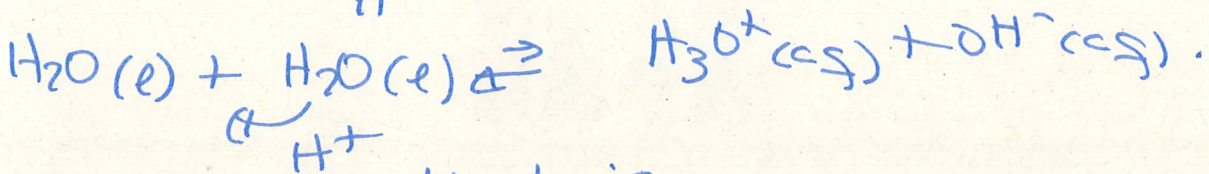
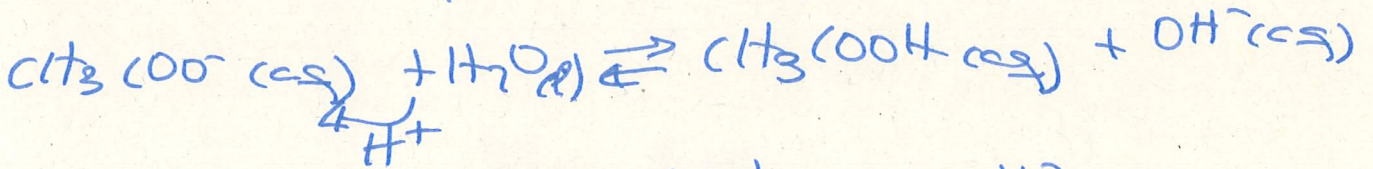
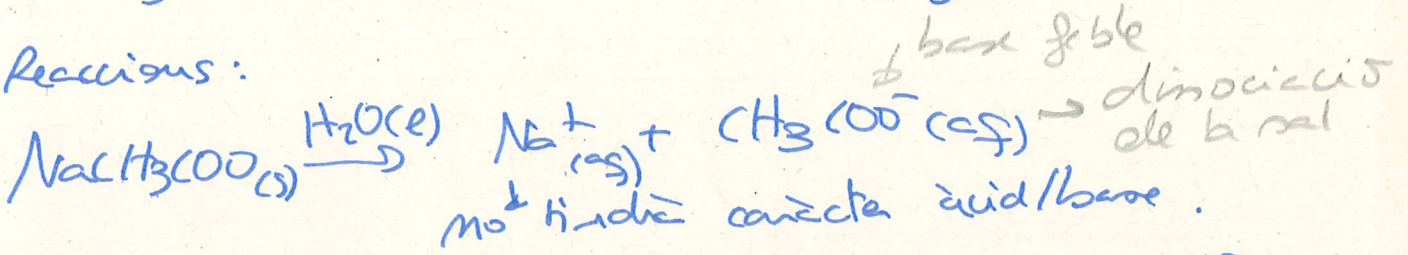


• base faible: exemple acétat de sodi

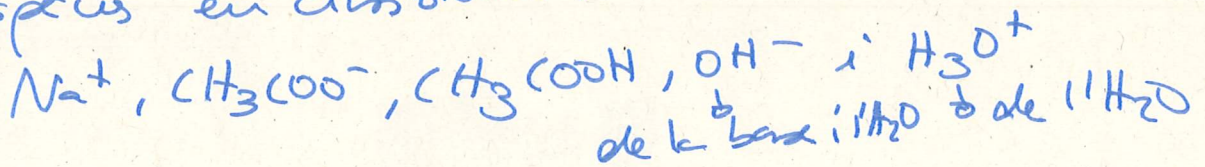
①



1. Réactions:



2. Espèces en dissolution:



3. Balance matière:

$c_0 = 0,5 \text{ M} = [\text{CH}_3\text{COO}^-] + [\text{CH}_3\text{COOH}]$

$c_0 = 0,5 \text{ M} = [\text{Na}^+]$

4. Balance charge:

$[\text{H}_3\text{O}^+] + [\text{Na}^+] = [\text{CH}_3\text{COO}^-] + [\text{OH}^-]$

5. Constantes d'équilibre:

base  $\Rightarrow K_b \rightarrow K_a \cdot K_b = K_w \Rightarrow K_b = \frac{K_w}{K_a} = \frac{10^{-14}}{1,8 \cdot 10^{-5}}$   
 $K_b = 5,55 \cdot 10^{-10}$

$K_b = 5,55 \cdot 10^{-10} = \frac{[\text{CH}_3\text{COOH}][\text{OH}^-]}{[\text{CH}_3\text{COO}^-]}$

$K_w = 10^{-14} = [\text{H}_3\text{O}^+][\text{OH}^-]$



## 6. Resolva el sistema:

(2)

→ resoldre directament → equació 3<sup>a</sup> grau → simplificar

→ hi ha un salt →  $[H_3O^+]$  és despreciable  
 però l'espècie menys concentrada.

→ Al b.c.  $[H_3O^+] + [Na^+] = [CH_3COO^-] + [OH^-]$   
 despreciable.

→ Vull tenir  $K_b$  tota en  $[OH^-]$ .

$$K_b = 5,55 \cdot 10^{-10} = \frac{[CH_3COOH][OH^-]}{[CH_3COO^-]}$$

Del b.m. hinc:  $0,5 = [Na^+] = [CH_3COO^-] + [CH_3COOH]$

Del b.c. hinc:  $[Na^+] = 0,5 = [CH_3COO^-] + [OH^-]$

$$[CH_3COO^-] = 0,5 - [OH^-]$$

→ Del b.m. extec:

$$0,5 = [CH_3COO^-] + [CH_3COOH]$$

$$0,5 - [OH^-]$$

Les dues espècies que es m'han generat de la base

$$0,5 = 0,5 - [OH^-] + [CH_3COOH] \rightarrow [OH^-] = [CH_3COOH]$$

→ Ho substituïmo tot a  $K_b$

$$K_b = 5,55 \cdot 10^{-10} = \frac{[CH_3COOH][OH^-]}{[CH_3COO^-]} = \frac{[OH^-]^2}{0,5 - [OH^-]}$$

↓ resolcno.

$$[OH^-]^2 + 5,55 \cdot 10^{-10} [OH^-] - 2,77 \cdot 10^{-10} = 0$$

$$[OH^-] = 1,66 \cdot 10^{-5} M \rightarrow [H_3O^+] = \frac{K_w}{[OH^-]} = \frac{10^{-14}}{1,66 \cdot 10^{-5}} =$$

$$\boxed{pH = -\lg([H_3O^+]) = 9,22} \quad \leftarrow = 6,02 \cdot 10^{-10} M$$