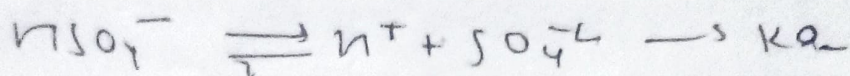
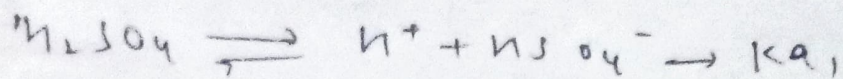
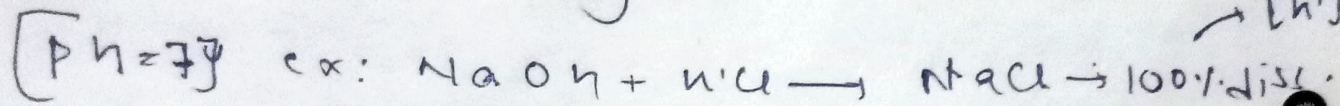


# For Polyprotic Acid

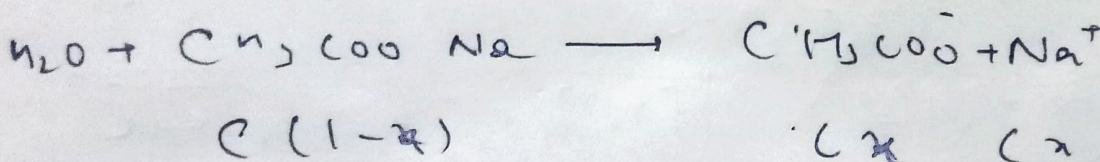
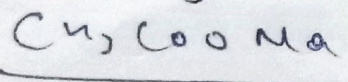
$(K_{a1} \gg K_{a2})$  so  $K_{a1}$  diss. 100%



Salt of Strong Acid + S. Base.



Salt of <sup>Weak</sup> ~~Str.~~ Acid + ~~Weak~~ Strong Base.



$$K_b = \frac{Cx \cdot Cx}{C(1-x)} \approx \frac{Cx^2}{1-x} \Rightarrow K_b = \frac{C^2 x^2}{1-x}$$

$$\left( K_b = \frac{K_w}{K_a} \right) \Rightarrow [OH^-] = \frac{K_w}{K_a} \frac{[CH_3COO^-]}{[CH_3COOH]}$$

$$\log[OH^-] = \log K_w - \log K_a + \log \frac{\text{Salt}}{\text{Acid}}$$

$$-pOH = pK_w + pK_a + \log \frac{\text{Salt}}{\text{Acid}}$$

$$K_b = \frac{Cx^2}{(1-x)} \Rightarrow \left( x = \sqrt{\frac{K_b}{C}} \right)$$

$$[OH^-] = CK_b = \sqrt{K_b C} = \sqrt{C \frac{K_w}{K_a}}$$