TENDER HEART HIGH SCHOOL 05.08.24

SEC-33B, CHD

CLASS - X Chapter → 5

Subject - Chemistry Teacher - Anamika

Good morning Students!

Mole Concept :- It is not practically possible to find the mass of a minute particles like atom, molecules or an ion etc. Therefore, collection of 6.022×10^{23} elementary particles called mole.

A mole is the number of pure substances containing the same number of chemicals unit as there are atoms in exactly 12gram of carbon -12.

Avagadro's Number :- It is defined as the number of atoms present in 12g of C-12 isotope

i.e. 6.022×10^{23} atoms.

It is donated by N_A.

One gram of substance = 1 mole = 6.022×10^{23} of that molecules = 22.4 l at STP

Sub:

Numericals

Q:- what is the mass in grams of 2.5 moles of slaked lime $Ca(OH)_2$?

Ans:- Mass of 1 mole of slaked lime $Ca(OH)_2$

$= 40 + 2 \times (16+1) = 74g$

$\therefore$ 2.5 moles of $Ca(OH)_2 = 2.5 \times 74$

$= 185g$

Q:-2 How many moles of sulphur atom & oxygen atom are present in one mole each of H_2SO_4

Soln:- One mole of H_2SO_4 contains 1 mole of Sulphur atom & 4 moles of Oxygen atom.

One mole of H_2SO_3:- has 1 mole of sulphur atoms & 3 moles of oxygen atoms.

One mole of SO_2 has 1 mole of Sulphur atom & 2 moles of oxygen atom.

Q:- Calculate total number of e^- present in 1.6gm of methane?

Ans:- Molecular mass of CH_4 = 12+4×1 = 16 a.m.u.

16g = 1 mole

1.6g = 0.1 mole

1 mole of CH_4 has 6.022×10^{23}

0.1 mole has 6.02×10^{22} molecules

1 molecule of CH_4 contains (6+1×4)

= 10 e^-

6.022×10^{22} mol. will contain

$10 \times 6.02 \times 10^{22} = 6.023 \times 10^{23}$ e^-