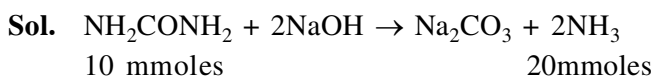




**SOLUTION****1. NTA Ans. (3)****Sol.** Option(3) is according to Gaylussac's law of volume combination.**2. NTA Ans. (3)**Hence,  $\text{NH}_3$  will require 20 meq.**3. NTA Ans. (4.95 to 4.97)****Sol.**  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$  ( $M = 277.85$ )

$$\text{ppm} = \frac{\text{wt. of Fe}}{\text{wt. of wheat}} \times 10^6$$

let the wt. of salt be =  $w$  gm

$$\text{moles} = \frac{w}{277.85}$$

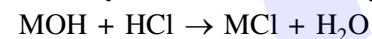
$$\text{wt. of Fe} = \left( \frac{W}{277.85} \times 55.85 \right) \text{ gm}$$

$$10 = \frac{W}{277.85} \times 55.85 \times 10^6$$

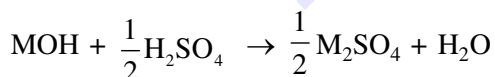
$$W = \frac{277.85}{55.85} = 4.97$$

**4. NTA Ans. (2120 to 2140)****Sol.** Mole of  $\text{O}_2$  consumed =  $\frac{1 \times 492}{0.082 \times 300} = 20$ Mole of  $\text{NaClO}_3$  required = 20Mass of  $\text{NaClO}_3 = 20 \times 106.5 = 2130$  gm**5. NTA Ans. (1)****Sol.** IE values indicate, that the metal belongs to 1<sup>st</sup> group since second IE is very high( $\because$  only one valence electron)

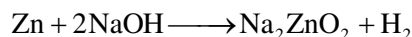
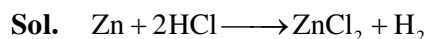
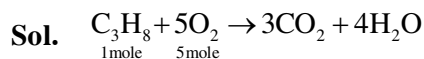
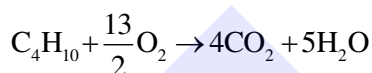
Metal hydroxide will be of type, MOH.



(1mol) (1mol)

(1mol) ( $\frac{1}{2}$  mol)

So one mole of HCl required to react with one mole MOH.

So  $\frac{1}{2}$  mole of  $\text{H}_2\text{SO}_4$  required to react with one mole MOH.**6. NTA Ans. (4)**The ratio of the volume of  $\text{H}_2$  is 1 : 1**7. Official Ans. by NTA (18)**For 1 mole propane combustion 5 mole  $\text{O}_2$  required

1 mole      6.5 mole

2 mole      13 mole

For 2 moles of butane 13 mole of  $\text{O}_2$  is required  
total moles = 13 + 5 = 18**8. Official Ans. by NTA (5.00)****Sol.** C : H = 4 : 1

C : O = 3 : 4

Mass ratio

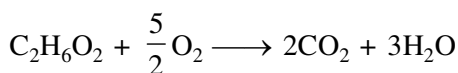
C : H : O = 12 : 3 : 16

Mole ratio

C : H : O = 1 : 3 : 1

Empirical formula =  $\text{CH}_3\text{O}$ Molecular formula =  $\text{C}_2\text{H}_6\text{O}_2$ 

(saturated acyclic organic compound)



2 mole      5 mol

Moles of  $\text{O}_2$  required = 5 moles**9. Official Ans. by NTA (50.00)**