

CHMY 311
SUGGESTED REVIEW TOPICS FOR EXAM #3
2 Dec 2009
(*Non inclusive!*)

CHAP 14 Fundamentals of Electrochemistry

- recognize and understand oxidation reduction reactions
- identify redox agents
- qualitatively understand the relationships between ΔG , ΔG° , work, E_{cell} , and K
- components of electrochemical cell
- types of electrochemical cells
- be able to interpret a given schematic representation of a cell in problems
- understand the relationships of sign and magnitude of standard electrode potentials
- be able to use a table analogous to Table 14-1 in determining if a redox agent will initiate a reaction
- determine if a half-cell behaves as anode or cathode
- effect of concentration on electrode potential: Nernst equation

CHAP 15 Electrodes and Potentiometry

- know the characteristics of the ideal reference electrode and the two most commonly used
- characteristics of the ideal indicator electrode
- types of indicator electrodes: metallic (1st & 2nd kind), and membrane
- understand the components and various potentials developed in the glass electrode for pH measurements
- alkaline error and other limitations to accuracy of pH measurements

Calculations (~ 35% of exam)

- determine theoretical cell potential from standard electrode potentials and concentrations (e.g., Problems 14.20, 14.27c, 15.3, 15.6)
- calculate a numerical value for a redox K (e.g., Problem 14.27(b))
- be able to calculate E° for an electrode from given K_{sp} (e.g., Problem 14.29)
- calculate (w/w) % of an analyte from redox titration data (e.g., as you did in lab for the vanadium determination)