of metal by weight. 3 atoms of metal combine with 2 atoms of nitrogen. Find the atomic weight of metal.

11. 3.0 g of a salt of molecular weight 30 is dissolved in 250 g water. The molarity of the solute on is _____. **(1981)**

12. If 0.50 mole of $BaCl_2$ is mixed with 0.20 mole of Na_3PO_4, the maximum number of moles of $Ba_3(PO_4)_2$ that can be formed is : **(1981)**

(A) 0.70 **(B)** 0.50 **(C)** 0.20 **(D)** 0.10

13. The density of a 3 M sodium thiosulphate solution $(Na_2S_2O_3)$ is 1.25 g / ml. Calculate (i) the percentage by weight of sodium thiosulphate (ii) the mole fraction of sodium thiosulphate and (iii) the molalities of Na^+ and $S_2O_3^{2-}$ ions. **(1983)**

14. A molal solution is one that contains one mole of solute in : **(1986)**

(A) 1000 g of solvent **(B)** 1.0 L of solution

(C) 1.0 L of solution **(D)** 22.4 L of solution

15. In which of the expression, the concentration of a solution remains independent of temperature?

(A) Molarity **(B)** Normality **(C)** Formality **(D)** Molality **(1988)**