Section [2]

Ans [1] An elimination reaction is a type of organic reaction in which two substituents are removed from a molecule in either a one or two step mechanism. The one step mechanism is known as the E2 reaction & the two-step mechanism is known as the E1 reaction. The numbers refer not to the number of steps in the mechanism but rather to the kinetics of the reaction. E2 is bimolecular while E1 is unimolecular. In cases where the molecule is able to stabilize an anion but possesses a poor leaving group, a third type of reaction E1cB exists. Finally the pyrolysis of xanthate & acetate esters proceed through an "Internal" elimination mechanism the E_i mechanism.

E_1 is a model to explain a particular Type of chemical elimination reaction E_i Stands for unimolecular elimination and has the -

1. It is a two step process of elimination

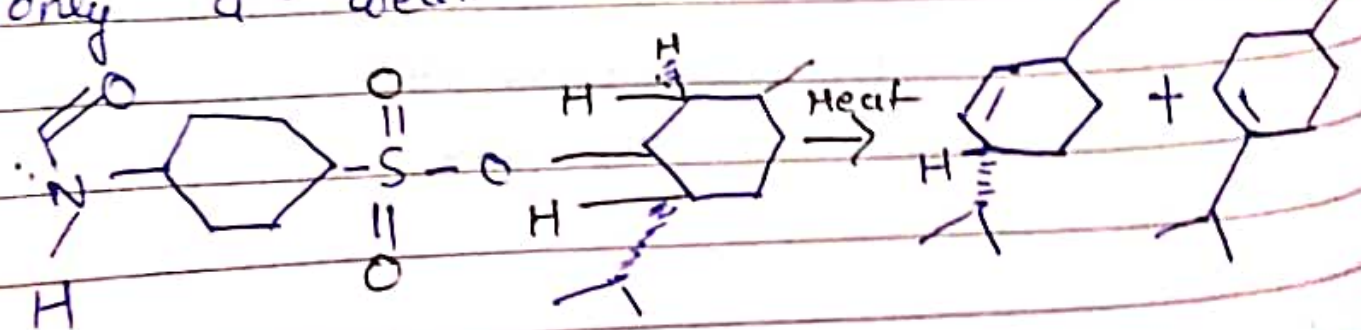
Ionization and deprotonation.

- Ionization → The Carbon halogen bond breaks to give a Carbocation intermediate
- deprotonation of the Carbocation

2. E1 typically takes place with tertiary alkyl halides but is possible with some secondary alkyl halides

3. The reaction rate is influenced only by the Concentration of the alkyl halide because Carbocation formation is the slowest step as first order kinetics apply.

4. The reaction usually occures in the complete absence of a base or the presence of only a weak base.



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The Specifics of the reaction are as follows:

1. E_2 is a single step elimination with a single transition state.

2. It is typically undergone by primary substituted alkyl halides.

3. The reaction rate is second order because it's influenced by both the alkyl halide an the base.

4. Because the E2 mechanism result in in the formation of a pi bond, the two leaving groups state has staggered conformation with lower energy than a Syn periplanar transition state which is in eclipsed staggered conformation is more favorable for E2 reactions.