

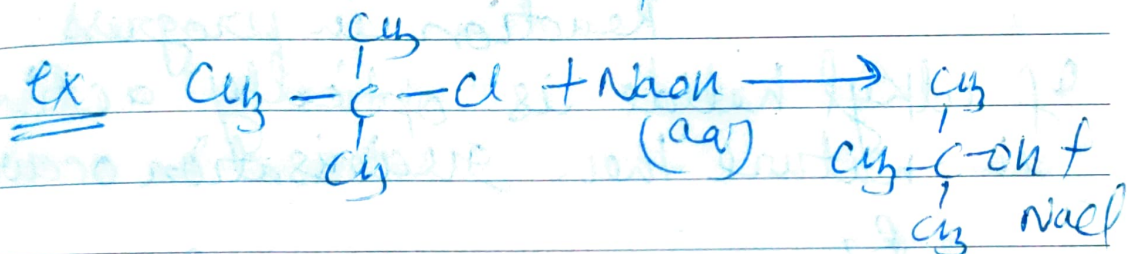
SN₁ Reaction :-

substitution, nucleophilic unimolecular Reaction is K1a SN₁ reaction.

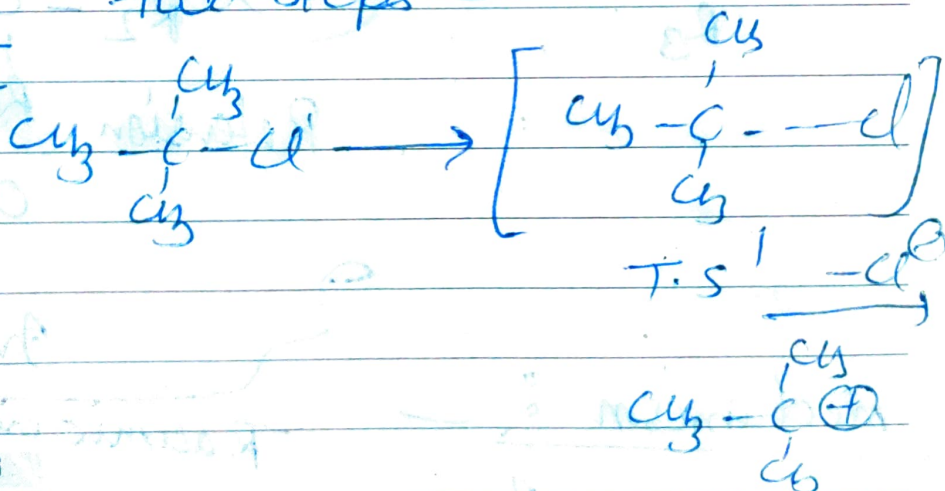
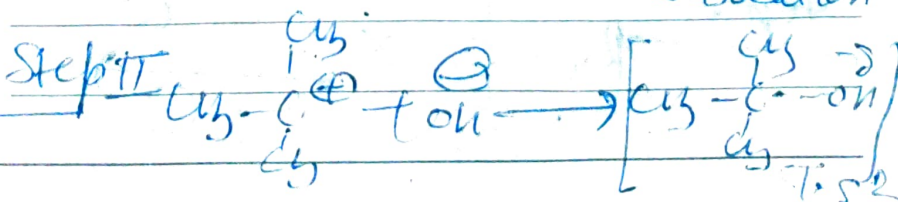
This reaction follows first order kinetics because the rate of reaction is depends upon the conc. of alkyl halide.

$$\frac{dn}{dt} \propto [RX]$$

alkaline hydrolysis of 3°-butylchloride is an example of SN₁ reaction.



mechanism :- This reaction is done in two steps -

Step-IStep II

November 2006

S M T W T F S

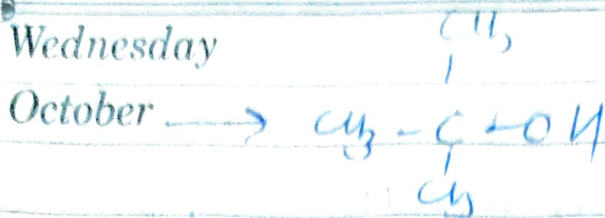
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

04

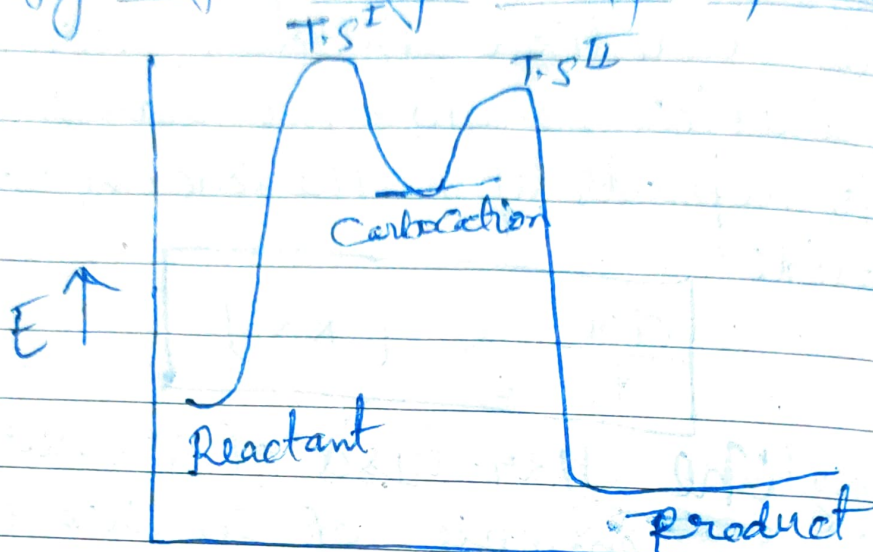
Wednesday

October

2006

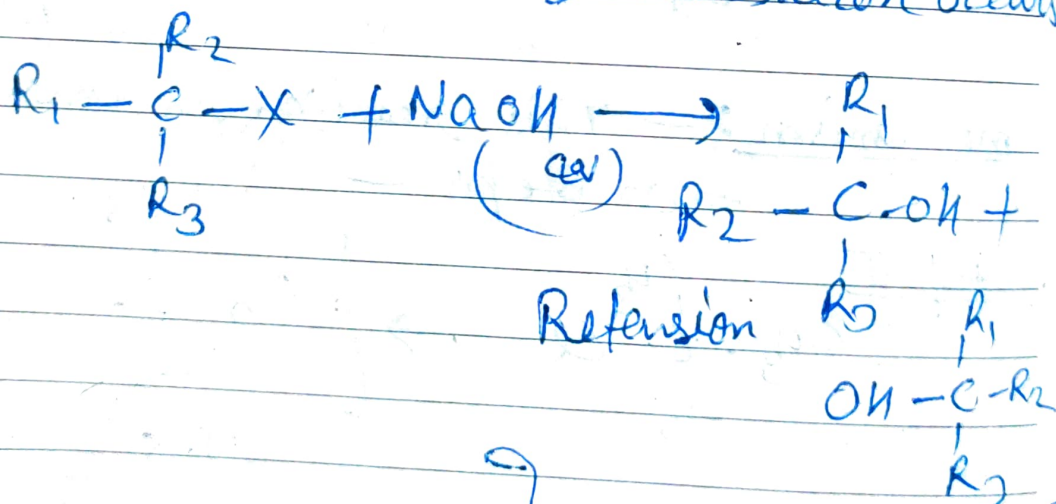


energy Profile diagram of $\text{S}_\text{N}1$ Reaction



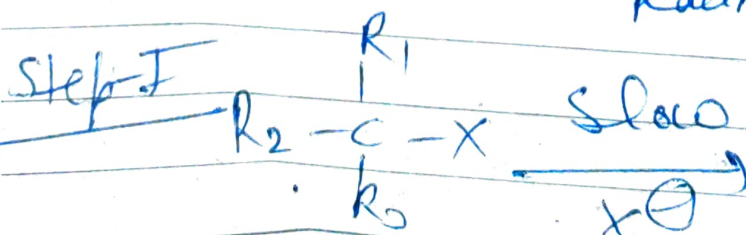
Reaction in progress

If alkyl halide is optically active in nature then racemisation occurs.



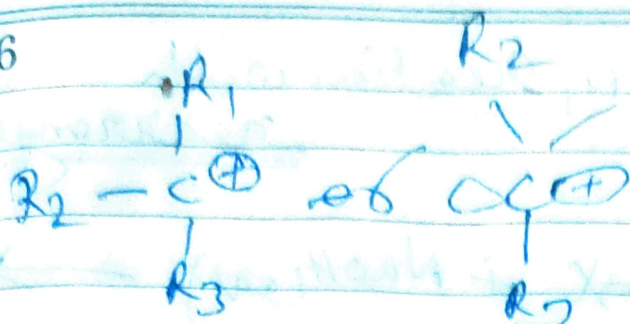
mechanism :

Racemic mixture

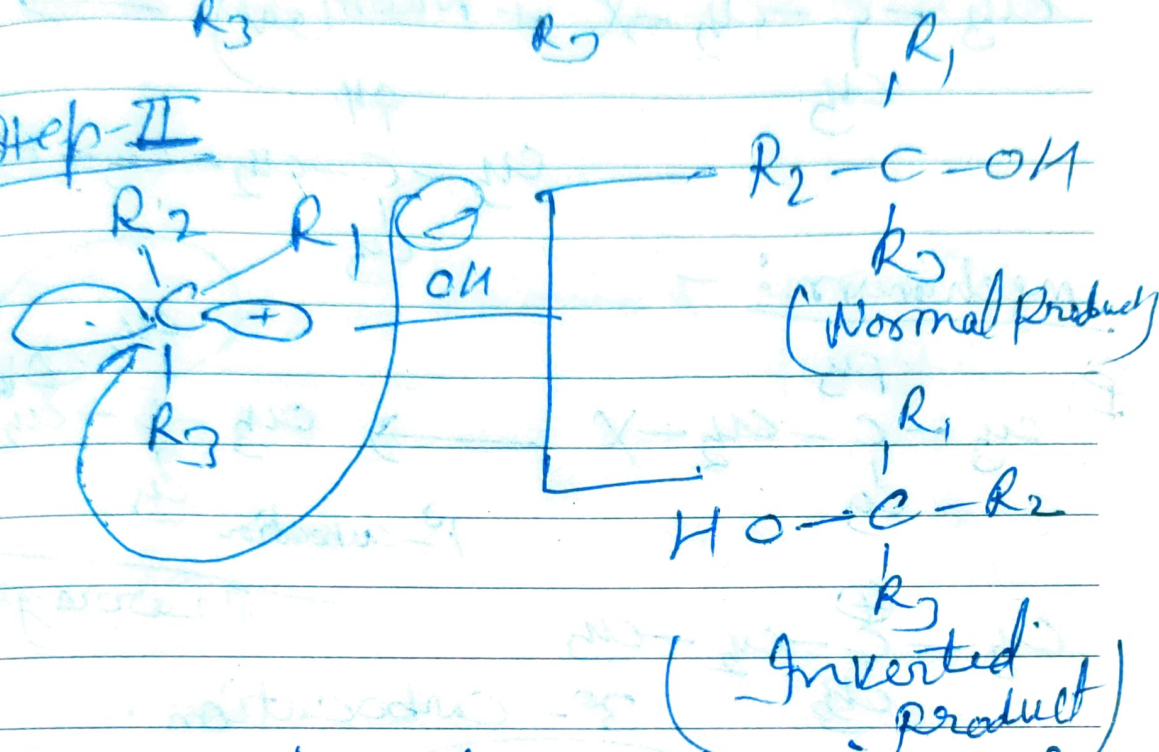


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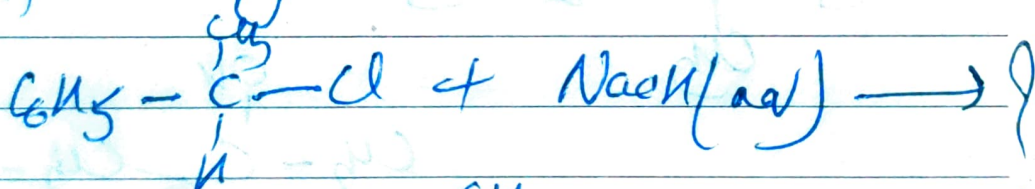
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1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



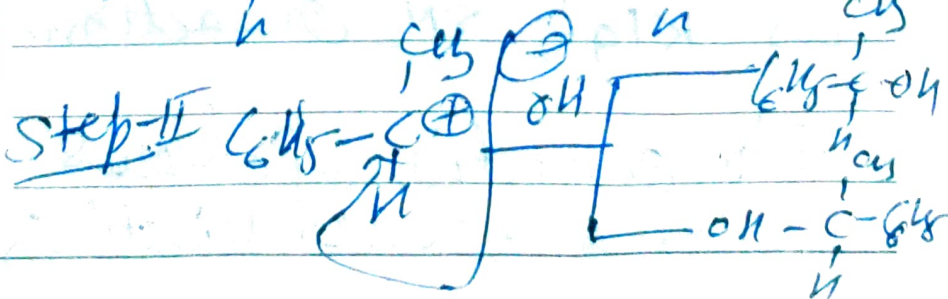
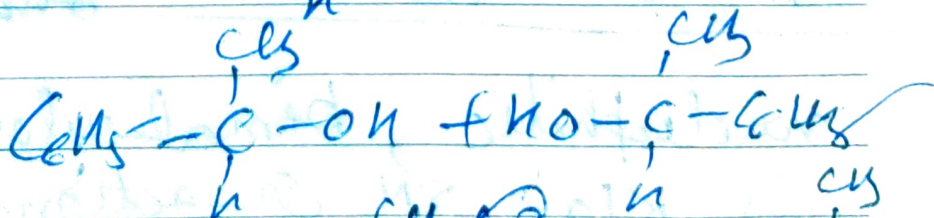
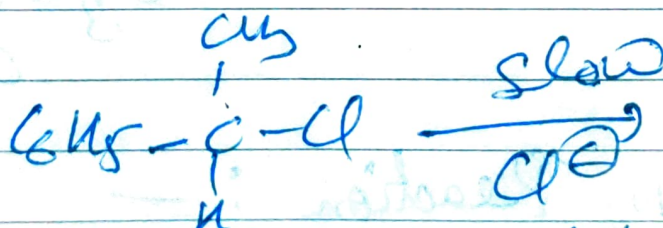
Step-II



Ques give the mechanism of following reaction —



Ans Step-I



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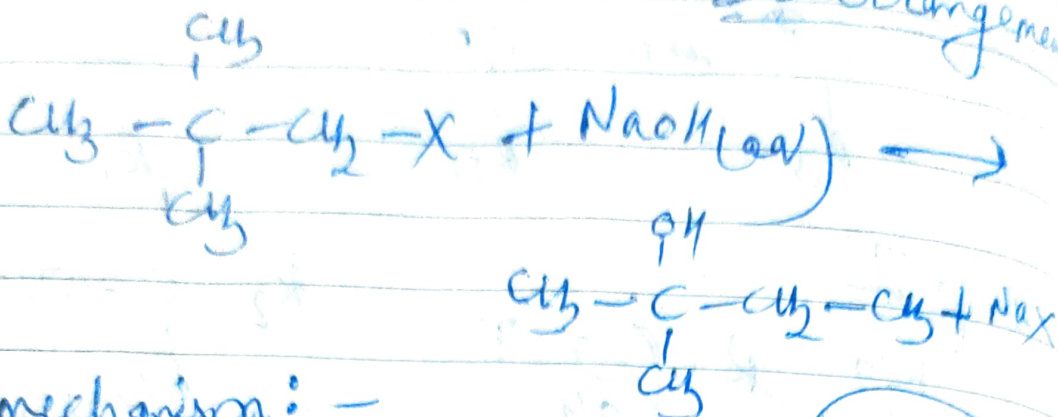
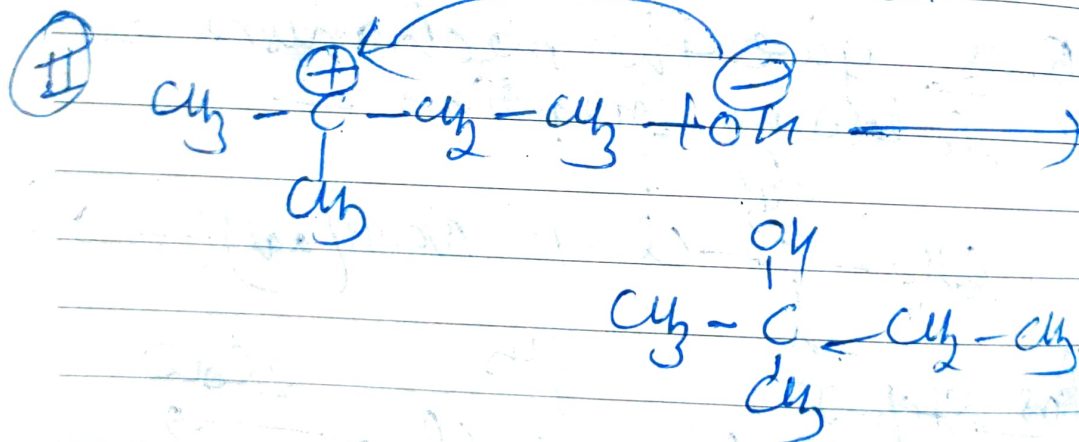
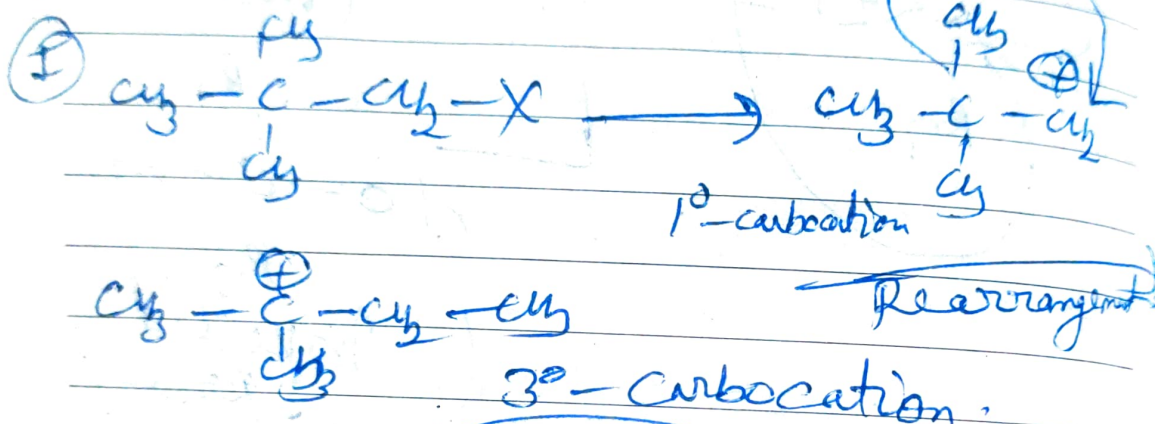
S M T W T F S

		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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06

Friday
OctoberSN₁ Reaction with
rearrangement

2006

Mechanism: -SN₂ Reaction: - substitutionnucleophilic, bimolecular Reaction
is 1st order SN₂ reaction.This reaction follows
second order kinetics

October 2006

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
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22	23	24	25	26	27	28
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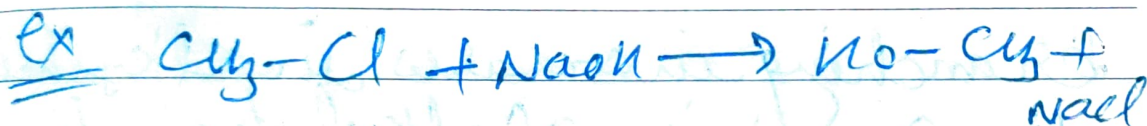
2006 because the rate of reaction is depends upon the conc. of alkyl halide as well as conc. of nucleophile

Saturday
October

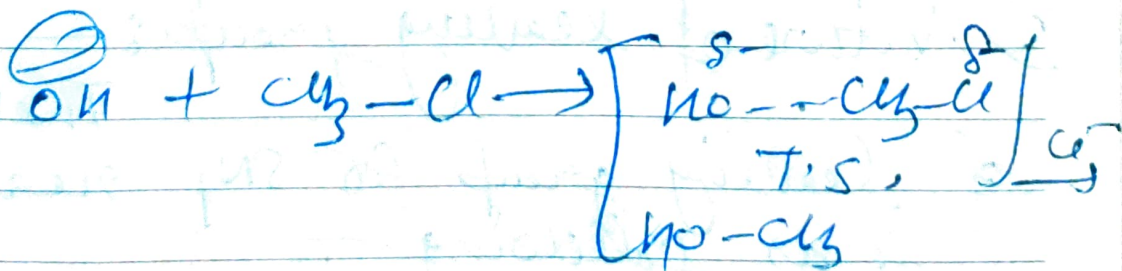
07

$$\frac{dn}{dt} = K [RX] [Nu^{\ominus}]$$

alkaline hydrolysis of methyl chloride is an example of S_N2 reaction.



mechanism:- In this mechanism nucleophile attacks on the back side of the leaving group which results in inversion in configuration. This inversion is k/a Walden inversion.



SUNDAY 8

November 2006

S	M	T	W	T	F	S
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

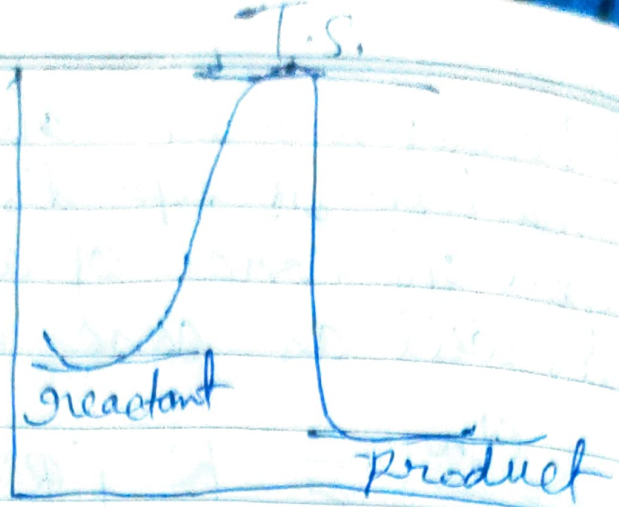
energy profile diagram of S_N2 reaction: —

09

Monday
October

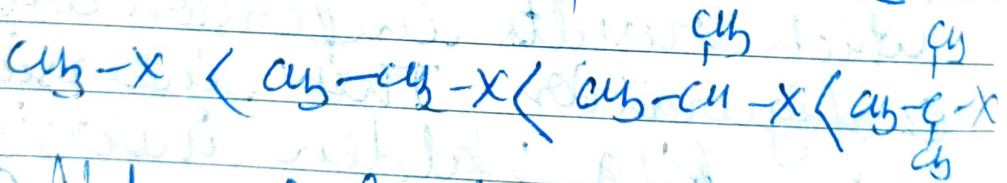
2006

E ↑



Factor influencing S_N1 Reaction

① Nature of alkyl halide : — As the branching increases in alkyl halide the reactivity of alkyl halide w.r. to S_N1 reaction is increases. The increasing order of various alkyl halides is as follows —



② Nature of leaving group : —

The nature of leaving group for S_N1 reaction is as following —



③ solvent effect : — Polar solvents increases

October 2006

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

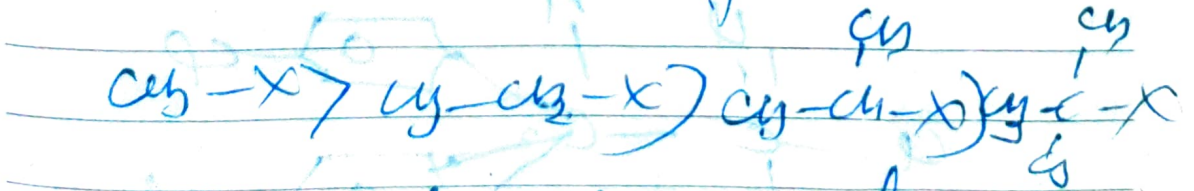
① Nature of attacking reagent:-

In S_N1 reaction nucleophiles are not involving rate determining step so this reaction is favoured by weak or neutral nucleophile

factor influencing S_N1 Reaction:-

① Nature of alkyl halides :-

In S_N2 reaction the nucleophile attacks from the back side of the leaving group so unbranched alkyl halides favours S_N2 reaction. The decreasing order of reactivity of alkyl halide w.r. to S_N2 reaction is as follows —



② Nature of leaving group:- The nature of leaving group w.r. to S_N2 reaction is as follows —

November 2006						
S	M	T	W	T	F	S
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
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