

A-1003

Total Pages : 4

Roll No.

CHE-552

Synthetic Organic Chemistry

M.Sc. Chemistry (MSCCH)

Examination 2026 (Feb.)

Time: 02:00 hrs

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided in to two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

Section-“A”

(Long Answer - type Questions)

Note:- Section ‘A’ contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

(2x19=38)

P.T.O

1. (a) What is catalytic hydrogenation? Discuss briefly hydrogenous and homogenous hydrogenation.

A-1003

- (b) Discuss the mechanism of heterogeneous and homogeneous catalytic hydrogenation of alkenes.
2. Write the mechanism any three of the following reactions:
- (a) Clemmensen reduction
 - (b) Michael Addition
 - (c) Knoevenagel condensation
 - (d) Aldole condensation.
3. Write detailed notes on followings:
- (a) Enantiotopic faces
 - (b) Diastereotopic ligands
 - (c) Diastereomers
4. Classify different methods for the formation of carbon-carbon double bonds and give one example each for these methods.
5. Explain the following terms with suitable examples:
- (a) Functionalisation
 - (b) Synthons
 - (c) Retron
 - (d) Functional group Interconversion

Section-“B”

(Short -answer - type questions)

Note:- Section ‘B’ contains eight (08) short-answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

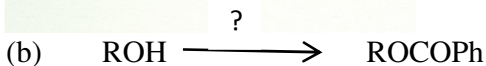
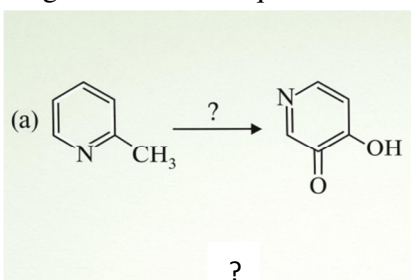
(4x8=32)

1. Write detail notes on the following:

(a) Reversal of Polarity.

(b) Convergent Synthesis.

2. Complete the following reactions and give suitable reagent wherever require:



3. Write note on followings:

(a) Felkin Ahn Model in asymmetric synthesis.

(b) Asymmetric Diels alder reaction

4. Write synthetic applications of organo-boranes in organic synthesis.

P.T.O.

5. Write explanatory notes on followings:
 - (a) Trimethylsilyl enol ether
 - (b) Stereo chemical strategies
6. What happens when alkene is treated with-
 - (a) Alkaline KMnO_4
 - (b) OsO_4 in presence of H_2O_2
 - (c) H_2 / Pt
7. Formulate the step involved in the conversion of formaldehyde to:
 - (a) Butanaldehyde.
 - (b) Ethyl methyl ketone.
8. Write short notes on the following:
 - (a) Collins reagent
 - (b) Grignard reagent.
