DCK-003-1104007 Seat No. _____

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

July - 2022

C(OP)-403 : Stereo Chemistry

(Organo-Pharmaceutical Chemistry)

Faculty Code : 003
Subject Code : 1104007

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

Instructions : (1) All questions are compulsory & carries equal 14 marks

(2) Draw suitable diagram / Scheme wherever necessary.

1 Answer any seven of the following ten questions : **14**

(a) Define the term "Conformation" and draw all conformation of butane.

(b) Write Karplus equation and Bothner modification.

(c) Draw the flying wedge formula for R (-) 2, 3 dihydroxypropanal.

(d) Explain enantiotropic phase.

(e) Write the limitation of Fisher projection.

(f) Write the difference between stereospecific and stereo selective reaction.

(g) Define the term, Specific rotation and Optical activity.

(h) Calculate total isomer,, optical isomer and meso-isomer for (2R, 3s, 4S), 2, 3, 4 pentane triol.

(i) Write the classification of stereo-isomer.

(j) Differentiate chirogenicity and stereogenicity with suitable example.

2 Answer any two out of the following : 14

(a) Differentiate ORD and CD, Discuss the application of ORD and CD spectrum.

(b) Discuss the stereochemistry of substituted cyclohexane with respect to the coupling constant.

(c) Discuss in detail "cotton effect" with CD-spectrum.

3 Answer the following : 14

(a) Discuss Felkin-Ahn model with suitable example.

(b) Draw the confirmation of cyclohexane with energy diagram and discuss its stability.

OR

3 Answer the following : 14

(a) Explain the conformation of mono -methyl-cyclo-hexane.

(b) Discuss Cram's rule with its limitation in details.

4 Answer the following : 14

(a) Give an account on conformation of cis and trans decalin.

(b) Discuss the conformation of all disubstituted cyclohexane with reference to it's stability index.

5 Answer the following : (any **two**) 14

(a) Explain the stereoselectivity of addition reaction with suitable example.

(b) Define the term "Dihedral angle" and effect of substitution on coupling constant for cyclobutane derivatives.

(c) Discuss the stereo dynamicity of SN reaction with suitable example.

(d) Discuss in detail, Circular-birefringence and Circular-dichroism.
