(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 2 4 8

Exam. Code : 0 0 3

B.A./B.Sc. (General) 3rd Semester

1125

CHEMISTRY

(Same for B.Sc. Microbial and Food Technology)

Paper–X : Organic Chemistry-A

Time Allowed : Three Hours] **[Maximum Marks : 22**

Note : (i) Attempt **five** questions in all, selecting at least **one** question from each Section.

(ii) Question No. **IX** (Section E) is compulsory.

(iii) All questions carry equal marks.

SECTION–A

I. (a) Explain why allyl halides are more reactive than alkyl halides in S_N^1 reactions. 2

(b) Write a short note on Elimination Addition mechanism for nucleophilic substitution reactions of aryl halides. 2

II. (a) Give the differences between S_N^1 and S_N^2 reactions of alkyl halides. 2

(b) What happens when :

(i) Chloroform is exposed to air and sunlight

(ii) Carbon tetrachloride is boiled with alcoholic potassium hydroxide ? 2

SECTION–B

III. (a) Explain the order of reactivity of primary, secondary and tertiary alcohols with sodium metal. 2

(b) The boiling points of alcohol are higher than those of corresponding alkanes having similar molecular weights. Why ? Also explain the order of boiling points of isomeric alcohols. 2

IV. (a) Explain Claisen rearrangement with mechanism. 2

(b) Comment on the statement that phenols are more acidic than alcohols. 2

SECTION–C

V. (a) What are similarities and differences between ethylenic double bond and carbonyl group ? 2

(b) Write a short note on preparation of aldehydes from acid chlorides. 2

VI. (a) What are simple and mixed ketones ? Write down the structural formulae along with IUPAC names of all the possible carbonyl compounds having the formula C_4H_8O. 2

(b) Discuss the Synthesis of ketones using :

(i) Nitriles

(ii) Carboxylic acids. 2

SECTION–D

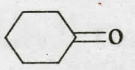
VII. Explain the mechanism of the following reactions :

(a) Mannich reaction

(b) Aldol Condensation. 2×2=4

VIII. Complete the following reactions :

(a) $C_6H_5COCH_3 \xrightarrow{Zn - Hg/HCl}$

(b)  $\xrightarrow{NH_2 - NH_2,\ KOH}$

(c) $HCHO + \underset{\text{Conc. solution}}{NaOH} \longrightarrow$

(d) $C_6H_5COCH_3 \xrightarrow{C_6H_5\overset{\overset{O}{\|}}{C} - O - OH}$ 1×4=4

SECTION–E
(Compulsory)

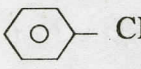
IX. (a) What is Tollen's reagent ?

(b) Give the structural formula of Crotonaldehyde.

(c) Write down the reaction of Ethylene glycol with nitric acid.

(d) Give the IUPAC name of sec-Butyl chloride.

(e) Write down the reaction of preparation of phenol from cumene.

(f)  $\xrightarrow[(ii)\ H_3O^+]{(i)\ LiAlH_4}$. 1×6=6