

2022
M.Sc.
Second Semester
CORE – 07
CHEMISTRY
Course Code: MCHC 2.31
(Organic Chemistry – III)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

UNIT-I

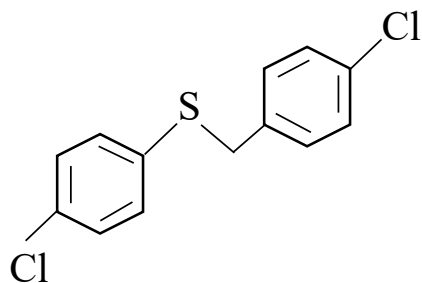
1. Discuss the reaction mechanism of the following reagents and their applications:
 - (a) Sodium cyanoborohydride 4
 - (b) Dess-Martine periodinane 6
 - (c) Fétizon's reagent 4

2.
 - (a) What is Mosher's reagent? Give its preparation and application. 3
 - (b) Discuss about ceric ammonium nitrate. Give its preparation and applications. 3
 - (c) Give a brief introduction of Gilman's reagent. Give its preparation and reaction with alkyl halide with mechanism. 4
 - (d) What is lithium diisopropylamide? How does it abstract α -hydrogen from a carbonyl compound? Give its mechanism. 4

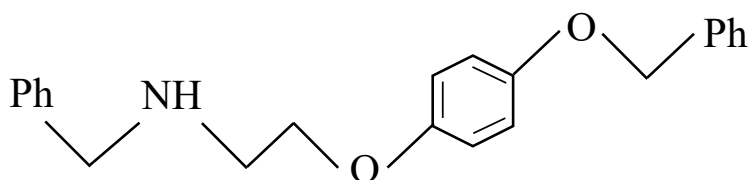
UNIT-II

3.
 - (a) Write the disconnection approach with examples. 5
 - (b) Explain the importance of the order of events in organic synthesis. 5

- (c) Break the following molecule into synthons and write its synthetic equivalent. Propose its synthesis. 4



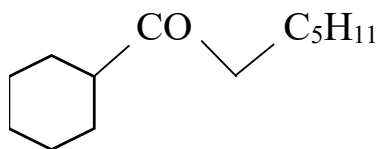
4. (a) Using disconnection approach outline the synthesis of the given target molecule. Justify your choice of its disconnections and indicate the synthons and synthetic equivalents involved. 5



- (b) Write Friedel-Craft alkylation and acylation reaction of cyclization. 3+3=6
- (c) Define the term chemo selectivity? Write the points to be considered for chemo selectivity. 3

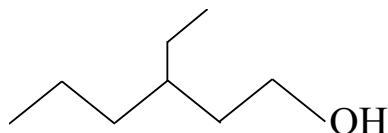
UNIT-III

5. (a) Explain the following reactions: 4×2=8
- (i) Diels-Alder reaction
 - (ii) Michel addition
- (b) Write synthesis and retro synthesis of the given compound. 4



- (c) Define the term latent functionality. 2

6. (a) Write alkenes synthesis by Wittig reaction. 5
 (b) Write the uses of acetylenes in organic synthesis. 4
 (c) Write synthesis and retro synthesis of the following compound by 1,2 C–C disconnection.



5

UNIT-IV

7. (a) Discuss the general principle of protection and deprotection of a functional group. Why are these needed for a reaction process? 4
 (b) Discuss the principle of protection and deprotection of amine group with suitable example. 3
 (c) What do you mean by the term synthesis and retrosynthesis? Discuss the retrosynthesis of camphor. 7
8. Discuss the retrosynthesis and synthesis of pinene. 14

UNIT-V

9. Discuss the following name reactions with their mechanism:
 (a) Biginelli reaction $3\frac{1}{2} \times 4 = 14$
 (b) Hantzsch reaction
 (c) Passerini reaction
 (d) Ugi reaction
10. What do you mean by sharpless asymmetric
 (a) epoxidation?
 (b) dihydroxylation reactions?
 Give their mechanism. $7 \times 2 = 14$