

Study Guide for Exam 2

Chapters 5, 6, 7, 8 and 9

Nomenclature of Alkyl halides

Synthesis of Alkyl Halides

From Alcohols

Halogenation

Halide Exchange for Iodide

Reactions of Alkyl Halides

Nucleophilic Substitution

The S_N1 and S_N2 Mechanisms

Preparation of Grignard Reagents

Reduction

Nomenclature and Classification of Alcohols and Ethers

Synthesis of Alcohols

Hydrolysis of Alkyl Halides

The Williamson Ether Synthesis

Reactions of Alcohols

HX

PX_3

As Acids

Ester Formation

Oxidation ($KMnO_4$, $K_2Cr_2O_7$, $Na_2Cr_2O_7$, CrO_3 , $NaOCl$, PCC)

Alcohols as "Electrophiles" or "Nucleophiles"

Nomenclature of Alkenes

Cis/Trans Isomers

E, Z Nomenclature

Saytzeff Orientation

Synthesis of Alkenes

Dehydrohalogenation: Alkyl Halides and Vicinal Dihalides

Dehydration of Alcohols

The $E1$ and $E2$ Mechanisms

Reactions of Alkenes

Addition of H_2 (reduction)

Addition of X_2

Addition of HX (Mechanism)

Addition of H_2SO_4

Addition of H_2O (hydration)

Addition of X_2/H_2O

Oxymercuration-Demercuration

Hydroboration-Oxidation

Addition of Carbenes

Epoxidation

Hydroxylation

Allylic Halogenation

Ozonolysis

Vigorous Oxidation
Markovnikov/ Anti-Markovnikov
Anti vs. Syn Addition