

NRT/KS/19/2080

Bachelor of Science (B.Sc.) Semester—III Examination

CHEMISTRY (Organic Chemistry)

Compulsory Paper—II

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) All **FIVE** questions are compulsory.

(2) Write chemical equations and draw diagrams wherever necessary.

1. (A) What are activating and deactivating group ? Explain meta directive influence of NO_2 group in Nitrobenzene for further electrophilic substitution. 5
- (B) Discuss the mechanism of alkaline hydrolysis of Tertiary butyl bromide with energy profile diagram. 5

OR

- (C) Starting from chlorobenzene how will you prepare :
 - (i) Benzene and
 - (ii) Aniline ? 2½
- (D) Give synthesis and uses of DDT. 2½
- (E) How will you prepare Biphenyl from Benzene diazonium chloride ? Name the reaction. 2½
- (F) How will you prepare chloroform from Ethyl alcohol ? 2½
2. (A) Give a method of preparation of glycerol starting from propylene. What is action of excess of HI on it ? 5
- (B) How is phenol obtained from Chlorobenzene ? Discuss mechanism of Reimer-Tiemann Reaction. 5

OR

- (C) What are alcohols ? Discuss the classification with example. 2½
- (D) Discuss Pinacol-Pinacolone rearrangement. 2½
- (E) Write a note on Claisen rearrangement reaction. 2½
- (F) Explain acidic nature of phenol. 2½
3. (A) Discuss the structure of carbonyl group in aldehydes and ketones. How will you synthesis :
 - (i) Acetaldehyde from acetyl chloride
 - (ii) Acetophenone from benzonitrile ? 5
- (B) Explain the reaction and mechanism of Perkin reaction. 5

OR

- (C) Write note on Wittig reaction. 2½
- (D) Give the general mechanism of nucleophilic addition to carbonyl group. 2½
- (E) Write a note on Cannizzaro's reaction. 2½
- (F) Explain the action of Tollen's reagent and Fehling solution on acetaldehyde. 2½
4. (A) Discuss the acidity of carboxylic acids. What is the effect of substituents on it ? 5
- (B) How would you bring about the following conversions :
 - (i) Acetic acid to ethyl acetate
 - (ii) Acetyl chloride to acetic anhydride
 - (iii) Ammonium acetate to Acetamide
 - (iv) Acetic acid to acetyl chloride
 - (v) Acetonitrile to Acetamide ? 5

OR

- (C) Give mechanism of acid catalysed hydrolysis of ester. 2½
- (D) Write a note on Hell-Volhard-Zelinsky reaction. 2½
- (E) Define Esters. Write a note on Claisen Condensation reaction. 2½
- (F) Give mechanism of decarboxylation reaction with soda lime. 2½

5. Attempt any **TEN** of the following :

- (i) How is toluene obtained from benzene ? 1
- (ii) What is the action of chloroform on phenol ? 1
- (iii) Give any two uses of BHC. 1
- (iv) What happens when ethylene glycol heated with Conc. H_2SO_4 ? 1
- (v) How is acrolein obtained from glycerol ? 1
- (vi) Give the preparation of phenol by Dows process. 1
- (vii) Give IUPAC name of Isobutyraldehyde. 1
- (viii) How will you convert acetone into isopropylalcohol ? 1
- (ix) Give the oxidation reaction of formaldehyde by KMnO_4 . 1
- (x) Give the preparation of Phthalic acid from o-xylene. 1
- (xi) What happens when acetamide is treated with nitrous acid ? 1
- (xii) Write the structure of 3-methyl butan-1-oic acid. 1