

Listed below are the major topics of chapters 8 and 10. Keep in mind that this is only a review sheet. We've covered more material and more details than can be confined to a single page.

Chapter 8:

Markovnikov's rule; draw mechanisms, predict products, and give reagents for the following electrophilic addition reactions: (1) addition of strong inorganic acids; (2) hydration; acid catalyst required; (3) hydroboration/oxidation; anti-Mark addition of H and OH; syn addition; (5) halogenation; bromonium ion intermediate attacked by a nucleophile; anti addition; halohydrins; carbocation rearrangements can occur during reactions (1) and (2)

give reagents and/or predict products for the following: (7) dihydroxylation; syn addition of two OH's; (8a) ozonolysis

You are not responsible for these reactions: (4) oxymercuration/reduction, (6) cyclopropanation, and (8b) KMnO_4 oxidative cleavage.

Chapter 10:

what is a radical; what is bond dissociation energy and how does it relate to radical stability; radical stability parallels carbocation stability ($3^\circ > 2^\circ > 1^\circ > \text{CH}_3$); the carbon that has the unpaired electron is sp^2 ; the overall equation for radical halogenation of alkanes (what are the reactants, heat or light is necessary, and products); be able to write a radical chain mechanism for radical halogenation of alkanes (initiation; propagation; termination); radical bromination of alkanes is very selective – 3° hydrogens are replaced much faster than 2° , which are replaced much faster than 1° ; radical chlorination is much less selective so a mixture of chlorinated products is usually obtained; predict stereochemical outcomes of radical halogenation reactions; **synthesis:** radical halogenation of alkanes produces alkyl halides – this is the only reaction you know where an alkane is a reactant.

Use reactions from Ch 6-8, 10 in multi-step syntheses.

Comments on the final exam:

The final exam will be 5 to 5.5 pages in length. Approximately 20% of the exam will focus on the Ch 8 material and 10% will focus on Ch 10 material. A majority of the exam will focus on material in chapters 6-8, incorporating concepts from previous chapters. You will be allowed to use model kits on the exam. You will have a periodic table, pK_a table, and IR table in the exam materials.

Office hours leading up to final exam (Friday, Dec 16, 11a-1p; 200 points):

Mon 12/12 12:30-2:30p

Wed 12/14 10a-noon

Thurs 12/15 1-3p