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PG (CBCS)
M.SC. Semester-IV Examination, 2021
CHEMISTRY
 PAPER: CEM-403
 (ADVANCED ORGANIC CHEMISTRY-IV)

Full Marks: 40

Time: 2 Hours

Answer any **FOUR** questions from the following:

4X10=40

1. State and derive the Winstein-Holness equation and Curtin-Hammett principle. 4+6
2. Draw the steroidal and non-steroidal conformers of cis-decalin and ascertain the sign of torsion angles of at both sides of the ring junction in each. Delineate the symmetry elements present in each. Show the gauche-butane interaction in each conformer. 4+2+4
3. What are Octalins? Draw the planar projection formulas of octalins. Describe the structural features of the octalins. 2+2+6
4. Explain the following terms (a) Pseudorotation. (b) Endo-anomeric effect (c) Exo-anomeric effect (d) A-value 2.5X4
5. Write notes on (a) Felkin model (b) kinetic quenching of a reaction 5+5
6. What do you mean by specific rotation, specific ellipticity and molar ellipticity? What is enantiomeric excess? 2.5+2.5+2.5+2.5
7. Write notes on 2X5
 (a) optical rotator dispersion (b) circular dichroism
8. Draw the energy profile diagram and discuss the ring inversion of cyclohexane following C2 path. Draw all the conformational structures of cis and trans isomers of 1,2-dimethylcyclohexanes in which each molecule exists. Give an account of their relative stability. 10
