Organic Reactions Flashcards PDF

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What is the general mechanism of nucleophilic substitution reactions?
Nucleophilic substitution reactions typically involve a nucleophile attacking an electrophile, resulting in the replacement of a leaving group.

What is the difference between SN1 and SN2 reactions?
SN1 reactions are unimolecular and involve a two-step mechanism with a carbocation intermediate, while SN2 reactions are bimolecular and involve a one-step mechanism with a direct attack by the nucleophile.

What factors influence the rate of an SN2 reaction?
The rate of an SN2 reaction is influenced by the strength of the nucleophile, the nature of the leaving group, and steric hindrance around the electrophilic carbon.

What is the role of a catalyst in organic reactions?
A catalyst increases the rate of a reaction by lowering the activation energy without being consumed in the process.

What is an electrophile?
An electrophile is a species that accepts an electron pair from a nucleophile during a chemical reaction.

What is the significance of stereochemistry in organic reactions?
Stereochemistry is important in organic reactions because the spatial arrangement of atoms can affect the reactivity and properties of the molecules formed.

What is a leaving group in a substitution reaction?
A leaving group is an atom or group that can depart with a pair of electrons in a substitution reaction, allowing the nucleophile to bond to the electrophile.

What are the characteristics of a good nucleophile?
A good nucleophile is typically negatively charged or has lone pairs of electrons, is less sterically hinder, and is more basic.

What is the difference between a strong acid and a weak acid in terms of dissociation?
A strong acid completely dissociates in solution, while a weak acid only partially dissociates.

What is the role of solvents in organic reactions?
Solvents can influence the rate and outcome of organic reactions by stabilizing reactants, intermediates, and products, and by affecting the solubility of the reactants.