# C115

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# MSCCH-507

## Organic Chemistry-II

M.Sc. Chemistry (MSCCH)

2nd Semester Examination, 2022 (June)

**Time : 2 Hours]** **Max. Marks : 80**

**Note :** This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

## SECTION–A

## (Long Answer Type Questions)

**Note :** Section 'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

**1.** (a) Predict the products of the following $S_N2$ reactions?

(i)  + EtI ⟶

(ii) 

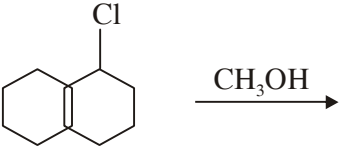
(iii) 

(b) The reaction of o-bromoanisole with $NaNH_2$ in liquid $NH_3$ gives only m-aminoanisole. Explain the regioselectivity in this reaction.

**2.** (a) Complete the following reaction :

(i) $CH_3CH = CHCH_2C1 + H_2O \longrightarrow$

(ii) $CH_3CH = CHCH_2C1 + \text{aq.NaOH} \longrightarrow$

(iii) 

(b) Compare the mechanism between $S_E1$ and $S_E2$ reaction.

**3.** (a) Explain the effect of substrate in aliphatic substitution reaction.

(b) What is cycloadition reaction? Explain the un and un+2 cycloaddition reaction.

**4.** Write a short note on any four from the following reaction :

(a) Haloform reaction.

(b) Volhard-Zelinskii reaction.

(c) Knoevenagel reaction.

(d) Sandmeyer reaction.

(e) Smiler rearrangements.

**5.** (a) How will you define elimination reaction? Discuss various types of elimination reactions.

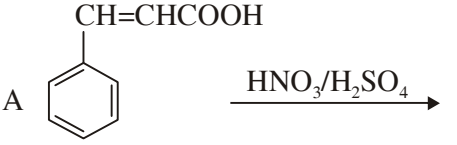
(b) What do you understand conrotation and disrotation? Discuss with example.

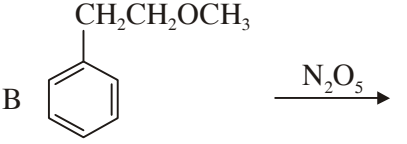
## SECTION–B
## (Short Answer Type Questions)

**Note :** Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only. (4×10=40)

**1.** Discuss the FMO and PMO approach for the electrocyclic reaction.

**2.** (a) What are the major products in following reactions?




(b) Discuss the Neighbouring group participation.

**3.** Write note on any three from the following :

(a) Saytzeff's orientation.

(b) Hofmann orientation.

(c) Cope rearrangement.

(d) Ene reaction.

**4.** (a) Give the mechanism of and application of Sharpless asymmetric epoxidation.

(b) Addition of HX on alkenes is regioselective. Why?

**5.** Discuss the mechanism of any two from the following :

(a) Wittig reaction.

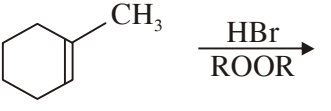
(b) Stobbe reaction.

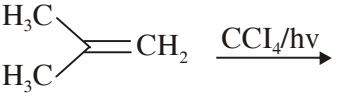
(c) Mannich reaction.

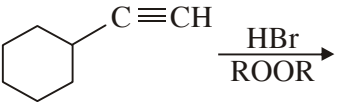
(d) Benzoin condensation.

**6.** What do you understand by umpolung? Discuss mechanism of carbonyl group umpolung. Write applications of umpolung.

**7.** Give major products expected for each of the following reactions. Pay attention to regiochemistry and stereochemistry where appropriate.

(a) 

(b) 


(c) 


**8.** Write short notes on any three from the following :

(a) Fluxional tautomerism.

(b) Claisen rearrangement.

(c) Cheleotropic reaction.

(d) Classical and non-classical carbocation.