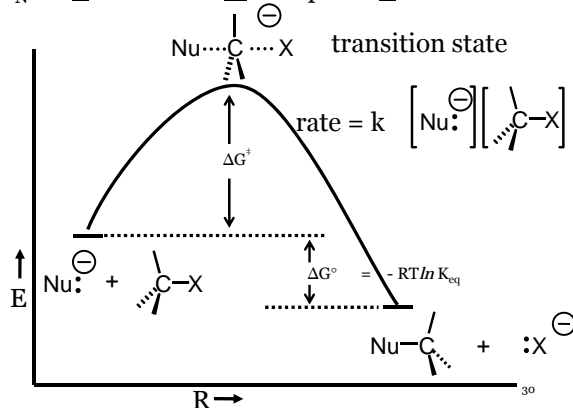


Nucleophilic Substitution Reactions

continued

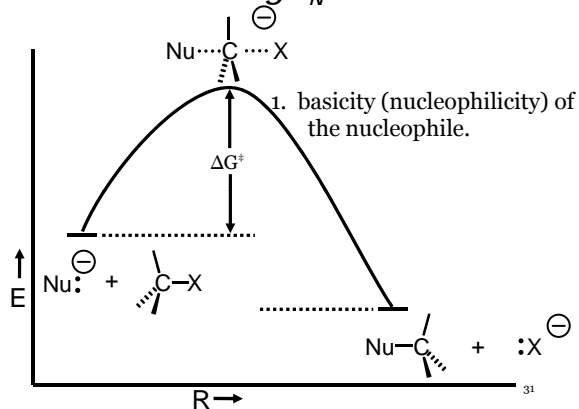
29

$S_N2 = \text{Substitution Nucleophilic 2nd Order}$



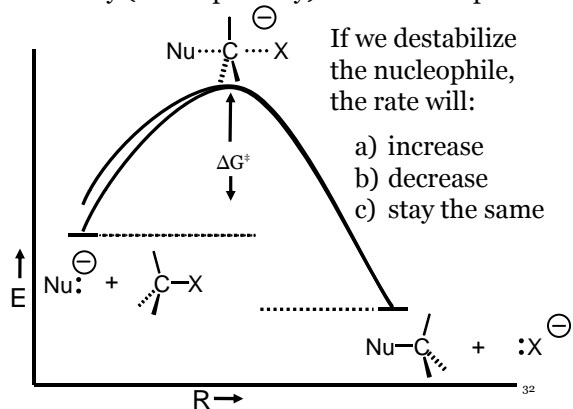
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Factors affecting S_N2 reaction rate



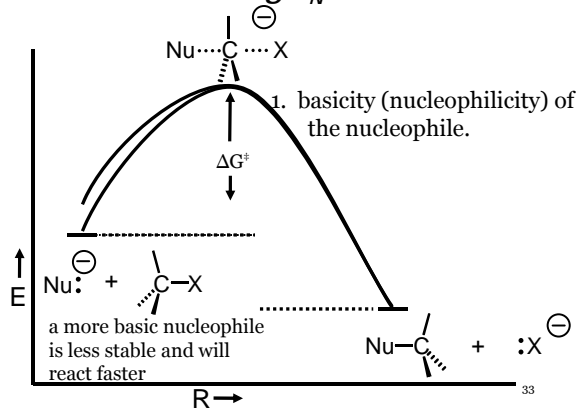
31

1. basicity (nucleophilicity) of the nucleophile.



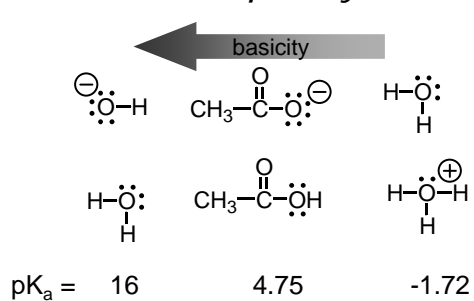
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Factors affecting S_N2 reaction rate

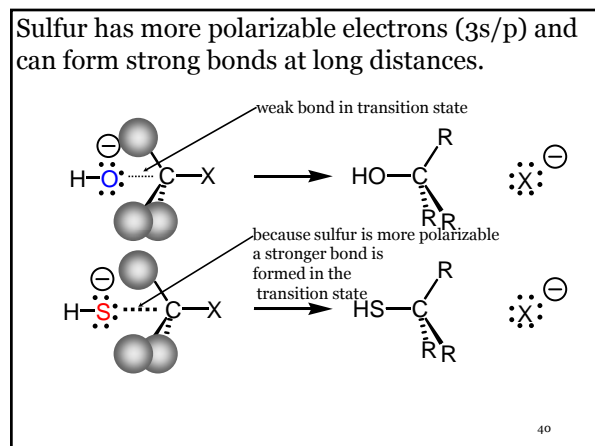
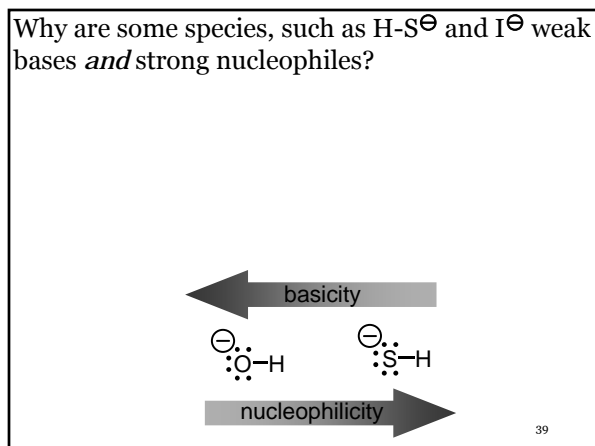
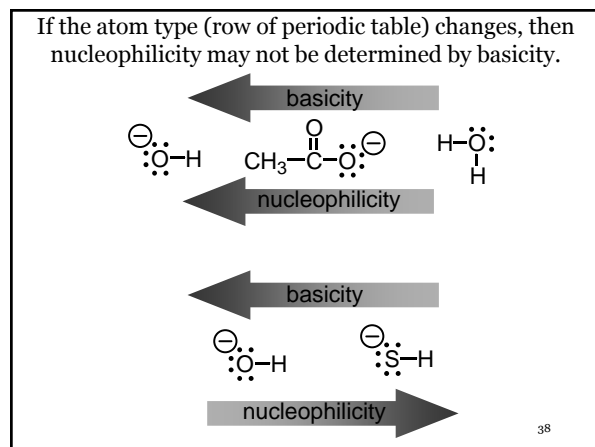
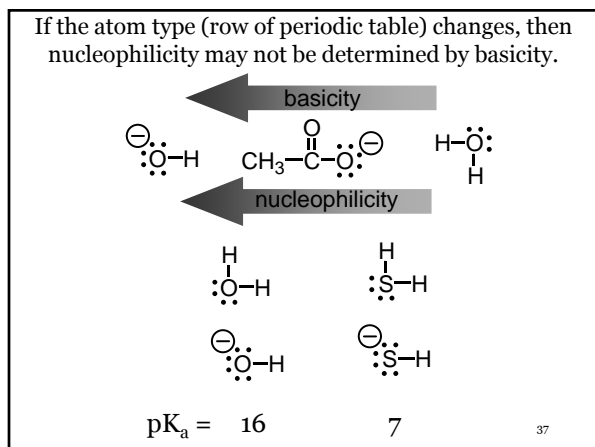
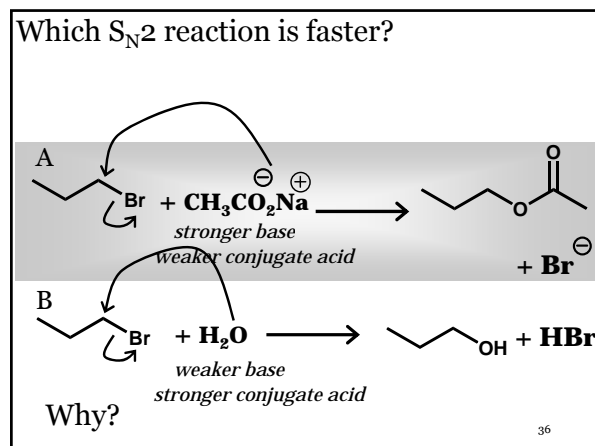
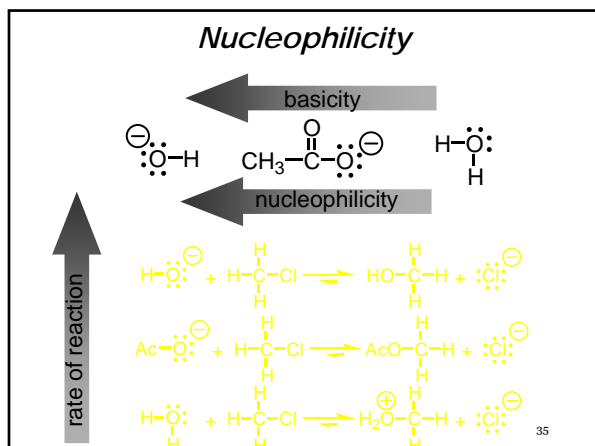


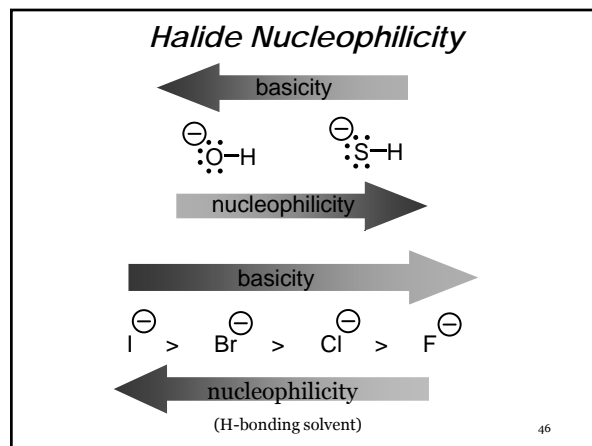
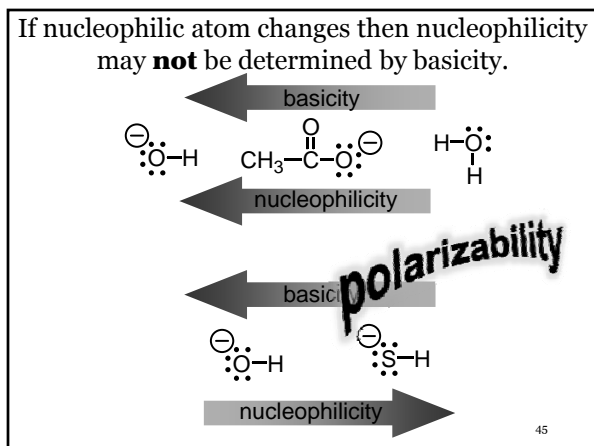
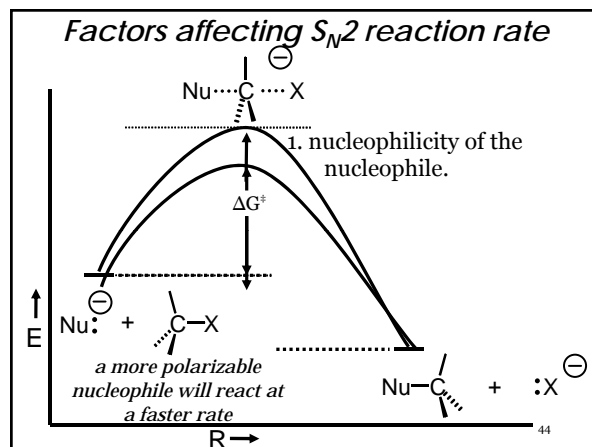
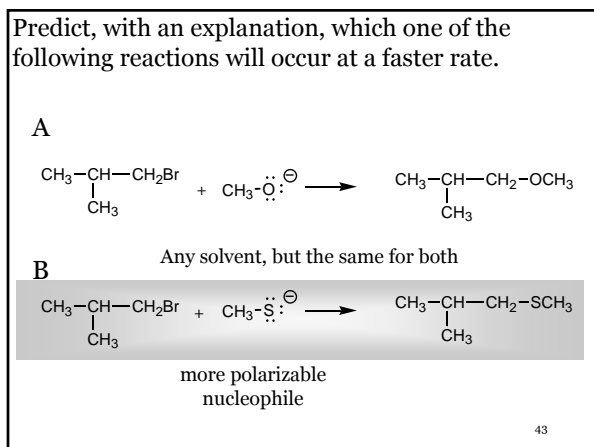
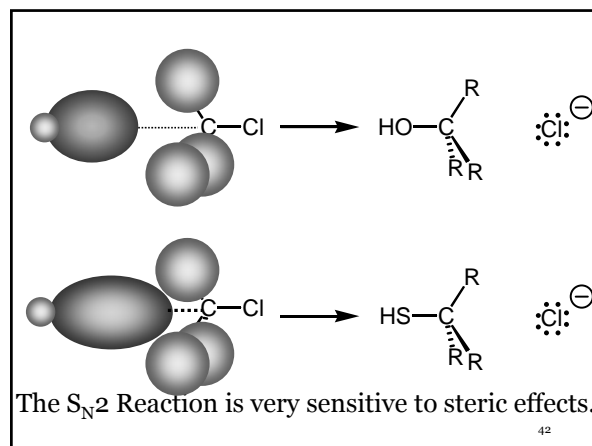
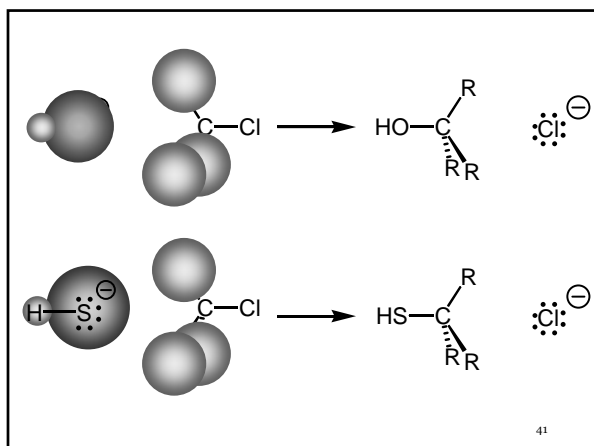
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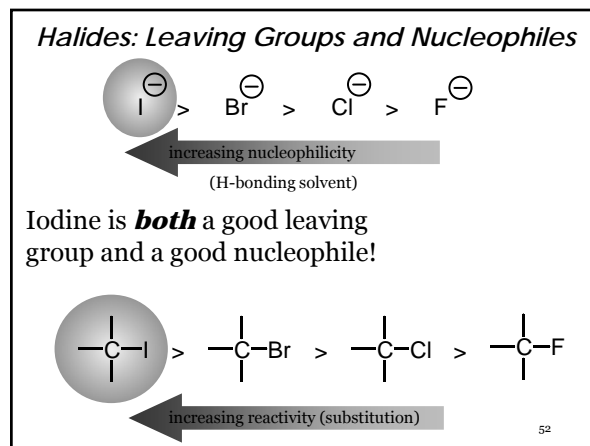
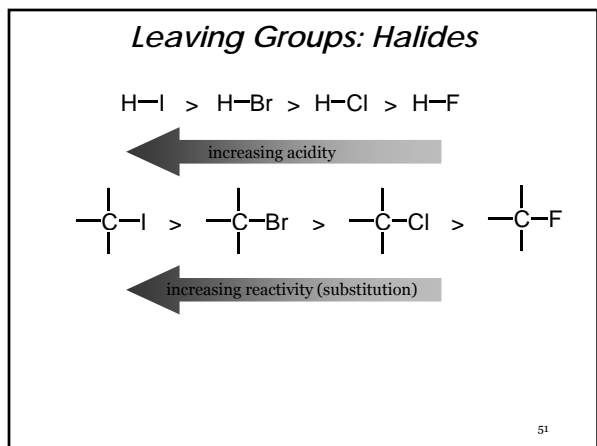
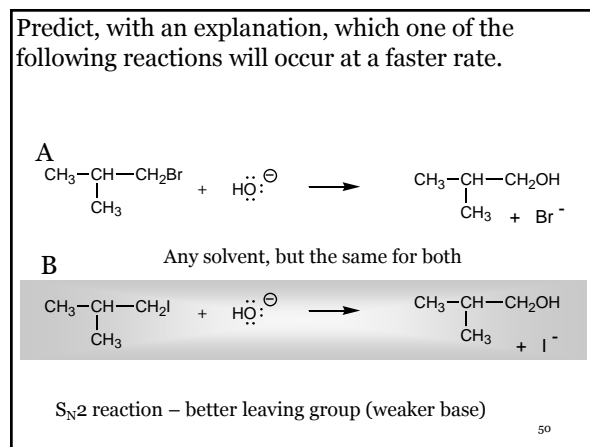
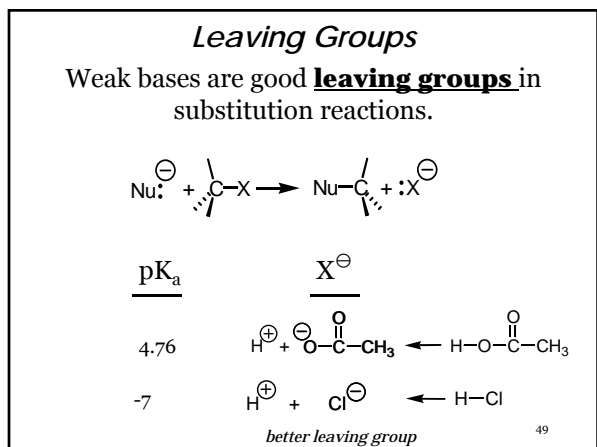
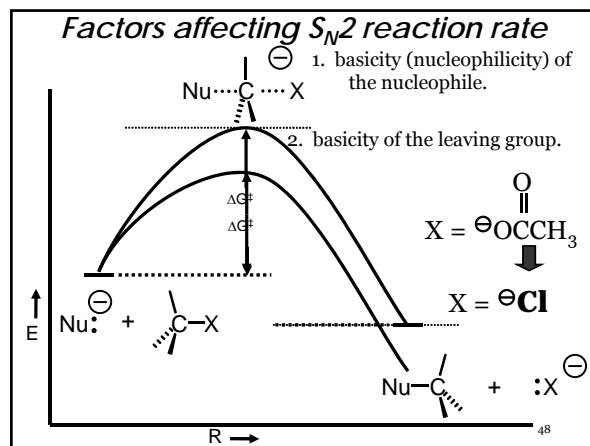
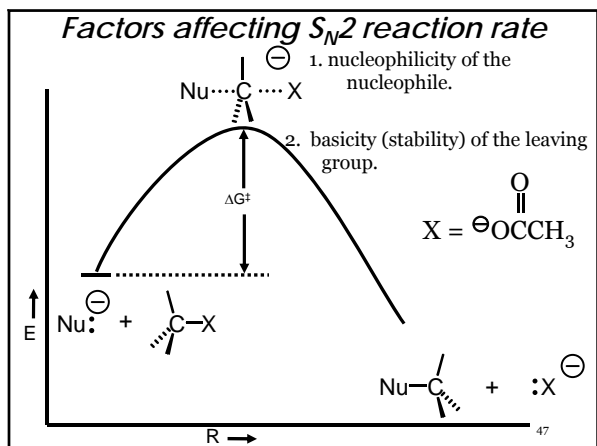
Nucleophilicity

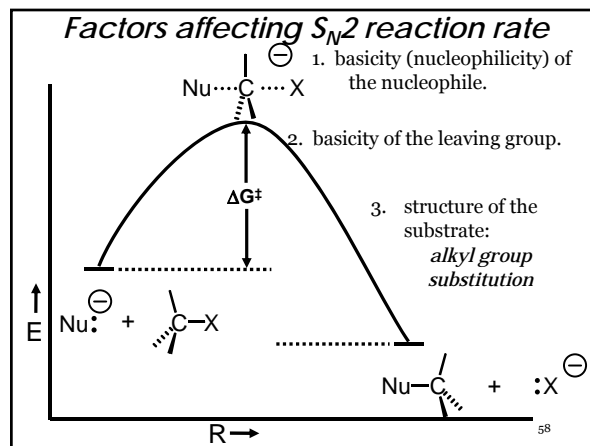
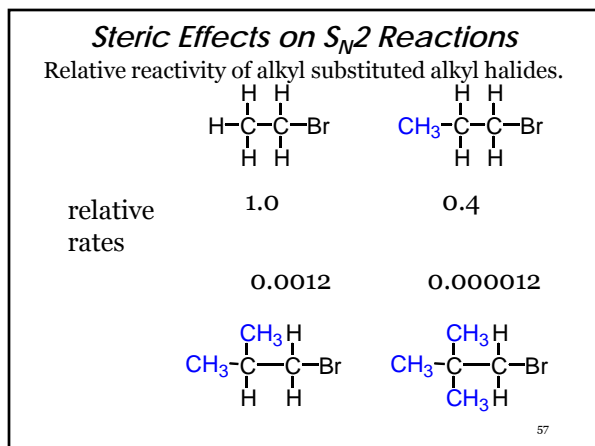
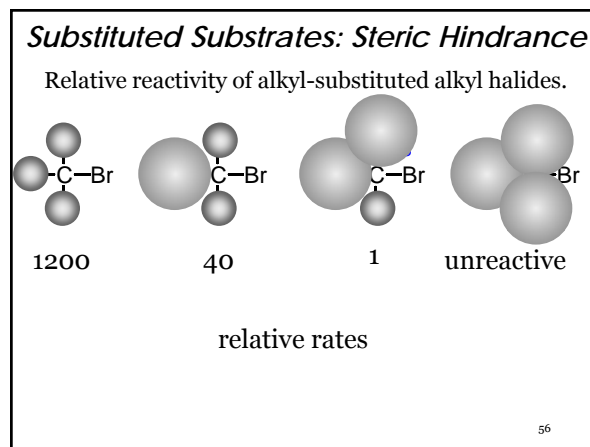
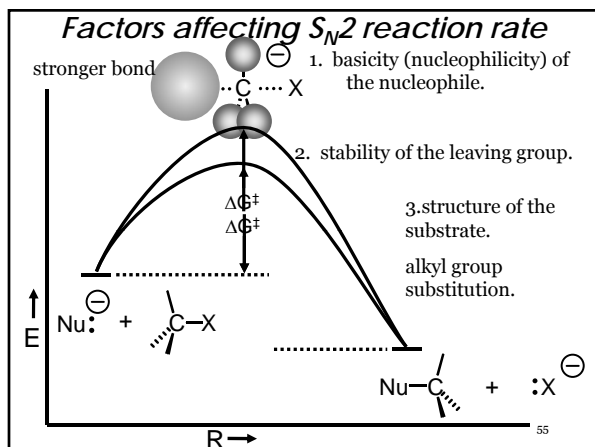
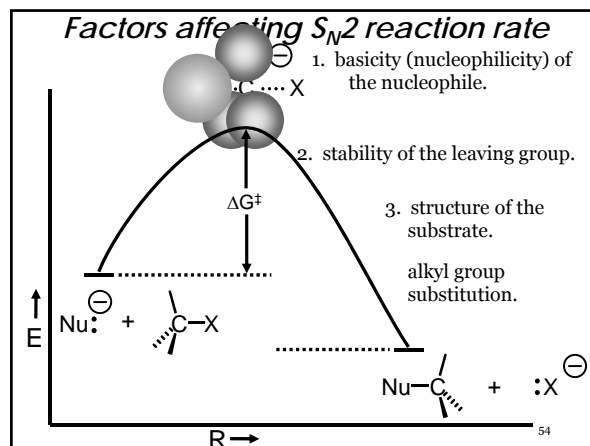
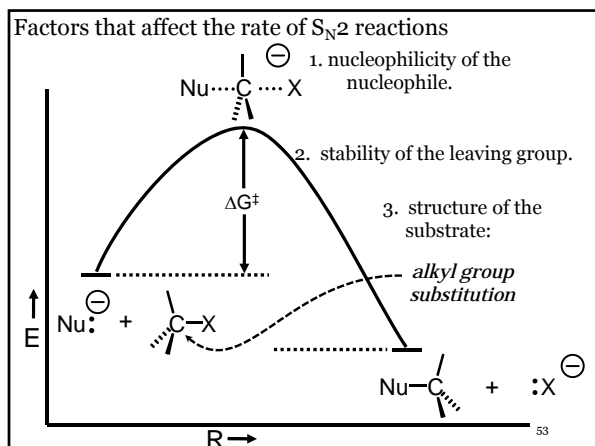


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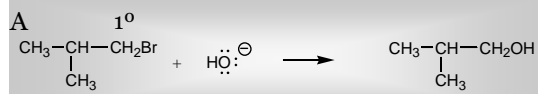




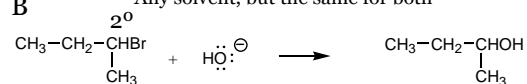




Predict, with an explanation, which one of the following reactions will occur at a faster rate.



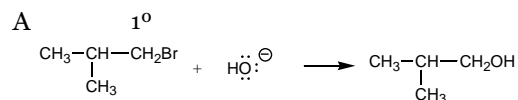
B Any solvent, but the same for both



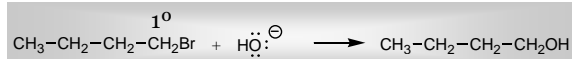
S_N2 reaction - less steric hindrance

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Predict, with an explanation, which one of the following reactions will occur at a faster rate.



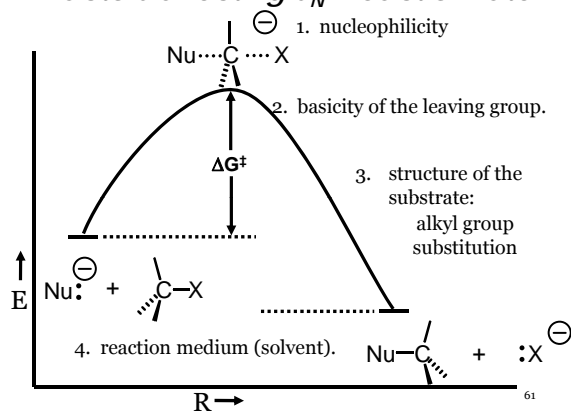
B Any solvent, but the same for both



S_N2 reaction - less steric hindrance

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Factors affecting S_N2 reaction rate



Solvent Polarity

Solvents are usually classified into one of three groups.

Polar protic – a high dielectric constant and can donate hydrogen bonds. An example is $\text{CH}_3\text{CH}_2\text{OH}$.

Polar aprotic – a high dielectric constant and cannot donate hydrogen bonds. An example is $\text{CH}_3\text{C}\equiv\text{N}$.

Non Polar – a low dielectric constant and cannot donate hydrogen bonds. An example is $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$.

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