

2023
M.Sc.
Second Semester
CORE – 07
CHEMISTRY
Course Code: MCHC 2.31
(Organic Chemistry - III)

Total Mark: 70
Time: 3 hours

Pass Mark: 28

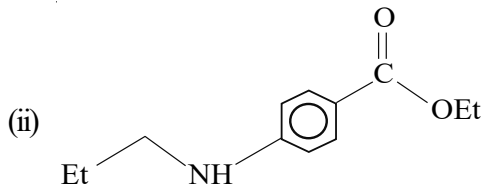
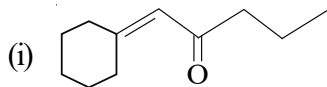
Answer five questions, taking one from each unit.

UNIT-I

1. Give method of preparation, application, and reaction mechanism of the following reagents: 7×2=14
(a) K-selecteride (b) Dioxyrane
2. Write the structure of the following reagents and give their any two applications. 3½×4=14
(a) Superhydride (b) Dicyclo carbodimide
(c) Trimethylsilyl iodide (d) Tri n-butyl tin hydride

UNIT-II

3. (a) Break the following molecules into synthons and propose synthesis. 4×2=8



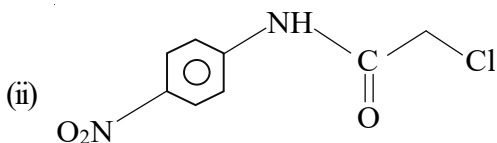
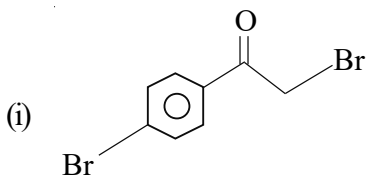
(b) Define the following terms with examples: 2×2=4

(i) Synthons

(ii) Synthetic equivalent

(c) Define the term reversal of polarity. Give example. 2

4. (a) Write the synthesis and analysis of the following compounds. 4×2=8



(b) Explain the following terms with examples: 2×2=4

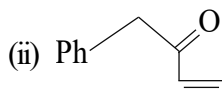
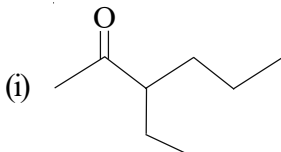
(i) Functional group interconversion (FGI)

(ii) Functional group addition (FGA)

(c) Write a short note on Ruzicka cyclisation. 2

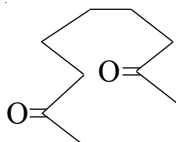
UNIT-III

5. (a) Write synthesis and retrosynthesis of the following compounds. 4×2=8



(b) Explain Wittig reaction with mechanism. 4

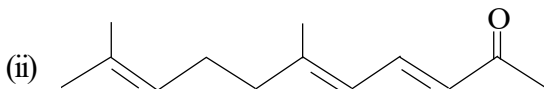
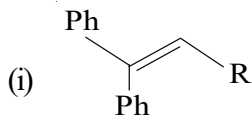
(c) Give the condensation product of the following compound: 2



6. (a) Explain one group C-C disconnection with examples. 3

(b) Write synthesis and retrosynthesis of the following compounds.

4×2=8



(c) Write use of aliphatic nitro compounds in synthesis.

3

UNIT-IV

7. (a) Discuss the principle of protection and deprotection of alcoholic group and carboxylic group with examples.

6

(b) Discuss retrosynthesis and synthesis of querecetin.

8

8. Discuss retrosynthesis and synthesis of camphor.

14

UNIT-V

9. Discuss the following name reactions with their mechanisms. $3\frac{1}{2} \times 4 = 14$

(a) Mc Murry olefination

(b) Ring closing metathesis: Grubb's reaction

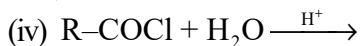
(c) Nef reaction

(d) Mitsunobu reaction

10. (a) What do you mean by decarboxylation? Give some examples. 4

(b) Complete the following reactions:

$1 \times 5 = 5$



(c) Give a method of preparation of dithiane and discuss its reactivity. 5