CALCULATING CELL POTENTIALS

SDSU CHEM 251

NERNST EQUATION

- The Nernst equation is used to quantify the potential for a given half reaction (e.g. $Fe^{3+} + e^{-} \rightleftharpoons Fe^{2+}$; $E° = 0.767\,V$)

- The value is based on the standard reduction potential (**E°**) and the concentration of oxidized (Fe^{3+}) and reduced (Fe^{2+}) forms of the species of interest (along with some other ions) in the solution at that time.

$$E = E° - \frac{RT}{nF} \ln \frac{[Fe^{2+}]}{[Fe^{3+}]}$$

CALCULATIONS

- What would be the half-cell potential for a solution containing 32.8 mM Fe^{2+}, and 20.6 mM Fe^{3+}?

- What would be the half-cell potential for a solution containing 7.31 mM MnO_4^-, an 1.06 mM Mn^{2+}, in a solution a pH 3.07?