(iii) Conversion of α–halo ester to β-hydroxy ester using organozinc.

(e) Arrange the following in decreasing order of their acidity and justify your answer.

p-chlorobenzoic acid, *p*-nitrobenzoic acid, *p*-methylbenzoic acid 3×5=15

5. (a) Acetadehyde (ethanal) shows positive iodoform test. Explain

(b) Give distinguishing test between benzyl alcohol and phenol.

(c) What is Meerwein-Ponndorf-Verley reduction?

(d) Phenol is more acidic than alcohol. Justify your answer.

(e) What is Claisen ester condensation and its application? 3×5=15

6. Write short note on the following : 3×5=15

(a) Hauben Hausch Condensation

(b) Wolf Kishner Reduction

(c) Reimer-Tieman reaction

(d) Aldol condensation

(e) Oppenauer oxidation

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[This question paper contains 4 printed pages]

Your Roll No. : .....

Sl. No. of Q. Paper : **5314** **I**

Unique Paper Code : 2174001204

Name of the Paper : GE: Chemistry of Oxy-gen-containing Func-tional Groups and their Applications to Biology

Name of the Course : **B.Sc.(Hons.)**
BSc Programme

Semester : II/IV/VI

Time : 2 Hours ***Maximum Marks : 60***

Instructions for Candidates :

(a) Write your Roll No. on the top immediately on receipt of this question paper.

(b) Answer **four** questions in all.

(c) Each question carries **15** marks.

1. Give a reason for the following : 3×5=15

(a) Acidity order: *p*-Nitrophenol> phenol> *p*-methylphenol (cresol).

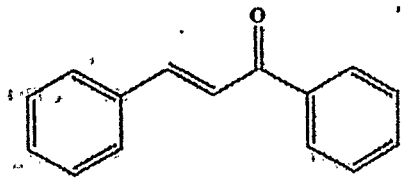
(b) Acetaldehyde gives the aldol product while formaldehyde does not.

P.T.O.

(c) Acetyl chloride is more reactive than acetic acid towards nucleophile attack.

(d) Cannizaro reaction shows a disproportionation reaction.

(e) Prepare the following compound using an aldol reaction.



2. (a) Discuss the mechanism of Hell-Volhard-Zelinsky reaction.

(b) What is Wittig Reaction?

(c) Trifluoroacetic acid is more acidic than acetic acid. Explain

(d) Discuss Schotten-Baumann reaction.

(e) Describe Reformatsky reaction with mechanism. 3×5=15

3. (a) Explain the halogenation of phenol with mechanism.

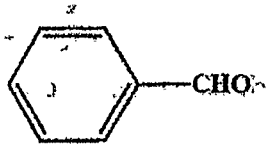
(b) What is Clemmensen reduction reaction?

(c) Discuss Benzoin condensation.

(d) Arrange the following in increasing order of their acidity and with reason.

$BrCH_2COOH$, $ClCH_2COOH$, FCH_2COOH

(e) Prepare the following compound using the Gattermann-Koch reaction. 3×5=15



4. (a) Complete the following reaction:

(i) $2\,CH_3CHO \xrightarrow{\text{dil. NaOH}}$

(ii) $CH_3COOH \xrightarrow{\text{, Red P/Cl}_2}$

(iii) $CH_3COCH_3 \xrightarrow{I_2/NaOH}$

(b) Define esterification of carboxylic acids with mechanism.

(c) How the Lucas test helps in differentiating primary, secondary, and tertiary alcohols.

(d) Name the following reaction:

(i) ortho-formylation of phenol under the action of chloroform and sodium hydroxide.

(ii) Conversion of aldehyde/ketone to alkane in presence of zinc amalgam (Hg).