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Total Pages : 4

Roll No.

MCH-602

Synthetic Organic Chemistry-I

M.Sc. Chemistry (MSCCH)

3rd Semester Examination, 2023 (June)

Time : 2 Hours]

[Max. Marks : 35

Note : This paper is of Thirty Five (35) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

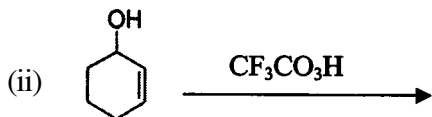
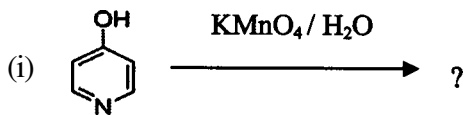
SECTION-A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nine and Half (9½) marks each. Learners are required to answer any Two (02) questions only.
(2×9½=19)

1. (a) What is oxidation? Explain different types of oxidations with suitable examples. 5½+2+2

(b) Complete the following reactions :



2. Discuss the mechanism : 5+4½
- (a) Oppenauer oxidation.
- (b) Oxidation with manganese dioxide.
3. What is catalytic hydrogenation. Discuss briefly the following : 1½+4+4
- (a) Heterogeneous catalytic hydrogenation of alkenes.
- (b) Homogeneous catalytic hydrogenation of alkenes.
4. Classify different methods for the formation of Carbon-Carbon double bond and give one example each of for these methods.
5. Give the preparation of trimethyl silyl enol ethers. Discuss the important characteristics of trimethyl silyl enol ether. 9½

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Four (04) marks each. Learners are required to answer any Four (04) questions only. (4×4=16)

1. Write the important characteristics of a good protecting groups. Give two examples. 4
2. What is Nazarov cyclisation ? Discuss with an example. 4
3. Discuss free radical reactions of organoboranes. 4
4. Discuss the mechanism of Shapiro reaction. 4
5. Discuss the reduction of benzoic acid with sodium in ammonia in presence of ethanol. 4
6. What happens when $R-CH=CH_2$ reacts with the following : $1+1\frac{1}{2}+1\frac{1}{2}$
 - (a) Br_2
 - (b) H_2O/H^+
 - (c) $KMnO_4$

7. How will you convert the following : 1+1½+1½
- (a) $\text{R-S-S-R} \rightarrow \text{RSH}$
 - (b) $\text{R-O-CH}_2\text{-Ph} \rightarrow \text{RSH} + \text{PhCH}_3$
 - (c) Pyridine \rightarrow 4-Dihydrophridine

8. Discuss witting reaction with a suitable example. Explain its Mechanism. 4
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