

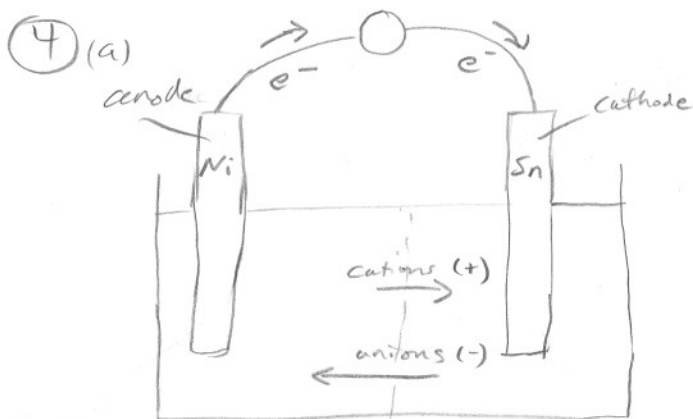
# Electrochemistry Review

① The metal has a greater tendency to oxidize than Pb, but less than Zn.

② First reaction: Y better than X  
 Second reaction: W better than Y  
 Third reaction: X better than Z

So, from strongest to weakest tendency to reduce:  
 W, Y, X, Z

③  $B^+, C^+, A^+, D^+$



(b) Anode (oxidation):  $Ni \rightarrow Ni^{2+} + 2e^-$

Cathode (reduction):  $Sn^{2+} + 2e^- \rightarrow Sn$

net:  $Ni + Sn^{2+} \rightarrow Ni^{2+} + Sn$

(c)  $E_{cell}^{\circ} = E_{reduction}^{\circ} - E_{oxidation}^{\circ}$   
 $= (-0.14) - (-0.25)$   
 $= \underline{0.11V}$

⑤ (a)  $K^+ + e^- \rightarrow K$   
 $Cl_2 \rightarrow 2Cl^- + 2e^-$

(b)  $K^+$  moves towards cathode (connected to negative side of battery)  
 $Cl^-$  moves towards anode (connected to positive side of battery)

⑥  $mol\ e^- = \frac{It}{96500} = \frac{(0.15A)(10min \times 60)}{96500} = 9.33 \times 10^{-4} mol\ e^-$



So  $\frac{9.33 \times 10^{-4}}{2} = 4.66 \times 10^{-4} mol\ of\ Ni$

$4.66 \times 10^{-4} (58.7\ g/mol) = \underline{0.027\ g\ of\ Ni}$