

(C) Explain mechanism of esterification reaction. 2½

(D) Write a note on Hell-Volhard-Zelinsky reaction. 2½

(E) How is crotonic acid prepared from α -bromo butyric acid ? What is action of bromine on it ? 2½

(F) Give mechanism of decarboxylation reaction. 2½

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

- (i) How is toluene obtained from benzene ?
- (ii) Define ortho-para directing groups.
- (iii) How will you convert biphenyl into benzoic acid ?
- (iv) What happens when glycerol is heated with P_2O_5 ?
- (v) What is action of PCl_5 on ethylene glycol ?
- (vi) What is Reimer-Tiemann reaction ?
- (vii) What is Gatterman Synthesis ?
- (viii) Define aldol condensation reaction.
- (ix) How will you convert Acetone into propane ?
- (x) What is action of thionyl chloride on carboxylic acid ?
- (xi) How is acetic acid obtained from Methyl Magnesium Bromide ?
- (xii) What is action of $LiAlH_4$ on acetamide ?

10×1=10

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Bachelor of Science (B.Sc.) Semester-III Examination
CHEMISTRY
CH-302 (Organic Chemistry)
Paper-II

Time—Three Hours]

[Maximum Marks—50

N.B. :- (i) All **FIVE** questions are compulsory and carry equal marks.

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

1. (A) Explain the mechanism of alkaline hydrolysis of methyl bromide with energy profile diagram. 5

(B) What is orientation ? Explain meta directing and deactivating influence of $-COOH$ group on electrophilic substitution in benzene ring. 5

OR

(C) Give preparation and uses of B.H.C. 2½

(D) Compare reactivity of chlorobenzene with benzyl chloride. 2½

(E) Give preparation of chloroform from ethyl alcohol. 2½

(F) How is Biphenyl prepared by Gomberg reaction ?
How does Biphenyl react with conc. HNO_3 in
presence of conc. H_2SO_4 ? 2½

2. (A) How is Ethylene glycol obtained from :
 (i) Ethylene
 (ii) 1, 2- dibromoethane ?

What happens when ethylene glycol is heated with :
 (i) Conc. H_2SO_4
 (ii) Anhydrous ZnCl_2 ? 5

(B) Discuss mechanism of Fries rearrangement. 5

OR

(C) Explain oxidation of ethylene glycol using alkaline potassium permanganate. 2½

(D) Discuss the mechanism of pinacol-pinacolone rearrangement. 2½

(E) How will you obtain phenol from chlorobenzene and cumene ? 2½

(F) Discuss the acidic nature of phenol. 2½

3. (A) What is a nucleophilic addition reaction ? Describe the mechanism of nucleophilic addition to a Carbonyl Compound. 5

(B) How will you obtain :
 (i) Acetophenone from Benzonitrile
 (ii) Acetaldehyde from acetyl chloride ?
What is the action of :
 (i) Selenium dioxide on acetone
 (ii) Hydroxyl amine on benzaldehyde ? 5

OR

(C) What is action of strong alkali solution on the aldehyde not possessing α – hydrogen. Name the reaction. 2½

(D) Write a note on Wittig reaction. 2½

(E) Write a note on Baeyer-Villiger reaction for oxidation of ketone. 2½

(F) Discuss Benzoin condensation reaction. 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) Benzaldehyde to Benzyl alcohol
 (ii) Ammonium acetate to Acetamide
 (iii) Phthalic acid to phthalic anhydride
 (iv) Acetyl chloride to Acetic anhydride
 (v) Acetic acid to ethyl acetate ? 5

OR