

Chemistry - 12th Class Chemistry Chapter 10 Short Questions Preparation

- Q1. Write down the main factors on which reactivity of Alkyl halides depends.
 - **Ans 1:** There are two main factors which govern the reactivity of R-X bond.
 - C-X bonds: Strength of bond in compound would be the most reactive one while fluro compound will be the least reactive.
 - C-X bond polarity: The greatest electronegativity difference between carbon and fluorine atoms in alkyl fluorides, If an electrophile is the attaching reagent then this difference suggest that alkyl fluorides would be the most reactive alkyl halides.
- Q2. Define Primary Alkyl Halides and secondary alkyl Halides.
 - **Ans 1:** The alkyl halides in which halogen atom halogen atom is attached with carbon which is further atached to one or no carbon atom is called primary alkyl halide.
 - Secondry alkyl Halide: The alkyl halides in which halogen atom is attached with a carbon which is durther attached to two carbon atom is called secondry alkyl halide.
- Q3. Inversion of configuration is 50% in S_n1.Explain?
 - **Ans 1:** In S_n1 mechanism the nucleophile attacks when the leaving group had already gone,carbocation is a planner specie allowing the nucleophile to attack on it from both the direction with equal ease,We therefore observe 50% inversion of configuration and 50% reternation of configuration.
- Q4. During S_n1 reaction, What is the significance of first step?
 - **Ans 1:** The first step involved the breakage of a covalent bond so it is slow step as compared to the second step which involve the energetically favourable combination of ions, the first step is therefore called the rate determining step. The mechanism step is called unimolecular because only one molecule take part in the rate determining step.
- Q5. What is the role of stability of carbonium ion in deciding the Mechanism of substitution reaction.
 - **Ans 1:** The first step involve the breakage of covalent bond so it is slow step as compared to the second step which involves the energetically favourable combination of ions. The first step is therefore called the rate determining step. The mechanism is called unimolecular because one molecule takes part in the rate determining step.
- Q6. Define Nucleophile.
 - **Ans 1:** Nucleophile means nucleus loving ,It has an unshared electron paired available for bonding and in most cases it is basic in character,It may have negatively charged or neutral.

Ans 1: When nucleophile attacks on hydrogen atom attached to the beta carbon of the alkyl halide,we get an alkene ,such type of reaction are called elimination reaction .ln E1 mechanism the first step is the slow ionization of the substrate to give a carbocation.ln the second step the nucleophile attacks on hydrogen to give an alkene as a product.

Q8. Give general mechanism pattern of $S_{n}2$ reaction?

Ans 1: In nucleophilic substitution bimolecular the reaction of attack of the attaching nucleophile is from the side which is opposite to the leaving group. In order to give the nucleophile enough room to attack the substrate carbons atom changes its state of hybridization from tetrahedral to planner sp².

Q9. How will you prepare Ethyl chloride using thionylchloride.

Ans 1: Alcholos reacts with thinoyl chloride in pyridine as a solving to give alkyl chlorides This method is especially useful since the by production are gases which escape leaving behind the pure product.

Q10. What are primary and tertiary Alkyl Halides?

Ans 1: In a primary alkyl halide halogen atom is attached with carbon which is further attached to one or more carbon atom. In a tertiary alkyl halide halogen atom is attached with a carbon which is further attached to three carbon atom.