



Seat No. \_\_\_\_\_

**HB-003-1104007**

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

**April - 2023**

**Organo-Pharmaceutical Chemistry : C(OP)-403**

*(Stereo-Chemistry)*

**Faculty Code : 003**

**Subject Code : 1104007**

Time :  $2\frac{1}{2}$  / Total Marks : 70

**Instructions :**

- (1) All questions are compulsory and carries equal marks.
- (2) Draw suitable diagram / scheme wherever necessary.

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

- (a) Define the term, 'Stereo-isomer' and write their classification.
- (b) Explain, chirogenicity and stereogenicity with suitable example.
- (c) Define the term, 'Dihedral angle' and write their relation with coupling constant.
- (d) Draw the flying wedge formula for 2S, 3S butane 2,3 diol.
- (e) Draw the Newman projection and energy diagram of ethane.
- (f) Write the difference between Enantiomer and Diastereomer.
- (g) Draw the stable conformation of cyclobutane, cyclopentane and cyclohexane.
- (h) Discuss the Prochirality of the compound.
- (i) Explain the term, Meso-compound with suitable example.
- (j) Calculate total isomer and optical isomer for (2S, 3S)-1,2,3,4 butane tetrol.

**2** Answer any two out of the following : **14**

- (a) Define the term, Dichroism, Linear-dichroism, Circular dichroism and discuss in detail, "CD" spectrum.
- (b) Discuss the Cram's model in detail with suitable example.
- (c) Discuss the effect of conformation reactivity for various conformation of 2-Bromo, 4-phenylcyclohexanol.

- 3** Answer the followings : **14**
- (a) Explain flipping of cyclohexane with reference to different substituent.
  - (b) Discuss the conformation of mono-methyl and dimethyl substituted cyclohexane.

**OR**

- (a) Write the characteristics and limitation of Fisher projection.
  - (b) Give an account of cis and trans decalin.
- 4** Answer the followings : **14**
- (a) What is ORD curve ? Explain cotton effect with respect to ORD curve.
  - (b) Write the Bothner modification in Karplus equation, draw the Karplus curve and explain it in detail.
- 5** Answer the followings: (any two) **14**
- (a) Give the brief account on Felkin-Ahn model with suitable example.
  - (b) Discuss the conformation of diastereomers in case of decalin with reference to symmetry, optical activity and stability.
  - (c) Discuss the stereo dynamicity of  $SN^1$  reaction with suitable example.
  - (d) Discuss the stereo selectivity of addition reaction with the example of bromination.
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