

**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)**

**B. Tech. Sem - II CHEMICAL :SUMMER- 2022**

**SUBJECT : ORGANIC CHEMISTRY-II**

Day : Thursday  
Date : 28-07-2022

**S-24052-2022**

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

**N.B :**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.
- 5) Assume suitable data if necessary.

- Q.1** a) What is  $SN_1$  reaction? Discuss the mechanism of  $SN_1$  reaction with the help of energy profile diagram. [05]
- b) Explain: [05]
- i)  $OH^-$  Acts as good nucleophile as well as good leaving group.
  - ii) Hydrolysis of  $CH_3 - Br$  takes place much faster in presence of  $NaI$ .

**OR**

- Q.1** Define  $SN_2$  reaction. Explain  $SN_2$  reaction with the following points: [10]
- i) Kinetics
  - ii) Effect of structure of substrate
  - iii) Effect of structure of substrate
  - iv) Effect of leaving group

- Q.2** a) Explain [06]
- i) 2-bromobutane on heating with  $NaOMe$  gives 75% 2-butene.
  - ii) As the size of the attacking base increases proportion of Hofmann product increases.
- b) Predict the major product by giving mechanism in the following reactions: [04]
- i)  $[CH_3]_3C-Br + NaOEt \xrightarrow{EtOH/E_2} ?$
  - ii)  $Ph-CH_2 - CH_2 - Br \xrightarrow{OEt} ?$

**OR**

- Q.2** Discuss stereochemistry of  $E_1$  and  $E_2$  reactions with suitable examples. [10]

- Q.3** a) Explain: [06]
- i) Haloarenes undergo electrophilic substitution reactions in the benzene ring.
  - ii) Haloarenes are insoluble in water.
- b) Write note on Wurtz reaction. [04]

**OR**

- Q.3** a) How will you obtain the following from Ethyl iodide with explanation, [06]
- i) Ethyl amine
  - ii) Ethyl cyanide
  - iii) Ethyl alcohol
- b) Write note on Mono-halogen derivatives of alkanes. [04]

- Q.4** a) Write note on applications of Ionic liquids. [05]
- b) Discuss methods for structure determination of Alkaloids. [05]

**OR**

- Q.4** a) Write note on classification of Terpenoids. [05]
- b) Discuss structural features of Ionic liquids. [05]

**P.T.O.**

- Q.5 a)** Explain [06]  
i) Pyridine undergoes Electrophilic substitution reaction at C-3 position.  
ii) Pyrrole does not explain the fundamental addition reactions like simple alkenes under normal condition.  
**b)** Give two synthesis methods of Thiophene. [04]

**OR**

- Q.5 a)** Write note on 5-membered Heterocyclic compounds. [06]  
**b)** Give three Electrophilic substitution reactions of Pyrrole. [04]

- Q.6** Discuss briefly classification of Organometallic compounds on the basis of nature of metal-carbon bond. [10]

**OR**

- Q.6 a)** Write note on basicity of Organo-Lithium and Organo-Magnesium compounds. [06]  
**b)** Give two synthesis methods of Organo-Metallic Compounds. [04]

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