MBU-003-1104007-2002

MBU-003-1104007 Seat No. _____

M. Sc. (Sem. IV) (CBCS) Examination

April / May - 2018

Stereochemistry : C(OP)-403

(Organo Pharmaceutical Chemistry)

(New Course)

Faculty Code : 003

Subject Code : 1104007

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All the questions carry equal marks.
(2) Attempt five questions in all.

1 Answer any seven from the following briefly : **14**

(a) Differentiate-Steric effect and stereoelectronic effect.
(b) Point out variation of J values with different parameters.
(c) Give topic relationship between Hydrogens of Bicyclo[2.2.2]octane
(d) Draw Fischer projection formula for meso-tartaric acid discuss its nomenclature.
(e) Give Bredt's rule with one example.
(f) Draw Newmann projection formula and name various conformations of butane.
(g) What is dihedral angle ? State briefly its effect on J values in cyclic systems.
(h) Explain prostereoisomerism in 1-Propene.
(i) Write the Karplus equation and Bothner modification.
(j) What is anomeric effect ? Give example of molecule exhibiting it.

2 Answer any two from the following : **14**

(a) Explain conformations of diastereomers of decalin with special reference to symmetry, optical activity and stability.
(b) Discuss effects of conformation on reactivity for various conformations of 2-Bromo4-Phenyl cyclohexanol.
(c) Discuss stereochemistry of compounds having two asymmetric carbon atoms.

3 Answer the following : (a,b,c or a,b) **14**

(a) What is anchimeric assistance ? Explain acetolysis of 7-Norbornenyl tosylate.

(b) Discuss stereospecificity in the epoxidation of cis and trans 2-Butene.

(c) Discuss stereochemistry of Hydrindane.

OR

(a) Discuss molecular rearrangement and NGP in the bromination of 2-Bromo3-butanol.

(b) What is circular birefringence ? Discuss causes of it in a molecule with one example for each.

4 Answer any two from the following : **14**

(a) Discuss cram's rule and with its limitation in nucleophilic addition to chiral carbonyl.

(b) Discuss diastereotopic and enantiotopic ligands and faces with example.

(c) Discuss Alder's rule with limitations.

5 Answer any two from the following : **14**

(a) Discuss conformations of 1,2; 1,3; and 1,4 dimethyl cyclohexane, with special reference to diastereomerism, optical activity and their relative stability.

(b) What are stereoregulated polymers ? Discuss methods for the synthesis of stereoregulated polymers.

(c) Write a note on the stereochemistry of 6-membered cyclic compound with respect to Karplus curve.

(d) What is pyramidal atomic inversion ? Discuss Ring inversion and Pyramidal inversion in 1,3-Dimethyl Piperidine.
