**2023**

**M.Sc.**

**4th Semester Examination**

**CHEMISTRY**

**PAPER – CEM-403 (Organic Special)**

***Full Marks : 50***

***Time : 2 Hours***

***(CEM 403-Advanced Organic Chemistry-IV)***

**1**. Answer any ***four*** bits: 2×4 = 8

(a) Draw the Newman projection formula of *trans*-decalin. What are symmetry elements present in it?

(b) What is circular birefringence?

(c) Draw all possible stereoisomers of *trans*-2-decalol.

(d) What is meant by Cotton effect?

(e) Define specific rotation and mention its unit.

(f) Draw all possible isomers of *cis*-1-decalone.

**2**. Answer any ***four*** bits: 4×4 = 16

(a) Write a note on exciton chirality and Davydov splitting.

(b) What is meant by Allylic 1,2-strain? Give an example.

(c) What do you mean by specific ellipticity, molar ellipticity and mean residue elliptcity? What is the unit of molar ellipticity?

(d) What is the torsion angle at the junction for $\Delta^{1,2}$- Octalin and $\Delta^{2,3}$-octalin in their trans configuration? Why *cis*-decalonesenolise towards C-1 instead of C-3?

(e) Draw all possible diastereomers of perhydroanthracene.

(f) How Felkin-Anh model is different from Cram's model?

**3**. Answer any ***two*** questions 2×8 = 16

(a) State and derive the Curtin- Hammett principle. Give an example.8

(b) Discuss the applications of ORD and CD spectroscopy. 4+4



(c) Draw all possible diastereomers of perhydrophenanthrene and discuss their stereochemical features. 8

(d) Describe in detail about the Cieplak model with suitable examples. 8

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**Internal Assessment-10**

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