

M.Sc. (Final) Examination, 2020

CHEMISTRY

Paper - IV

GR-II (CH-504)

ORGANIC SYNTHESIS-I

Time : 3 Hours

Maximum Marks : 50

- Note:** (i) No supplementary answer-book will be given to any candidate. Hence the candidate should write the answers precisely in the main answer-book only.
- (ii) All the parts of one question should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book.
- (iii) Attempt five questions in all, selecting at least one question from each Unit. All questions carry equal marks.

Unit-I

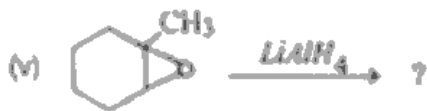
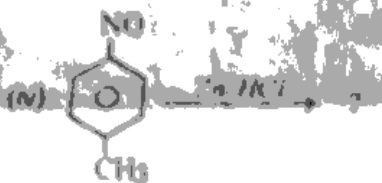
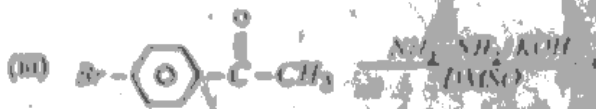
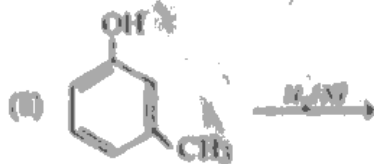
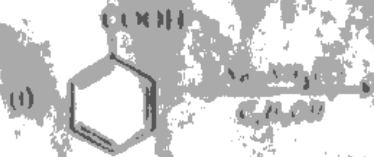
- 1 (a) Explain hydroboration reaction.
 (b) Give the reaction of organozinc compounds with unsaturated hydrocarbons. 5+5
- 2 Write short notes on any two of the following: 5+5
- (a) Stille coupling
 (b) Frankland's reagent
 (c) Organozinc compound

Unit-II

- 3 Discuss the following 6+6
- (a) Hoffman-Löffler-Freytag reaction
 (b) Oxidation with iodobenzene diacetate
- 4 (a) Explain the oxidation of 1,2-diols using different oxidants
 (b) Write note on oxidation of Amines 6+6

Unit-'III'

- 5 (a) Explain reduction of aromatic ring with suitable example and mechanism. 5
 (b) What will be the product of the following reaction 1×6



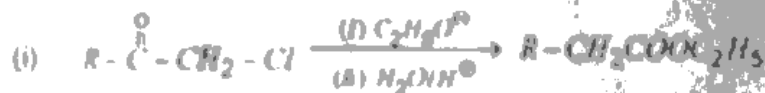
- 6 Write short notes on:

- (a) Reductive cleavage of epoxides to alcohol.
 (b) Enzymatic reduction. 5+5

Unit-'IV'

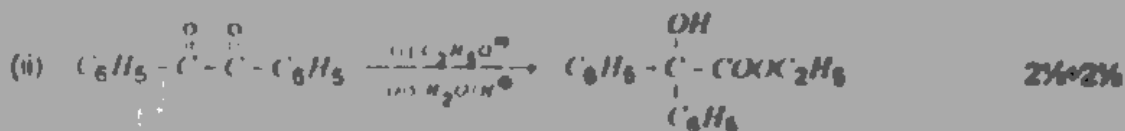
- 7 Give detailed account of:

- (a) Pinacol – Pinacolone rearrangement 5
 (b) Write name and mechanism of following reaction.



(2)

6480 / 1300 / 3



2+2=4

8. (a) Write short note on Shapiro reaction. 5

(b) Predict the product of the following 1+1+1+2



Unit-'V'

9. Write short notes on the following. 5+5

(a) Non-benzenoid aromatic compound

(b) Haworth synthesis of Phenanthrene.

10. (a) Give two synthesis for preparation of Indene. 5

(b) Short note on [18] annulene 5

—x—