

18P318

(Pages: 2)

Name.....

Reg. No.....

**THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2019**

(Regular/Supplementary/Improvement)

(CUCSS-PG)

(Chemistry)

**CC15P CH3 E01 - SYNTHETIC ORGANIC CHEMISTRY**

(2015 Admission onwards)

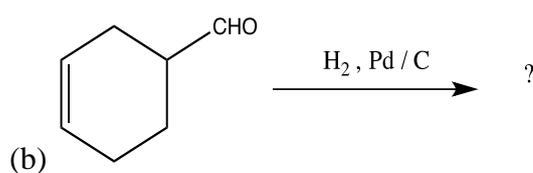
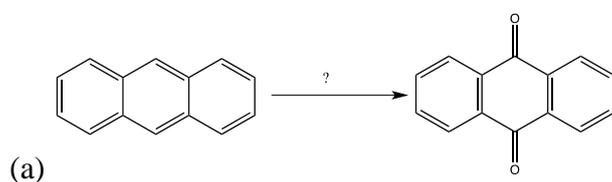
Time: Three Hours

Maximum: 36 Weightage

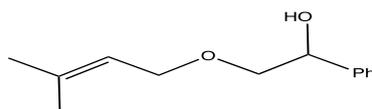
**Section A**

Answer *all* questions. Each question carries 1 weightage.

1. Suggest suitable reagent for the conversion of 1-methylcyclohexene to 3-methyl-2-cyclohexanol.
2. Explain with suitable example the role of phosphorous ylides in organic synthesis.
3. Predict the product and its stereochemistry when catechol borane is used for hydroboration of buty-2-ene, followed by protonation.
4. Write the mechanism of Dieckmann reaction.
5. What is Swern oxidation?
6. Give the products obtained on reduction of allyl-o-bromophenyl ether by using  $\text{LiAlH}_4$ .
7. Complete the following reactions.



8. Suggest an Organosilicon compound used as protecting group in organic synthesis with an application.
9. Explain Birch reduction with example.
10. Based on disconnection approach outline a convenient synthesis for this compound



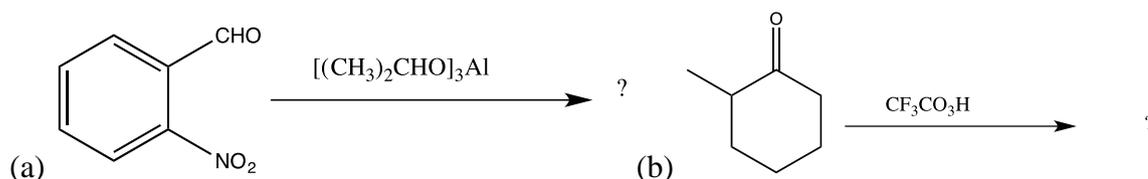
11. Give the synthetic application of Woodward and Prevost hydroxylation.
12. Suggest any two methods used for protection of carbonyl group with example.

(12 x 1 = 12 Weightage)

## Section B

Answer any *eight* questions. Each question carries 2 weightage.

- Discuss the role of phase transfer catalyst in organic synthesis.
- Suggest two synthetic reagents used for syn-addition and explain its stereochemical aspects using suitable example.
- Define the following terms and give an example for each  
(a) Synthons                      (b) Synthetic Equivalents                      (c) FGI
- Explain Sharpless asymmetric epoxidation reaction with mechanism and stereochemical outcome.
- What are the synthetic applications of DCC?
- Discuss important synthetic applications of Gilman's reagent.
- Give the mechanism and synthetic applications of Mannich reaction.
- Predict the products in the following reaction and explain the synthetic applications of the reagents used.



- Write the mechanism of the following reactions:  
(a) Stork – enamine reaction                      (b) Michael addition
- Suggest two Umpolung reagents with their synthetic application.
- Explain the retro synthetic analysis and synthesis of Benzocain.
- What are the uses of peracids in organic synthesis?

(8 x 2= 16 Weightage)

## Section C

Answer any *two* questions. Each question carries 4 weightage.

- Suggest one method of synthesis of the following compounds:  
(a) Triazole                      (b) Tetrazole                      (c) Indole                      (d) Quinoline
- Explain any four palladium catalyzed coupling reactions used in organic synthesis with its synthetic applications.
- (a) Discuss the retrosynthesis of Corey lactone.  
(b) Write a note on combinatorial chemistry.
- Explain important applications of the following synthetic reagents  
(a) Lead tetraacetate.                      (b) Benzene tricarbonyl chromium.  
(c) PCC.                      (d) Tri-n-butyl tin hydride.

(2 x 4 = 8 Weightage)

\*\*\*\*\*