

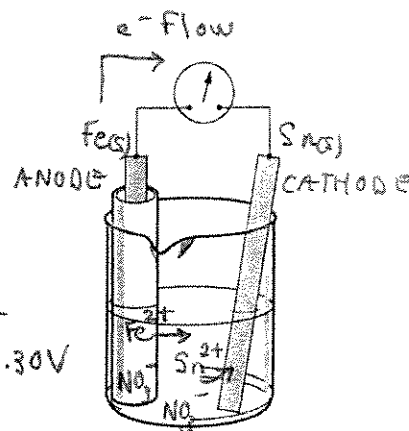
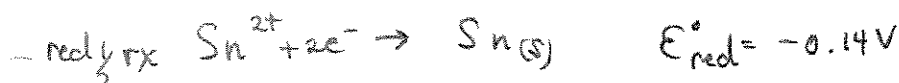
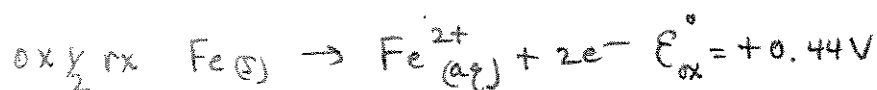
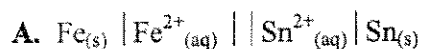
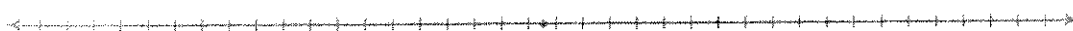


Electrochemical Cells

KEY

For the following questions, perform the following:

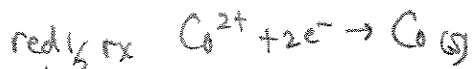
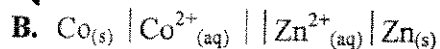
1. Label the anode and cathode.
2. Show the direction of electron flow.
3. Label the direction of ion movement and the electrolytes as cations and anions.
4. Write the balanced oxidation and reduction half-cell reactions.
5. Calculate the standard cell potential (E°_{cell}) from the standard oxidation (E°_{ox}) and reduction (E°_{red}) values that would appear on the voltmeter.
6. Record the balanced net ionic equation.



CATIONS $\text{Fe}^{2+}, \text{Sn}^{2+}$
ANIONS NO_3^-

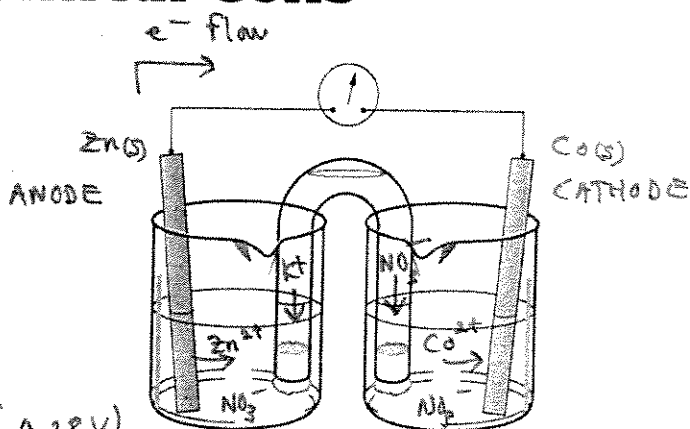


Electrochemical Cells

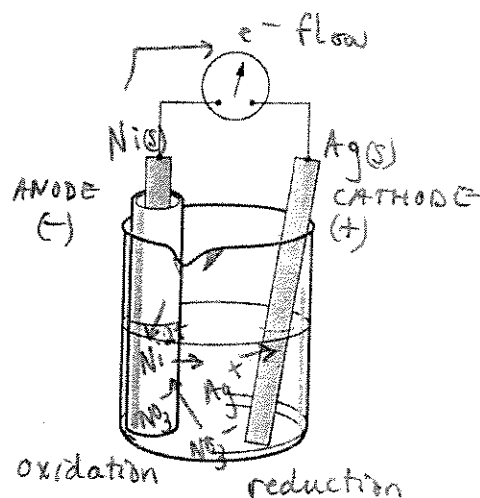
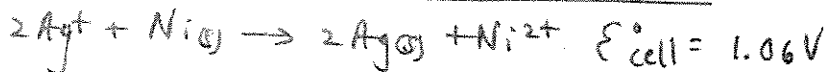


$$E^\circ_{\text{cell}} = E^\circ_{\text{ox}} + E^\circ_{\text{red}} = 0.76\text{V} + (-0.28\text{V})$$

$$= 0.48\text{V}$$



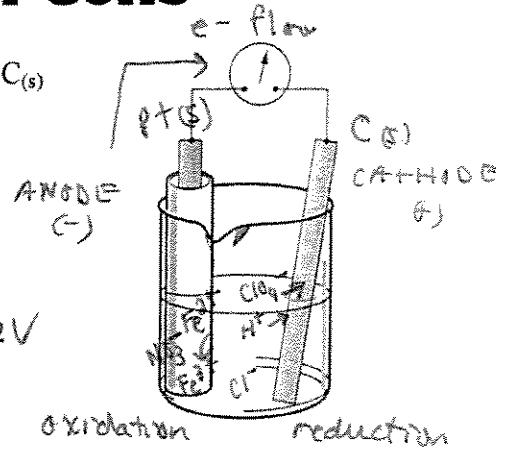
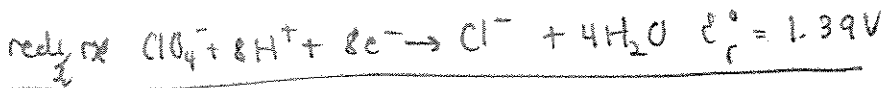
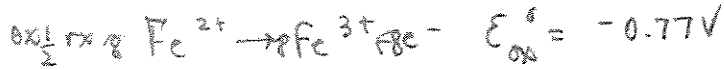
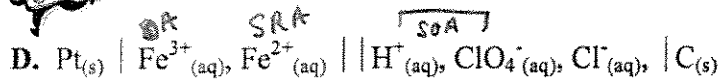
CATIONS $\text{Zn}^{2+}, \text{Co}^{2+}$
ANIONS NO_3^-



Cations: $\text{Ni}^{2+}, \text{Ag}^+$
Anions: NO_3^-

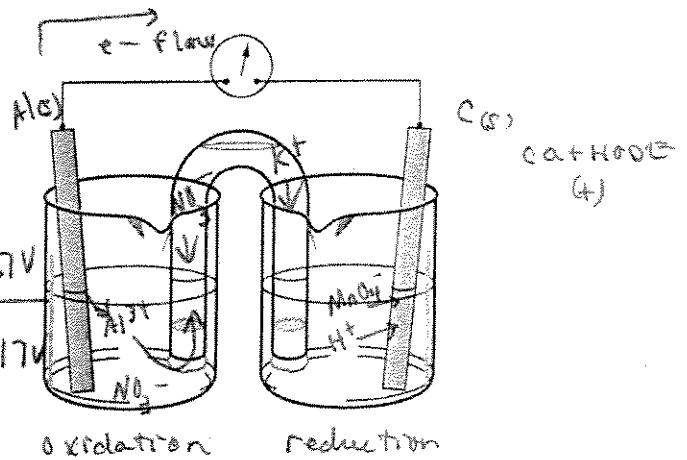
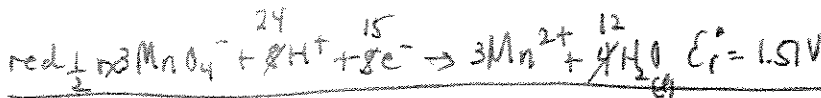
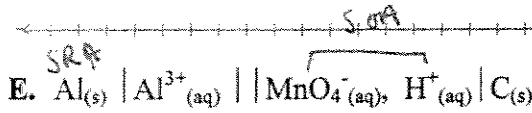


Electrochemical Cells



CATIONS: $\text{Fe}^{2+}, \text{Fe}^{3+}, \text{H}^+$

ANIONS: $\text{NO}_3^-, \text{Cl}^-, \text{ClO}_4^-$

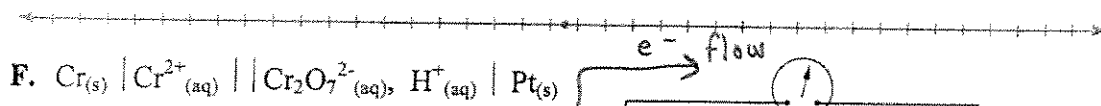


ANIONS: $\text{NO}_3^-, \text{MnO}_4^-$

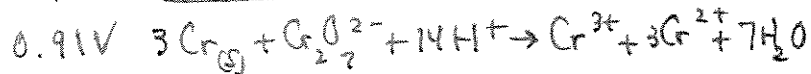
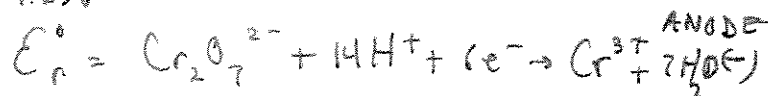
CATIONS: $\text{Al}^{3+}, \text{K}^+, \text{H}^+$



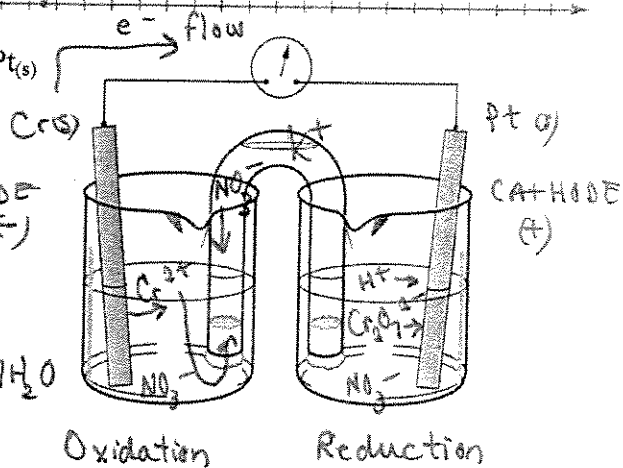
Electrochemical Cells



1.23V



$$E_{\text{cell}}^\circ = 2.14V$$



Cations: $\text{Cr}^{2+}, \text{H}^+$
 Anions: $\text{NO}_3^-, \text{Cr}_2\text{O}_7^{2-}$