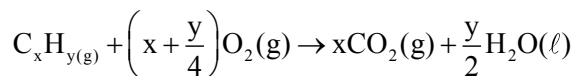


**EUDIOMETRY**

1. The formula of a gaseous hydrocarbon which requires 6 times of its own volume of  $O_2$  for complete oxidation and produces 4 times its own volume of  $CO_2$  is  $C_xH_y$ . The value of  $y$  is \_\_\_\_\_.
2. Complete combustion of 1.80 g of an oxygen containing compound ( $C_xH_yO_z$ ) gave 2.64 g of  $CO_2$  and 1.08 g of  $H_2O$ . The percentage of oxygen in the organic compound is:  
(1) 51.63    (2) 63.53    (3) 53.33    (4) 50.33

**SOLUTION****1. Official Ans. by NTA (8)****Sol.** Combustion rx<sup>n</sup> :

$$\begin{array}{rcl} V & 6V & - \\ - & - & V_x = 4V \\ & & \Rightarrow \boxed{x=4} \end{array}$$

$$\text{Sinc : (I) } V_{O_2} = 6 \times V_{C_xH_y}$$

$$\Rightarrow V\left(x + \frac{y}{4}\right) = 6V$$

$$\Rightarrow \left(x + \frac{y}{4}\right) = 6 \Rightarrow 4 + \frac{y}{4} = 6$$

$$\Rightarrow \boxed{y=8}$$

**2. Official Ans. by NTA (3)**

$$\text{Sol. } n_c = n_{CO_2} = \frac{2.64}{44} = 0.06$$

$$n_H = 2 \times n_{H_2O} = \frac{1.08}{18} \times 2 = 0.12$$

$$\begin{aligned} m_0 &= 1.80 - 12 \times \frac{2.64}{44} - \frac{1.08}{18} \times 2 \\ &= 1.80 - 0.72 - 0.12 = 0.96 \text{ gm} \end{aligned}$$

$$\%O = \frac{0.96}{1.80} \times 100 = 53.33\%$$

Hence answer is (3)