PAPER ID-310105

Subject Code: MPC 102T

Roll No:

MPHAI M
(SEM I) THEORY EXA\IINATION 2025-26
ADV'ANCED ORGANI'C CHEMISTRY -I

TIME: 3 HRS M.MARKS: 75

Note: 1. Attempt all Sections. If require any missing data, then choose suitably.
2. Any special paper-specific instruction.

SECTION A

1. **Attempt *all* questions in brief.** **2 x 10 = 20**
   a) Discuss Saytzeff's rule with an example.
   b) Demonstrate why nucleophilic substitution reactions are rare in aromatic compounds.
   c) Discuss the stability of free radicals.
   d) What are Carbocations? Write down any one method for the synthesis of carbocation.
   e) Write down the products of oxidative ozonolysis.
   f) Write down the Manich reaction.
   g) Write down the uses of the Wilkinson reagent.
   h) Discuss any method for the synthesis of diazopropane.
   i) What happens when acetophenone is treated with m-CPBA?
   j) Write down the uses of diazopropane.

SECTION B

2. **Attempt any *two* parts of the following:** 10 x 2 = 20
   a) What do you mean by substitution reaction? Explain in detail about SN_1 and SN_2, along with the differences between them.
   b) Explain in detail the reaction, reaction mechanism, and synthetic applications of the Sharpless asymmetric epoxidation reaction.
   c) Discuss various guidelines for the dissection of molecules in detail. Explain functional group interconversion (FGI) with examples.

SECTION C

3. **Attempt any *five* parts of the following:** 7 x 5 = 35
   a) Demonstrate various strategies for the synthesis of six-membered rings in detail with examples.
   b) Demonstrate in detail about synthesis and applications of aluminum isopropoxide and *N*-bromosuccinamide.
   c) Explain various methods for the protection of the carbonyl group.
   d) Discuss various ways to determine reaction mechanisms.
   e) Discuss the synthesis of ketoconazole and alprazolam.
   f) Explain in detail the principles, terminologies, and advantages of retrosynthesis.
   g) Describe in detail the C-C disconnections.