

ORGANIC CHEMISTRY-II

(Common for B.Sc. Bio. Tech. Semester-IV)

Time Allowed : Three Hours

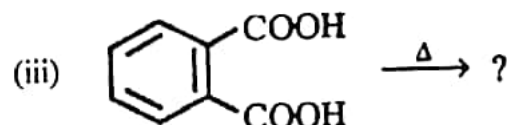
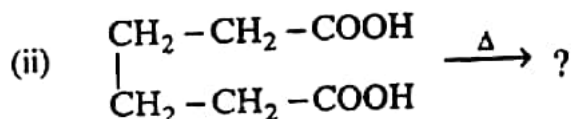
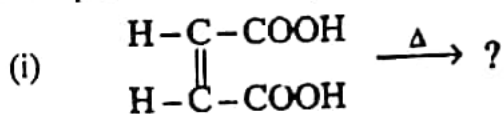
Maximum Marks : 26

Note : Attempt two questions each from Section A and B carrying 4 marks each, and the entire Section C consisting of 5 short answer type questions carrying 2 marks each.

SECTION-A

- I. (a) 2,4,5-Trimethyl benzoic acid is very difficult to esterify directly. Explain and suggest a convenient method of esterification of this acid.
- (b) Complete the following reactions giving mechanism :
- (i) Sodium benzoate + Sodalime \rightarrow ?

- (ii) $C_6H_5CH_2CH_2COOH + Cl_2 \xrightarrow{Red P} ?$
 II. (a) How will you prepare $H_3C-CH(COOH)_2$ from $CH_3CHBrCOOH$?
 (b) Complete the following reactions :



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III. How will you convert the following :

(i) Pyruvic acid to Lactic acid.

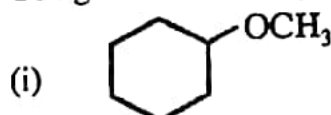
(ii) Acetaldehyde to β -hydroxybutyric acid.

IV. (a) Outline the mechanism of alkaline hydrolysis of ester. Give evidence for acyl-oxygen bond cleavage.

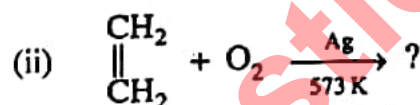
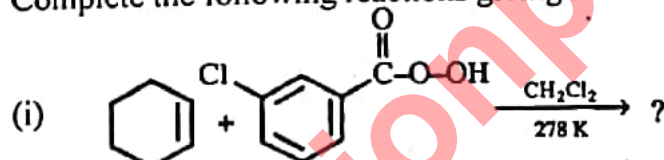
(b) Out of acetyl chloride and acetic anhydride which one is preferred for acylation, and why?

SECTION-B

V. (a) Using Williamson's synthesis, how the following ethers are synthesized :



(b) Complete the following reactions giving mechanism :



VI. (a) Write short notes on the following :

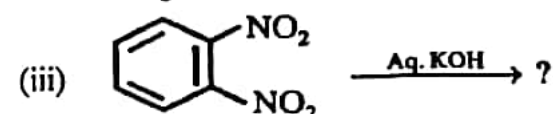
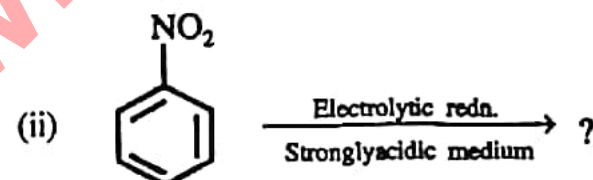
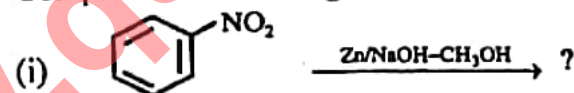
(i) Saponification value.

(ii) Rancidity.

(b) Explain Vegetable oil, Mineral oil and Essential oil, and distinguish between the three.

VII. (a) How is picric acid prepared commercially from chlorobenzene? Outline the reaction.

(b) Complete the following reactions :



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VIII. (a) Discuss the mechanism of Hofmann bromamide reaction.

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(b) Compare the basic characters of Primary, Secondary and Tertiary amines.

2,2

SECTION-C

IX. (a) Why boiling points of carboxylic acids are higher than alcohols of comparable molecular mass ?

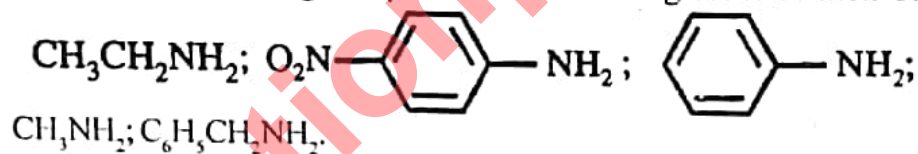
(b) How will you convert ethyl benzoate into benzamide ?

(c) Complete the following reaction and sketch a suitable mechanism :



(d) What are Drying and Non-drying oils ? How do they differ from each other ?

(e) Arrange the following compounds in decreasing order of their basic character :



(2×5=10)