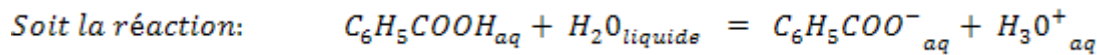
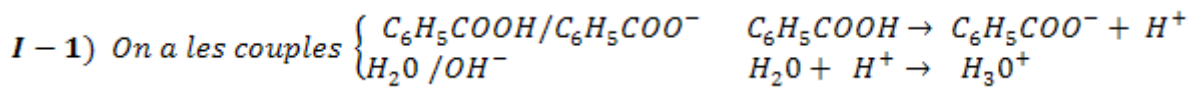


Exercice 2 :



$C(C_6H_5COOH) = 5,00 \cdot 10^{-3} \text{ mol} \cdot L^{-1} = 5,00 \cdot 10^{-3} \text{ mol} \cdot (10^{-3} m^3)^{-1} = 5,00 \cdot \text{mol} \cdot m^{-3}$

En mol. m ⁻³		$C_6H_5COOH_{aq}$	$H_2O_l \rightleftharpoons C_6H_5COO^-_{aq}$	$H_3O^+_{aq}$
Etat initial	0	$5,00 \cdot V$	excès	0
Etat intermédiaire	x	$5,00 \cdot V - x$	excès	x
Etat équilibre	x_{eq}	$5,00 \cdot V - x_{eq}$	excès	x_{eq}

I.2) $\sigma = \sum \lambda_i [X_i] \Rightarrow [C_6H_5COO^-]_{eq} = [H_3O^+]_{eq} = x_f$

$\sigma = \lambda_1 x_{eq} + \lambda_2 x_{eq} = x_{eq} (\lambda_1 + \lambda_2) \rightarrow x_{eq} = \frac{\sigma}{\lambda_1 + \lambda_2}$

$213 \mu S \cdot cm^{-1} = 213 \cdot 10^{-3} mS \cdot (10^{-2} m)^{-1} = 213 \cdot 10^{-3} \cdot mS \cdot 10^2 m^{-1} = 21,3 mS \cdot m^{-1}$

$x_{eq} = \frac{21,3}{35 + 3,24} = \frac{21,3}{38,24} = 5,57 \cdot 10^{-1} \text{ mol} \cdot m^{-3}$

$[C_6H_5COO^-] = [H_3O^+] = \frac{x_{eq}}{V} = \frac{5,57 \cdot 10^{-1}}{V} \text{ mol} \cdot m^{-3}$ et $[C_6H_5COOH] = \frac{5V - x_{eq}}{V} = \frac{5V - 5,57 \cdot 10^{-1}}{V} \text{ mol} \cdot m^{-3}$

I.3) $K_A = \frac{[C_6H_5COO^-] \cdot [H_3O^+]}{[C_6H_5COOH]} = \frac{\left(\frac{5,57 \cdot 10^{-1}}{V}\right)^2}{\frac{5V - 5,57 \cdot 10^{-1}}{V}} = \frac{(5,57 \cdot 10^{-1})^2}{V^2} \cdot \frac{V}{5V - 5,57 \cdot 10^{-1}} = \frac{(5,57 \cdot 10^{-1})^2}{V(5V - 5,57 \cdot 10^{-1})}$

$\rightarrow pK_A = -\text{Log}(K_A) = ??$