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CLASS XI
CHEMISTRY (MOLE CONCEPT)

1. Calculate the number of atoms of He in each of the following

   A) 52 moles of He

   B) 52 amu of He

   C) 52g of He

2. Calculate the total number of electrons present in 1.6g of methane.

3. The density of the nitric acid solution which is 63% by mass HNO_3 is 1.41gm/cm^3. What is the molarity of the solution?

4. The cost of table salt (NaCl) and table sugar ($C_{12}H_{22}O_{11}$) is Rs 2 per kg and Rs 15 per kg respectively. Calculate their costs per mole.

5. An aqueous sugar syrup of mass 214.2gm contains 34.2gm sugar $C_{11}H_{22}O_{11}$ calculate the molarity of the solution.

6. An organic compound on analysis gave the following data, C=57.82%, H=3.6% and the rest oxygen its vapour density is 83.find it's empirical and molecular formulae.

7. Calculate the mass of oxygen required for burning 15gm of ethane.

8. What volume of oxygen at S.T.P can be produced by 6.125gm of potassium chlorate according to the reaction

$$2KClO_3 \longrightarrow 2KCl + 3O_2$$

9. Calculate the no. of oxygen atoms in 300gm of Calcium Carbonate.

10. What are the limitations of Dalton's atomic theory?

11. Why the law of Gay Lussac's is not obeyed if any reactant or product is not a gas?

12. The normal body temperature of a healthy person is 98.4 F. What is the temperature in the Celsius scale?

13. 2 oxides of metal contain 27.6% and 30% of oxygen respectively. If the formulae of the first oxide is M_3O_4 find that of second.

14. The reactant which is entirely conserved in reaction is known as limiting reagent. In the reaction

$$2A + 4B \longrightarrow 3C + 4D$$

When 5 moles of A react with 6 moles of B then,

    i.   Which is the limiting reagent?

    ii.   Calculate the amount of C formed.

15. Three oxides of nitrogen contained 63.6%, 46.7% & 30.4% nitrogen respectively show that this figure illustrates law of multiple proportions.