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Total No. of Printed Pages: [01]

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B.Sc. (Hons.) Chemistry (Semester 3rd)

ORGANIC CHEMISTRY-II

Subject Code: BCHMS1301

Paper ID: [19131616]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) How nucleophilic substitution reactions are feasible in alkylhalides?
- b) Give a method of conversion of toluene into *o*-chlorotoluene.
- c) Why alcohols are less acidic than phenols?
- d) How acidity of phenols changes with electron withdrawing substituents?
- e) What will be the product of heating of sodium phenoxide with methyl bromide?
- f) Give a method of preparation of 1,2-epoxycyclohexane.
- g) What will be the product of reaction of 1° alcohol with $K_2Cr_2O_7/H_2SO_4$?
- h) How HCN reacts with carbonyl compounds? Give general mechanism of reaction.
- i) Arrange carboxylic acid derivatives in their decreasing order of reactivity towards nucleophiles.
- j) How thiols can be prepared? Give an example.

Section – B

(5 marks each)

- Q2. How the differences between SN^1 and SN^2 reactions can be compared?
- Q3. How 1,3-dithiane is useful for aldehydes and ketone synthesis? Discuss mechanistically.
- Q4. Sketch the mechanisms for basic and acidic aldol condensations.
- Q5. What is Reimer-Tiemann reaction? Give example and draw its mechanism.
- Q6. How succinic and phthalic acids can be prepared? Discuss in detail.

Section – C

(10 marks each)

- Q7. Discuss briefly addition-elimination and elimination-addition mechanisms of aryl halides. Under what conditions each one operates and why?
- Q8. Give reactions of ketones with $NaBH_4$ and $LiAlH_4$? Discuss their mechanisms. What are the necessary reaction conditions for Michael reaction? Discuss reaction mechanistically.
- Q9. Give preparation methods and reactions of acid chlorides, acid anhydrides, esters and amides.