

Your Roll No.....

JAMIA HAMDARD
Department of Chemistry
School of School of Chemical and Life Sciences (SCLS)
M. Sc. Chemistry, Semester I
Supplementary Examinations-April 2024.

Paper Name: Organic Chemistry-I

Paper Code: MCHCC-102

Time: 2.5 hours

Maximum Marks: 60

Note: This paper has 3 sections A, B, and C, Attempt all three sections

Section A: Answer *all* the questions; **Section B:** Answer *any 3* out of 5; **Section C:** Answer *all* the questions, each question has an *internal choice*.

Abbreviations Used

CLO-Course Outcome, PLO- Program Learning Outcome, BTL-Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create.

SECTION A

Attempt *all* questions

(10x1.5 = 15 marks)

Q. No.	Question	BTL	CLO	PLO
A1	What are crown ethers?	1	1	1-2
A2	What are Alternant and Nonalternant Hydrocarbons?	1	1-2	1-2
A3	What is a Symmetric hydrogen bond? Give an example.	1	1-2	1-2
A4	Describe how resonance affects the stability of carbanion.	4	1	2
A5	What is the stereochemical relationship between the following two molecules? 	3-4	3-4	3-4
A6	What is enantiotopic and diastereotopic proton?	1-2	1-2	1-2
A7	What is pseudo chiral centre?	1-2	1-2	1-2
A8	What is homoaromaticity?	1-2	1-2	1-2
A9	State the structure and geometry of free radicals.	1-2	1-2	1-2
A10	The rate constant for the nucleophilic substitution of given compound A is greater than expected rate constant Explain. 	3-5	3-5	3-5

SECTION B

Attempt *any two* out of four

(2x10=20 marks)

Q. No.	Question	BTL	CLO	PLO
B1	Write a detailed note on Axially chiral compounds.	3-4	3-4	3-4
B2	Write a short note on the following: (i) Cryptands (ii) Addition compounds	3-4	3-4	3-4
B3	What is Nucleophilic aromatic substitution? Explicate various nucleophilic aromatic substitution reactions.	5-6	5-6	5-6
B4	Explain the detailed mechanism of acid and base catalysed ester and amide hydrolysis.	5-6	5-6	5-6

SECTION C

Attempt *all* questions, each question has an *Internal choice*

(5x5=25 Marks)

Q. No.	Question	BTL	CLO	PLO
C1	Draw the energy profile diagram of n-butane OR Discuss the non-classical carbocations with suitable examples.	3-4	2-4	2-4
C2	Discuss briefly about the factors influencing the stability of carbocations. OR Write a brief note on rotaxanes and its applications.	1-3 2-4	1-3 2-4	1-3 2-4
C3	Complete the following conversion with suitable mechanism. OR What is specific rotation? In a polarimeter, a 10% organic solution of pure enantiomer has rotated the plane polarised light by 12° right. If the length of the polarimeter tube containing the organic solution is 20cm, calculate its specific rotation.	4-5 2-6	4-5 2-6	4-5 2-6
C4	Discuss briefly about the Hammonds Postulate. OR Explain the methods of resolution.	2-3 3-4	2-3 3-4	2-3 3-4
C5	Determine the absolute configuration of the following: (i) (ii) (iii) (iv) (v) OR Briefly discuss about the Curtin–Hammett principle.	3-6 3-6	3-6 3-6	3-6 3-6
		2-3	2-3	2-3