**B. Sc. [ Semester-II ]**

**Organic Chemistry (US02CCHE21)**

**Assignment Of Unit-I**

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| **Q.1** | | **Choose the correct option from the following (M.C.Q.):** |  | |
| **(i)** | | Which type of bond is preent in organic compound ?  (a) covalent (b) ionic (c) coordinate (d) dative. | | |
| **(ii)** | | Which of the following intermediate is produce during homolytic bond cleavage of organic molecule ?  (a) Carbocation (b) Carbanion (c) free radicals(d) None. | | |
| **(iii)** | | Which of the following molecule has great tendancy to undergo for SN2 reaction.  (a) Methyl bromide (b) Isopropyl bromide (c) t-butyl chlorode(d) None of these. | | |
| **(iv)** | | The atom or a group of atom have tendency to donate the electron pair is called  (a) electrophile (b) nucleophile (c) Benzonium ion (c) none | | |
| **(v)** | | Aryl or vinyl halides have tendency to undergo for……. substitution reaction.  (a) electrophilic (b) nucleophilic (c) both electrophilic and nucleophilic. | | |
| (**vi)** | | The rate of SN1 reaction depends upon the concentration of :  (a) substrate (b) nucleophile (c) both substrate and nucleophile (d) None of these. | | |
| **(vii)** | | The rate of SN2 reaction depends upon the concentration of :   1. substrate (b) nucleophile (c) both substrate and nucleophile (d) None of these. | | |
| **(viii)** | | Which type of substitution reaction always occurs in alkyl halides with OH- ion ?  (a) electrophilic (b) nucleophilic (c)both electrophilic and nucleophilic (d)Free radical. | | |
| **(ix)** | | Which intermediate involve during elimination-addition type reaction mechanism?  (a) electrophilic (b) nucleophilic (c) benzyne (d) benzene | | |
| **(x)** | | How many step involve in SN2 reaction?  (a) two (b) single (c) three (d) zero. | | |
| **(xi)** | | How many steps involve in SN1 reaction?  (a) two (b) single (c) three (d) zero. | | |
| **(xii)** | | Which intermediate involve during SN2 reaction mechanism?.  (a) Free radical (b) carbocation (c) carbanion (d) pentavalent transition state. | | |
| **(xiii)** | | Which intermediate involve during SN1 reaction mechanism?.  (a) Free radical (b) carbocation (c) carbanion (d) pentavalent trasiton state. | | |
| **(xiv)** | | Which type of intermediate is involve during conversion of chlorobenzene to aniline?  (a) Free radical (b) Benzyne (c) carbanion (d) pentavalent trasition state. | | |
| **(xv)** | | The atom or a group of atom have tendency to donate the pair of electron is called?  (a) electrophile (b) nucleophile (c) Benzonium ion (c) Free radical. | | |
| **Q.2** | **Answer the following :**  (i) Compare the SN1 and SN2 reaction with respect to (a) No. of steps (b) Rate and order (c) Molecularity (d) Transition state of slowest step.    (ii) Account both *o*-bromoanisole and *m*-bromoanisole yields the same product *m*-anisidine in presence of -NH2 /NH3.  (iii) Arrange the increasing order of reactivity for the following molecules towards SN2 reaction and explain your answer.  (a) *t-*Butyl chloride (b) Ethyl chloride (c) Isopropyl chloride.  (iv) Arrange the increasing order of reactivity for the following molecules towards SN1 reaction and justify your answer.  (a) Methyl chloride (b)  *t-*butyl chloride (c) Isopropyl chloride.  (v) Arrange the increasing order of reactivity for the following molecules towards nucleophilic aromatic substitution reaction and justify your answer.  (a) p-Nitrochlorobenzene (b) p-Chlorophenol (c) Chlorobenzene.  (vi) Define: carbocation. Arrange the relative stabilities of various carbocations and explain your answer.  (vii) Write all the possible isomeric structural formula and IUPAC name for the compound having molecular formula C4H9Br. Classify them as 10, 20 and 30 alkyl halides.  (vii) Distinguish between: (a) SN1 and SN2 reaction mechanism (b) Homolytic and heterolytic cleavage. | | |
| **Q.3** | **Explain the following :**   1. (i) 30 alkyl halide does not undergo SN2 reaction but follows SN1 reaction.   (ii) Neopentyl bromide upon SN1 reaction in presence of ethanol gives ethyl *tert*-pentyl ether as a major product.  (iii) Chlorobenzene and vinyl chloride have low reactivity towards nucleophilic substitution reaction compare to ethyl chloride.  (iv) Hydrolysis of p-nitroacetanilide is best carried out in acidic medium and not in a basic medium.  (v) Explain: SN1 reaction does not depend upon concentration of base but SN2 reaction dependent on concentration. | | |

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| **Q4** | Complete the following reaction and give appropriate mechanism for the following.  Chlorobenzene + NaNH2 + NH3 → ? |

o-Fluoroanisole + phenyl lithium then H2O → ?

***There is n****o short cut, except hard work with understanding to excel in examination.*