

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

PX₃

As Acids

Ester Formation

Oxidation (KMnO₄, K₂Cr₂O₇, Na₂Cr₂O₇, CrO₃, 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 H₂ (reduction)

Addition of X₂

Addition of HX (Mechanism)

Addition of H₂SO₄

Addition of H₂O (hydration)

Addition of X₂/H₂O

Oxymercuration-Demercuration

Hydroboration-Oxidation

Addition of Carbenes

Epoxidation

Hydroxylation

Allylic Halogenation

Ozonolysis

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