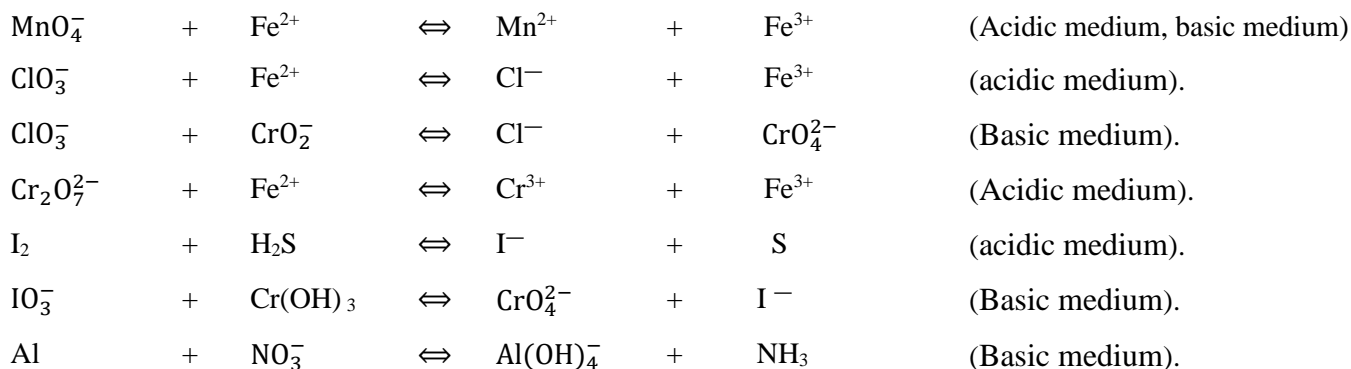


Series N°3

Exercise N° 1:

I) Complete and balance the following equation:



II) Considering the previous results

- 1) Calculate the molarity of a normal solution of KIO_3 ?
- 2) Calculate the normality of a Deci molar solution of K_2CrO_7 ?
- 3) What mass must be dissolved in 350 ml of water to obtain a solution of H_2S at 0.08 eqg/l?

Exercise N° 2:

I) We have four aqueous solutions of HCl , FeSO_4 , MgCl_2 and AgNO_3 and three blades of iron, magnesium and silver.

- What happens if we immerse the slides in each of the solutions?

Data: $E^\circ\text{Fe}^{2+}/\text{Fe} = -0,44 \text{ V}$ $E^\circ\text{Mg}^{2+}/\text{Mg} = -2,37\text{V}$ $E^\circ\text{Ag}^+/\text{Ag} = +0,80 \text{ V}$

Exercise N° 3:

You make a voltaic cell with chromium metal in 0.1 M $\text{Cr}(\text{NO}_3)_3$ solution as one half-cell ($E^\circ_{\text{Cr}/\text{Cr}^{3+}} = -0.74 \text{ V}$) and silver metal in 0.1 M $\text{Ag}(\text{NO}_3)$ solution at the other half-cell ($E^\circ_{\text{Ag}^+/\text{Ag}} = +0.80\text{V}$).

- 1- Draw the voltaic cell represented by this reaction and label the cathode, the anode, the salt bridge, the positive electrode, and the negative electrode.
- 2- Construct the Cell Diagram (A simplified representation of the cell).
- 3- Write the half-reaction that describes the chemistry at the anode.
- 4- Write the half-reaction that describes the chemistry at the cathode.
- 5- Write the overall reaction.
- 6- Using the above concentration cell, determine the **emf**.
- 7- What is the equilibrium constant for the system and for what concentration of Ag^+ and Cr^{3+} will the EMF of the cell be zero. Conclude.