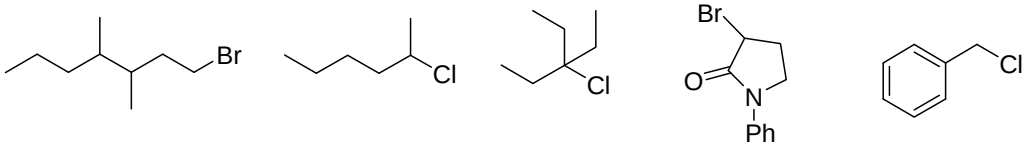
Organic Tutorial: Spring 2018

Nucleophilic Substitution Reactions

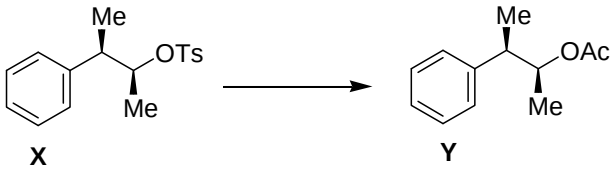
Q. Rank the following nucleophiles in the order of decreasing nucleophilicity

CH_3COO^-, HO^-, $CH_3CH_2S^-$, EtOH, PhO^-, EtO^-

Q. Predict the mechanism (S_N1 and/or S_N2) for the solvolysis of following substrates in aqueous ethanol.



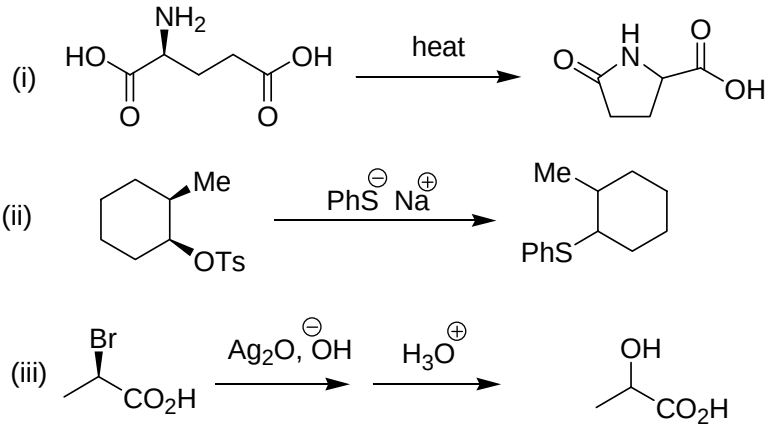
Q. Solvolysis of the enantiomerically pure compound **X** in AcOH gives racemic mixture of compound **Y**. Explain



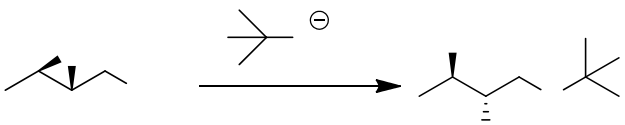
X Optically pure

Y (±)

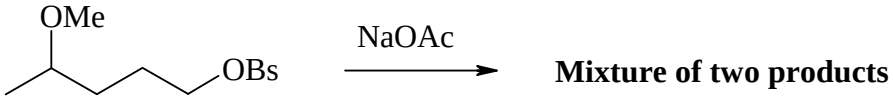
Q. Predict the stereochemistry of the products of the following reactions of enantiomerically pure starting compounds.



Q. Propose mechanism for the following reactions.

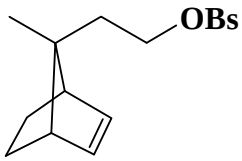


Q. In the following reaction two products are obtained, write down their structure with mechanism?



Mixture of two products

Q. Explain the relative rate of acetolysis of the following two substrates?



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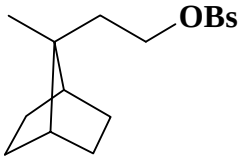

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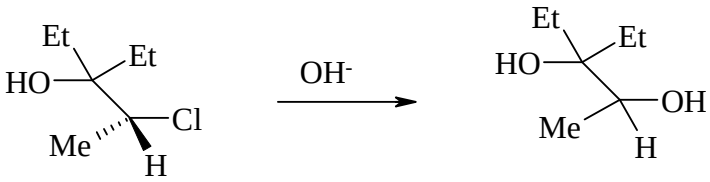
Q. Predict the stereochemistry of the final product with proper reasoning?



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