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Total No. of Pages : 02

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B.Sc. (Non Medical) (Sem.-1) ORGANIC CHEMISTRY Subject Code : BSNM-101-18 M.Code : 75742 Date of Examination : 12-01-2023

Time : 3 Hrs.

Max. Marks : 50

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying ONE marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer the following :

- a) What are carbene intermediates? Explain the singlet and triplet structures of carbenes.
- b) Arrange the following according to the increasing bond length by giving reason:
 - (i) H-F, H-Cl, H-Br, H-I
 - (ii) C-C, C=C, C≡C
- c) Assign (R) and (S) configuration to following compounds:



- d) Why is a *meso* compound achiral? What structural feature must a *meso* compound have?
- e) Differentiate between conformation and configuration in open chain molecules.

- f) What are the limitations of Baeyer's strain theory?
- g) Write a short note on the basis of free radical mechanism of the peroxide effect on the addition of HBr to olefins.
- h). What is the orientation in elimination reactions with particular reference to Saytzeff and the Hofmann rule?
- i) With suitable example, illustrate the role of KMnO₄
- j) What are product(s) formed when benzene is treated with sodium and liquid ammonia? Draw the mechanism of formation of product.

SECTION-B

- 2. What are nitrenes? Discuss the shape, stability and reactivity of nitrenes.
- 3. Discuss the various methods for the determination of configuration of geometrical isomers.
- 4. What do you understand by ring strain? Explain briefly the ring strain of cyclopropane and cyclobutane.
- 5. Discuss with mechanism for hydroboration-oxidation reaction.
- 6. Discuss with energy level diagram for possible conformations of cyclohexane.

SECTION-C

- 7. What do you mean by resolution? Discuss various methods for resolution of enantiomers.
- 8. Discuss briefly the methods of determination of reaction mechanism.

9. Explain the followings with suitable mechanism.

a)	Kolbe reaction	4
b)	Oxymercuration-reduction	4
c)	Ozonolysis.	2

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.