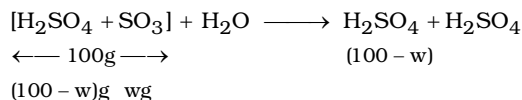


Daily Tutorial Sheet-14

Level - 3

153.(B) Oleum \Rightarrow $[H_2SO_4 + SO_3]$

Reaction involved



If $w = 100g$, moles of $SO_3 = \frac{100}{80} = 1.25$ mole

moles of H_2O required to react with 1.25 moles of $SO_3 = 1.25$ mole mass added = $(1.25 \times 18)g = 22.5g$.

It means if we would have 100 g of SO_3 then, mass of H_2SO_4 obtained would be 122.5 g thus maximum percentage yield of on oleum sample should be just less than 122.5%.

154.(A) 0.0833 moles of compound \rightarrow 1 mole of hydrogen

1 mole of compound $\rightarrow \frac{1}{0.0833}$ moles of hydrogen \rightarrow 12 moles of H

$CH_2O \rightarrow$ Empirical formula.

Molecular formula = $C_6H_{12}O_6$

155.(C) $C_nH_{2n} + H_2 \longrightarrow C_nH_{2n+2}$

$$\% \text{ raise} = \frac{2}{12n + 2c} 100$$

$$2.38 = 100 \times \frac{1}{7n}$$

$$n = 6.$$

156.(A) $W_C : W_H = 8 : 1$

$$n_C : n_H = 8 : 12 = 2 : 3$$

	Mass	Moles	Simplest Ratio
C	$92.7 \frac{8}{9} = 82.4$	$\frac{82.4}{12} = 6.86$	$15.04 = 30$.
H	$\frac{92.7}{9} = 10.3$	$10.3 = 10.3$	$22.58 = 45$.
O	7.3	$\frac{7.3}{16} = 0.456$	$1 = 2$

Empirical formula = $C_{30}H_{45}O_2$

157.(C) $Mn_XO_Y + \frac{Y}{2}C \longrightarrow XMn + \frac{Y}{2}CO_2$

$$n_{Mn_XO_Y} = \frac{31.6}{55x + 16y} \quad n_{CO_2} = \frac{13.2}{44} = 0.3$$

$$\frac{Y}{2} n_{\text{Mn}_x\text{O}_y} = n_{\text{CO}_2}$$

$$\frac{Y}{2} \frac{(31.6)}{(55x + 16y)} = 0.3$$

$$\frac{Y}{x} = \frac{3}{2} \Rightarrow \text{Mn}_2\text{O}_3$$

158.(A) In A, uranium contains the same exact ratio required.