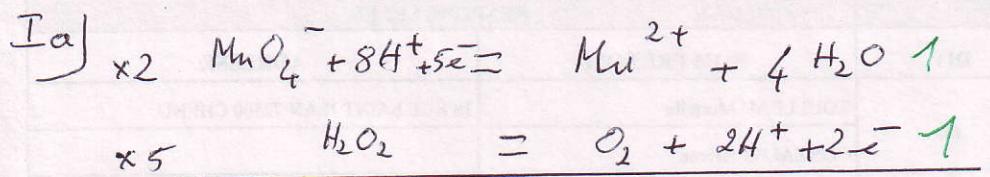
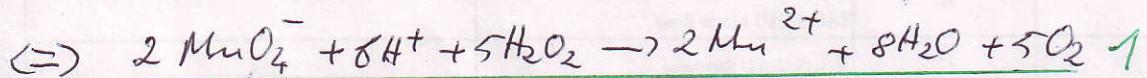
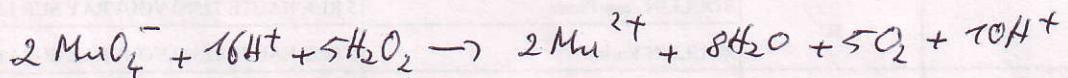


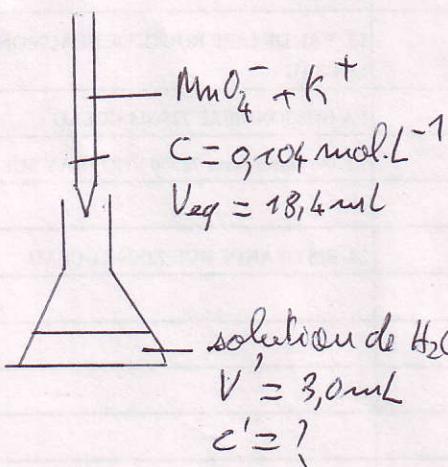
DS 5



I topf  
II topf



IIb)



$2\text{MnO}_4^- + 8H^+ + 5H_2O_2 \rightarrow 2\text{Mn}^{2+} + 8H_2O + 5O_2$	
ET	
$M^{\bullet}_{\text{MnO}_4^-}$	$M^{\bullet}_{H_2O_2}$
2 7	5 1

Annotations: Circles around MnO<sub>4</sub><sup>-</sup> and H<sub>2</sub>O<sub>2</sub>. MnO<sub>4</sub><sup>-</sup> has a circled "2" above it and a circled "7" below it. H<sub>2</sub>O<sub>2</sub> has a circled "5" above it and a circled "1" below it.

Ic) à l'équivalence les 2 réactifs sont équivalents

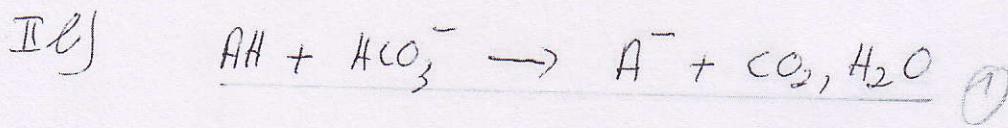
$$\Rightarrow M^{\bullet}_{\text{MnO}_4^-} - 2c_{eq} = 0 \quad \text{et} \quad M^{\bullet}_{H_2O_2} - 5c_{eq} = 0 \quad \left. \right\} 1$$

$$\Leftrightarrow \frac{M^{\bullet}_{\text{MnO}_4^-}}{2} = \frac{M^{\bullet}_{H_2O_2}}{5} \quad \Rightarrow M^{\bullet}_{H_2O_2} = \frac{5 M^{\bullet}_{\text{MnO}_4^-}}{2} = \frac{5 \times c \times V_{eq}}{2}$$

$$M_{H_2O_2} = \frac{5 \times 0,104 \times 18,4 \cdot 10^{-3}}{2} = \frac{4,8 \cdot 10^{-3}}{1} \text{ mol}$$

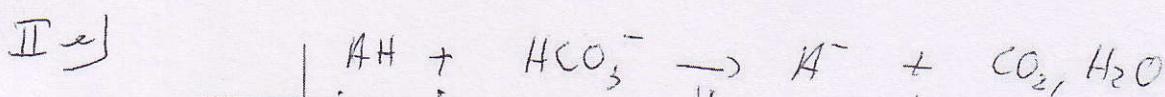
$$c' = \frac{M_{H_2O_2}}{3,0 \cdot 10^{-3}} = \frac{4,8 \cdot 10^{-3}}{3,0 \cdot 10^{-3}} = \frac{1,6 \text{ mol/L}}{1}$$

## II L'aspirine (op1)



## II c) Le dioxyde de carbone ①

II d) Avec de l'eau de chaux ①



E I	$n_{\text{AH}}^\circ$	$n_{\text{HCO}_3^-}^\circ$			
E F	$n_{\text{AH}}^\circ - x_f$	$n_{\text{HCO}_3^-}^\circ - x_f$	$x_f$	$x_f$	

Réaction ①

$$n_{\text{AH}}^\circ = \frac{m_{\text{AH}}}{M_{\text{AH}}} = \frac{1,000 \text{ g}}{180} = 5,55 \cdot 10^{-3} \text{ mol}$$

$$n_{\text{HCO}_3^-}^\circ = \frac{m_{\text{HCO}_3^-}^\circ}{M_{\text{HCO}_3^-}^\circ} = \frac{1,680}{84} = 0,020 \text{ mol}$$

Si AH est le réactif limitant:  $x_f = 5,55 \cdot 10^{-3} \text{ mol}$

Si  $\text{HCO}_3^-$  est le réactif limitant  $x_f = 0,020 \text{ mol}$ .

Donc  $x_f = 5,55 \cdot 10^{-3} \text{ mol}$  et AH est limitant ②

③  $m_{\text{CO}_2}^\circ = x_f = 5,55 \cdot 10^{-3} \text{ mol} \Rightarrow V = m_{\text{CO}_2}^\circ \times V_M$

$$\Rightarrow V = 5,55 \cdot 10^{-3} \times 24$$

$$V = 0,13 \text{ L} = 130 \text{ mL}$$