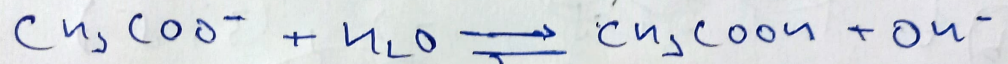


Q] Calc. the degree of hydrolysis of 0.1 M Sodium Stearate & its pH. Hydrolysis Const =  $5.6 \times 10^{-10}$

Sol<sup>n</sup>



$$0.1(1-h) \qquad \qquad \qquad 0.1xh \qquad 0.1xh$$

$$K_h = \frac{[C_{17}H_{35}COOH][OH^-]}{[C_{17}H_{35}COO^-]} = \frac{(0.1xh)(0.1xh)}{0.1(1-h)}$$

$$5.6 \times 10^{-10} = 0.1 \times h^2 \Rightarrow \boxed{h = 7.48 \times 10^{-5}}$$

$$[OH^-] = Ch = 0.1 \times 7.48 \times 10^{-5} = 7.48 \times 10^{-6} M.$$

$$[H^+] = \frac{k_w}{[OH^-]} = 1.33 \times 10^{-9} M \qquad pH = -\log[H^+]$$

$$\Rightarrow pH = -\log(1.33 \times 10^{-9}) = (8.88)$$