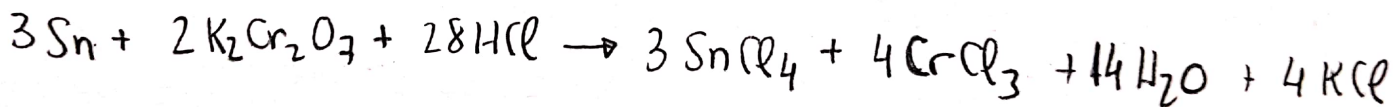
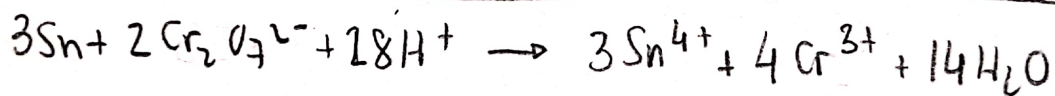
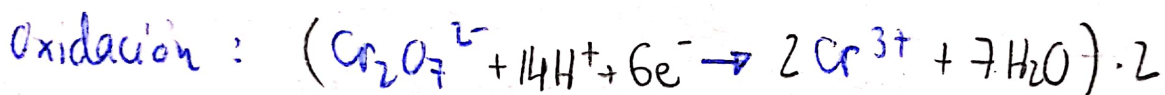
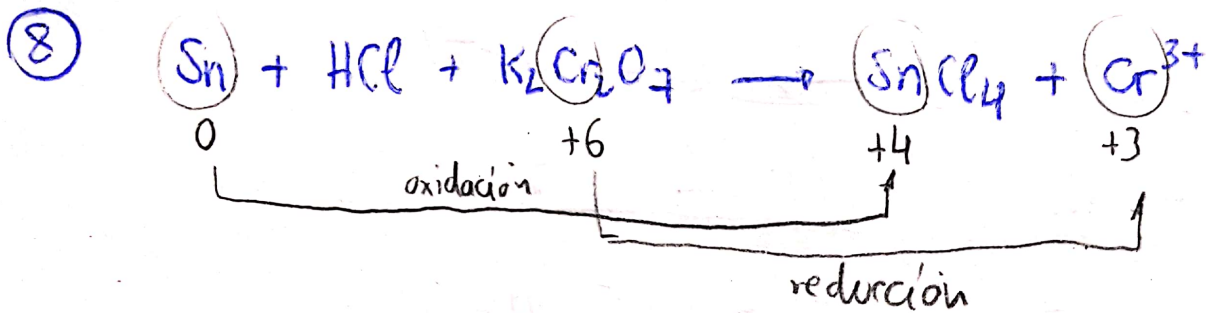


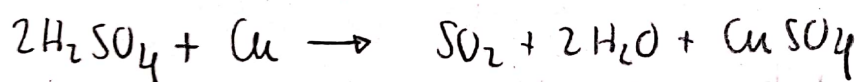
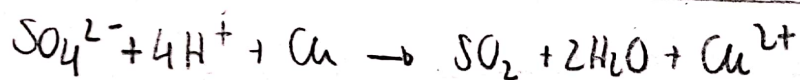
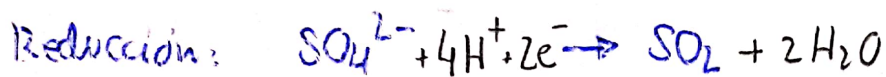
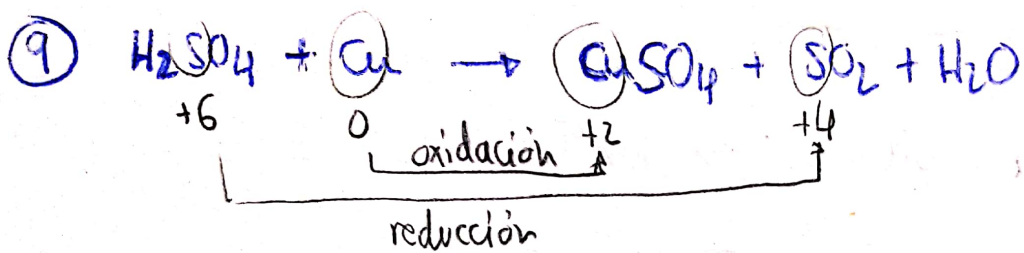
$$20 \text{ mL } \text{K}_2\text{Cr}_2\text{O}_7 \cdot \frac{0'2 \text{ mol } \text{K}_2\text{Cr}_2\text{O}_7}{1000 \text{ mL } \text{K}_2\text{Cr}_2\text{O}_7} \cdot \frac{3 \text{ mol } \text{Cl}_2}{1 \text{ mol } \text{K}_2\text{Cr}_2\text{O}_7} = 0'012 \text{ mol } \text{Cl}_2$$

$$PV = nRT \rightarrow V = \frac{nRT}{P} = \frac{0'012 \cdot 0'082 \cdot 293}{1'5} = 0'192 \text{ L } \text{Cl}_2$$

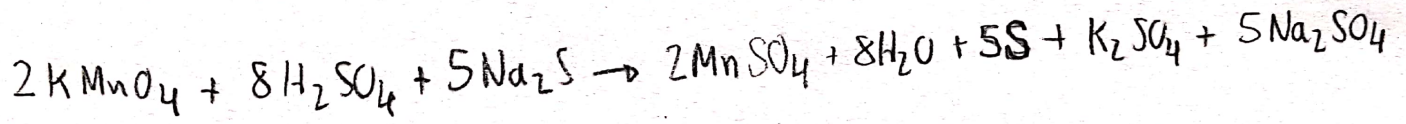
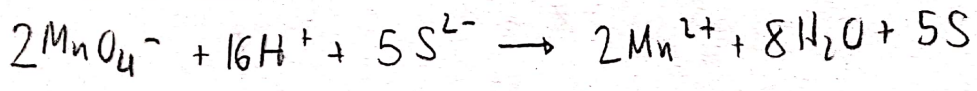
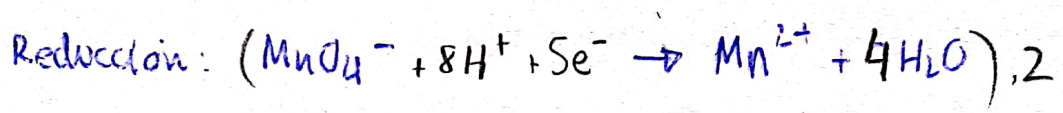
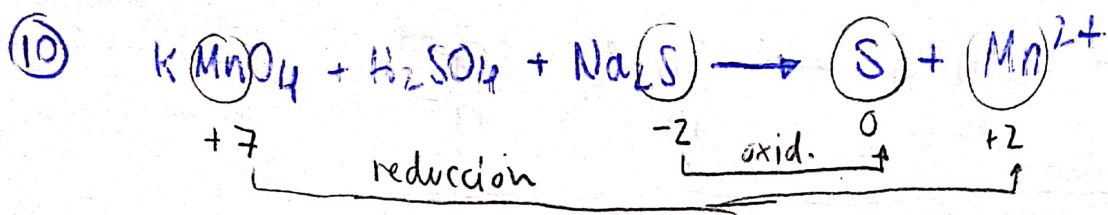


$$25 \text{ mL K}_2\text{Cr}_2\text{O}_7 \cdot \frac{0.1 \text{ mol K}_2\text{Cr}_2\text{O}_7}{1000 \text{ mL K}_2\text{Cr}_2\text{O}_7} \cdot \frac{3 \text{ mol Sn}}{2 \text{ mol K}_2\text{Cr}_2\text{O}_7} \cdot \frac{119 \text{ g Sn}}{1 \text{ mol Sn}} = 0.446 \text{ g Sn}$$

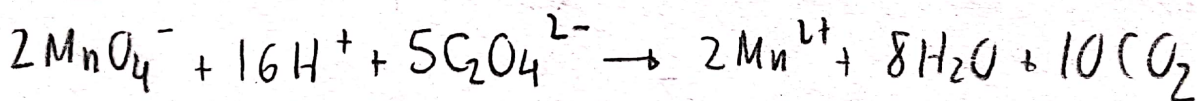
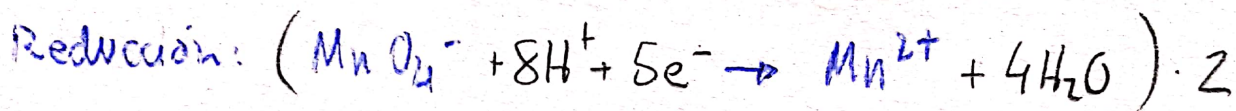
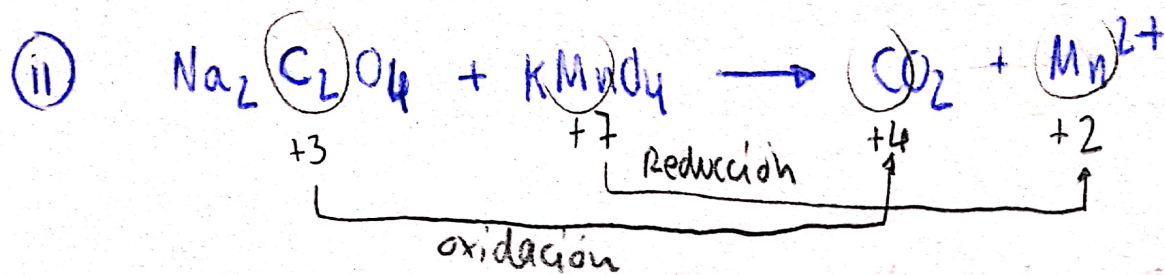
$$\% \text{ Sn} = \frac{m_{\text{real}}}{m_{\text{teórica}}} \cdot 100 = \frac{0.446}{1} \cdot 100 = 44.6 \%$$



$$8 \text{ mL H}_2\text{SO}_4 \cdot \frac{1'84 \text{ g H}_2\text{SO}_4}{1 \text{ mL H}_2\text{SO}_4} \cdot \frac{96 \text{ g H}_2\text{SO}_4}{100 \text{ g H}_2\text{SO}_4} \cdot \frac{1 \text{ mol H}_2\text{SO}_4}{98 \text{ g H}_2\text{SO}_4} \cdot \frac{1 \text{ mol CuSO}_4}{2 \text{ mol H}_2\text{SO}_4} \cdot \frac{159'5 \text{ g CuSO}_4}{1 \text{ mol CuSO}_4} = 11'5 \text{ g CuSO}_4$$



$50\text{ mL Na}_2\text{S} \cdot \frac{1'256\text{ mol Na}_2\text{S}}{1000\text{ mL Na}_2\text{S}} \cdot \frac{2\text{ mol KMnO}_4}{5\text{ mol Na}_2\text{S}} \cdot \frac{1000\text{ mL KMnO}_4}{0'3785\text{ mol KMnO}_4} = 66'4\text{ mL KMnO}_4$



$$31.25 \text{ mL Na}_2\text{C}_2\text{O}_4 \cdot \frac{0.1 \text{ mol Na}_2\text{C}_2\text{O}_4}{1000 \text{ mL Na}_2\text{C}_2\text{O}_4} \cdot \frac{2 \text{ mol KMnO}_4}{5 \text{ mol Na}_2\text{C}_2\text{O}_4} = 1.25 \cdot 10^{-3} \text{ mol KMnO}_4$$

$$[\text{KMnO}_4] = \frac{n}{V} = \frac{1.25 \cdot 10^{-3} \text{ mol}}{17.38 \cdot 10^{-3} \text{ L}} = 0.072 \text{ mol/L}$$