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TENDER HEART HIGH SCHOOL, SEC-33B
CHD

Class-X

Chapter- 5

Subject- Chemistry

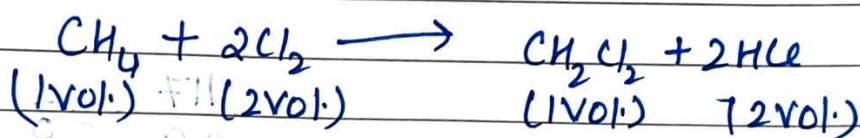
Teacher - Anamika

Revision

Q:-1 Calculate the vol. of HCl gas formed and chlorine gas required when 40 ml of methane reacts completely with chlorine at S.T.P.



Soln:-



Acc. to above eqⁿ

1 vol. of CH_4 produces 2 vol. of HCl

$\therefore$ 40 vol. of CH_4 produces HCl at S.T.P.
 2×40
 $= 80 \text{ ml}$

Hence, vol. of HCl produced at STP = 80 ml

Q:-2
Soln:-

Calculate mass of 2.8 l of CO_2 at STP?
1 mole of $\text{CO}_2 = 44 \text{ g}$

Also 1 mole of CO_2 = 22.4 l at STP

$$\therefore 22.4 \text{ L of } \text{CO}_2 \text{ at STP} = 44 \text{ g}$$

$$\therefore 2.8 \text{ L of } \text{CO}_2 \text{ at STP} = \frac{44}{22.4} \times 2.8 = 5.5 \text{ g}$$

$$\text{Mass of } \text{CO}_2 = 5.5 \text{ g}$$

Q:-3 Calculate no. of atoms present in 117g of K.

Soln:- No. of moles in 117g of K = $\frac{\text{Mass}}{\text{Atomic Mass of K}}$

$$\frac{117}{39} = 3$$

$$\begin{aligned} \text{No. of atoms in 117g of K} &= 3 \times 6.022 \times 10^{23} \\ &= 1.8066 \times 10^{24} \end{aligned}$$

Q:-4 Cal. no. of atoms in 10g of Chlorine with that of 10g of nitrogen

Soln:- No. of moles in 10g of $\text{Cl}_2 = \frac{10}{71}$

$$\begin{aligned} \text{No. of atoms in 10g of } \text{Cl}_2 &= \frac{10}{71} \times 6.022 \times 10^{23} \times 2 \\ &= 1.7 \times 10^{23} \text{ atoms} \end{aligned}$$

Similarly, no. of atoms in 10g of nitrogen

$$= \frac{10}{28} \times 6.022 \times 10^{23} \times 2$$

$$= 4.3 \times 10^{23} \text{ atoms}$$

Q:- Calculate the weight of

- 10g atoms of Na
- 10 atoms of Na

Soln:- a) 1g atom of Na has weight = 23g
 10g atoms of Na has weight = $23 \times 10 = 230g$

b) weight of 1 atom = $\frac{23}{6.022 \times 10^{23}}$

weight of 10 atoms = $\frac{23}{6.022 \times 10^{23}} \times 10$

$$= 3.82 \times 10^{-22}g$$