

Roll No.

(06/21-II)

10273

M. Sc. EXAMINATION

(For Batch 2017 & Onwards)

(Second Semester)

CHEMISTRY

CHO(H)-203

Organic Chemistry-II

Time : Three Hours Maximum Marks : 70

Note : Question No. 1 is compulsory. Attempt *Five* questions in all, selecting *one* question from each Section. All questions carry equal marks.

1. (a) Define ambident nucleophiles with examples.
- (b) What are classical and non-classical carbocations ?

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- (c) What is aromatic nucleophilic substitution ? Discuss the types by which aromatic compounds undergo these reactions. 4
- (d) What is Dehydration ? Discuss by taking example of dehydration of alcohols by E1 mechanism. 3
- (e) Write dienone-phenol rearrangement. 7
- (f) How organolithium compounds react with carbonyl compounds and how are they different from Grignard's Reagent ? 7
- (g) Discuss hydrolysis of esters. $7 \times 2 = 14$

Section A

2. (a) Explain, why 1-Bromotriptycene is inert to nucleophilic substitution by both SN1 and SN2 mechanisms ? 3
- (b) Discuss the mechanism of nucleophilic substitution at allylic carbon. 4

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- (c) Discuss effect of leaving group on SN reactions. 4
- (d) What is SNⁱ, SN1' and SN2' reactions ? 3
3. (a) Discuss the mechanism of electrophilic substitution involving double bond shift. 7
- (b) Discuss the effect of substrate on reactivity of aliphatic electrophilic substitution reactions. 7

Section B

4. (a) Write Sommelet-Hauser rearrangement, give its mechanism and drawbacks. 7
- (b) Write benzyne mechanism and its evidence. 7
5. (a) Discuss the position of third group in disubstituted benzene ring. 4

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- (b) Discuss arenium ion mechanism with evidence. 5
- (c) Write Vilsmeier-Haack reaction with mechanism. 5

Section C

6. (a) What is anchimeric assistance ? Discuss NGP (neighbouring group participation) by non-bonding electrons. 7
- (b) Discuss pyrolytic elimination reactions by taking examples of xanthate esters and tertiary amine oxides. 7
7. (a) What is migratory aptitude ? Also discuss Wagner-Meerwein rearrangement. 7
- (b) Discuss Pinacol-pinacolone rearrangement. 4
- (c) Discuss trans-annular rearrangement. 3

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Section D

8. (a) What is Sharpless asymmetric epoxidation ? Discuss with example giving mechanism. 7
- (b) Write hydrogenation reaction in case of alkenes, alkyne and aromatic rings with mechanism in case of alkenes giving mechanism. 7
9. (a) Write addition of Grignard's reagent to carbonyl compounds and its utility. 5
- (b) What is Mannich reaction ? Give its mechanism and usefulness. 5
- (c) Discuss hydrolysis of amides. 4

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