

## CHEM 242 STUDY GUIDE for EXAM #2

**Exam Date: Thursday, Feb 26**

**Exam Contents;** The exam will be over chapter 8, 9 10 and 11. Omit sections 8.11, 9.7, 9.9, 9.10, 9.11, 10.3, 10.5-10.13 11.6,11.9 and 11.11)

The Sn2 vs Sn1 vs E2 vs E1 summation sheet and the table 8.3 on pKa values will also be provided with the exam

### **Most pertinent types of questions to study:**

In class #3, sample problems from chapt 8,9 and 10 and practice exam #2 (see web site) are worth studying. Also problems assigned for the text may also be helpful.

### **Chap 8 &9--** Sn2, Sn1, E2 and E1 reactions.

- Know the definitions of Sn2, Sn1, E2 and E1.
- Be able to depict the reaction coordinate diagrams of each reaction
- Be able to draw the mechanism, products and the **stereochemical results** of the Sn2, Sn1, E2 and E1 mechanism
- If given a reaction be able to predict if it will favor the Sn2, Sn1, E2 or the E1 mechanism
- Know how the incorporation of conjugated carbocations effect the mechanism/outcome of the Sn1/E1 reaction;
- Know about the biological leaving groups in section 8.12.
- You do NOT need to know about any 'rearrangements' of carbocations or the 'intimate ion pair' in Sn1 or E1 reactions.

### **For chap 10**

- Know how alcohol undergo substitution reactions (sec 10.1)-when are they Sn2 when are they Sn1
- Know the mechanism for the thionyl chloride reaction with an alcohol (sec 10.2)
- Know how alcohols dehydrate (sec 10.4) and understand how it is the reverse of the hydration of a double bond reaction.

### **Chapter 11,** The most important sections are: 11.2, 11.3, 11.5, 11.8, 11.10

- Radial halogenation reaction) Stability of Radicals intermediates and reactivity selectivity principal. Predict what would be a stable radical/antioxidant. Why would vitamin E be considered an antioxidant