

**Chem 116 - Section 1
Spring, 2007
Assignment 9**

Reading Assignment

Complete reading Chapter 16 (all sections) and sections 17.1 through 17.3. Then read Chapter 20. Read sections 20.7 (Batteries and Fuel Cells) and 20.8 (Corrosion) for interest only; i.e., you will not be responsible for this material on any test.

Test 3

The third test will be given on Friday, May 11th. It will cover assigned sections of Chapters 16 and 17.

Homework Assignment

This assignment will be covered in discussions running from Wednesday, April 25 through Monday, April 30.

Chapter 16: 16.91, 16.93, 16.95, 16.97, 16.99, 16.101, 16.103, 16.113
Chapter 17: 17.11, 17.13, 17.15, 17.17, 17.19, 17.23, 17.25, 17.29

Also, do the Additional Problems on the following page.

Additional Problems: These problems use information from the Table of Conjugate Acid-Base Pairs, available as a Handout on the web site. Worked-out answers are posted on the web site under Solutions.

- Write net ionic equations for all equilibria that lie more than 50% to the right when the following pairs of solutions are mixed. Assume adequate amounts of each reagent for all possible equilibria.
 - $\text{H}_3\text{PO}_4(aq) + \text{NaHCO}_2(aq)$ {NaHCO₂ = sodium formate}
 - $\text{H}_2\text{C}_4\text{H}_4\text{O}_6(aq) + \text{NaHCO}_3(aq)$ {H₂C₄H₄O₆ = tartaric acid}
 - $\text{H}_2\text{S}(aq) + \text{Na}_2\text{SO}_3(aq)$
 - $\text{Na}_3\text{PO}_4(aq) + \text{CH}_3\text{CO}_2\text{H}(aq)$
 - $\text{NaHC}_8\text{H}_4\text{O}_4(aq) + \text{NaOCl}(aq)$ {NaHC₈H₄O₄ = sodium hydrogen phthalate}
- What is the pH of a 0.10 M Al(NO₃)₃ solution? {Answer: pH = 2.93}
- Calculate the concentrations of all species in 0.100 M *o*-phthalic acid, H₂C₈H₄O₄. For simplicity, abbreviate the acid H₂Ph. {Answers: [H₃O⁺] = [HPh⁻] = 0.0108 M; [H₂Ph] = 0.089 M; [Ph²⁻] = 3.1 x 10⁻⁶ M; [OH⁻] = 9.3 x 10⁻¹³ M}