(i) **Printed Pages: 4** **Roll No. .....**

(ii) **Questions : 9** **Sub. Code : 0351**

Exam. Code : 0004

B.A./B.Sc. (General) 4th Semester

1048

CHEMISTRY (Same for B.Sc. Microbial & Food Technology)

Paper : XIV Organic Chemistry-B

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

Note :— (1) Attempt **five** questions in all.

(2) Attempt at least **one** question each from Unit-I, II, III and IV.

(3) Question No. **9** of Unit-V is compulsory.

UNIT—I

1. (a) Arrange in order of increasing boiling points of CH_3COCl, $(CH_3CO)_2O$, CH_3CONH_2 and CH_3COOH giving suitable reasons.

   (b) What is esterification ? Give its mechanism. 2,2

2. (a) Discuss the relative stability and order of reactivity of acid derivatives towards nucleophilic substitution reactions.

   (b) How do you explain that acetamide is amphoteric in nature ?

(c) Complete the following reactions :

(i) $CH_3CH_2COOH \xrightarrow{PCl_5} A \xrightarrow{CH_3COONa} B$

(ii) $C_6H_5COOC_2H_5 \xrightarrow{NH_3} A \xrightarrow{P_2O_5} B \xrightarrow{\text{Hydrolysis}} C$

2,1,1

UNIT—II

3. (a) Discuss Williamson synthesis for the formation of ethers. What are its limitations ?

(b) Complete the following reactions :

(i) $CH_2(O)CH_2 + C_6H_5Li \xrightarrow{\text{Ether}}$

(ii) $CH_3CH(O)CH_2 + CH_3CH_2MgBr \xrightarrow{\text{Ether}}$

(c) What happens when anisole is heated with HI ? 2,1,1

4. (a) Explain the mechanism of base catalysed ring opening of epoxides.

(b) Write different types of synthetic detergents with example. 2,2

UNIT—III

5. (a) Give the mechanism of nucleophilic substitution of nitrobenzene.

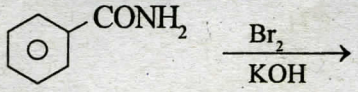
(b) Write the reduction of nitrobenzene in acidic, neutral and alkaline medium. 2,2

6. (a) Write short note on :

(i) Gabriel Phthalimide reaction

(ii) Amine salt as a phase transfer catalysis.

(b) Complete the reaction :

(i) 

(ii) $CH_3NH_2 \xrightarrow[KOH]{CHCl_3}$ 2,2

UNIT—IV

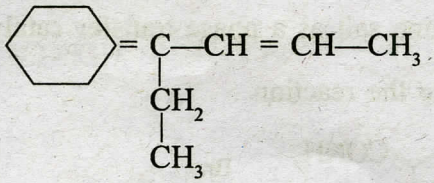
7. (a) State and explain Beer-Lambert's Law. Derive molar extinction coefficient from it. Also give its physical significance.

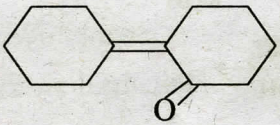
(b) Explain how does the UV spectrum of butadiene differ from that of ethylene ? 2,2

8. (a) (i) Explain why a polar solvent usually shifts the π–π^* transition to a longer wavelength and n–π^* transition to a shorter wave length.

(ii) Explain the terms Chromophore and Autochrome with example.

(b) Compute λ_{max} for the following structures on the basis of Woodward-Fieser rules :

(i) 

(ii) 

2,2

UNIT—V

9. (a) Why C-O bond in RCOOH is shorter than in R-OH ?

(b) Grignard reagents are generally prepared in ether as a solvent. Why cannot we use benzene as a solvent ?

(c) Complete the reaction :

(i) $CH_3CH_2OCH_2CH_3 \xrightarrow[Cl_2]{O_2}$

(ii) $C_2H_5—O—C_2H_5 \xrightarrow[hr]{Cl_2}$

(d) What is the Hinsberg reagent ?

(e) What is meant by rancidification of oils ?

(f) Out of ethylbenzene and styrene which one will absorb at longer wavelength in UV spectroscopy and why ?

6×1=6