

ORGANIC CHEMISTRY - B

(Common for B.Sc., Biotech and Industrial Microbiology)

Time : Three Hours]

[Maximum Marks : 35

Note : Attempt *five* questions each in all. Select *two* questions each from Section A and B while Q. No. 9 of Section C is compulsory.

Section - A

- (a) What do you mean by Ortho effect ? How does it affect the relative strength of acids ?

(b) How will you prepare

(i) Propionic acid from Acid chlorides, and (ii) Benzoic acid from Phenyl lithium ?
- (c) Why most of Carboxylic acids exist as dimers ? (3,2,2)

(a) Discuss the mechanism of addition of HBr to α, β unsaturated acids.

(b) Give *two* methods for preparations of Hydroxy acids.

(c) What happens when

(i) Acrolein reacts with HCl, and (ii) α -Chloroacid reacts with aqueous NaOH ? (3,2,2)
- (a) Acid anhydrides are preferred for acylation reactions. Why ?

(b) How are esters prepared from

(i) Carboxylic acids, and (ii) Acid chlorides ?

(c) Write short note on Basicity of amides.
- (a) Discuss the relative order of reactivity of acyl derivatives towards nucleophilic substitutions. (2,2,3)

(b) How will you explain that Acetamide is amphoteric in nature?

(c) Explain the following reactions :

(i) Rosenmund reduction. (ii) Schotten-Baumann reaction. (3,2,2)

Section - B

5. (a) Discuss mechanism of cleavage of Ethers. (4,3)
(b) What are Epoxides? How are they prepared from alkenes?
6. (a) Explain Rancidity of oils and fats. (2,3,2)
(b) Discuss Hydrogenolysis and *trans*-esterification of fats and oils.
(c) Distinguish between Hard and Soft detergents.
7. (a) How is Picric acid prepared? What happens when it reacts with
(i) Phosphorus pentachloride, and (ii) Sodium sulphide?
(b) Discuss reduction reactions of Nitrobenzene in alkaline medium. (3,2,2)
(c) Explain the acidic nature of nitro alkanes.
8. (a) Discuss the mechanism of Hoffman degradation reaction. (3,2,2)
(b) What is Libermann Nitrosoamine test? What is its use?
(c) What happens when
(i) Secondary amines react with Acid chlorides, and
(ii) Aniline reacts with Benzaldehyde in presence of acid as catalyst? (3,2,2)

Section - C

(Compulsory Question)

9. Answer all the following : (1×7=7)
- (a) *t*-Butyl benzoic acid does not give Benzoic acid on oxidation with KMnO_4 .
(b) What is the action of heat on Succinic acid?
(c) What is meant by Ziesel method?
(d) Give reaction involved in Hoffman Mustard oil reaction.
(e) What are Phase transfer catalysts?
(f) Out of Aniline and Ethyl amine, Which is more basic, and why?
(g) What are the limitations of Williamson synthesis?