DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(Internal Assessment I)

CLASS: BPHARM **SEMESTER: IV**
BRANCH: PHARMACY **SESSION: SP 2025**

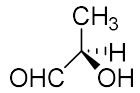
SUBJECT: BP401T PHARMACEUTICAL ORGANIC CHEMISTRY III

TIME: 2.00 Hour **FULL MARK: 30**

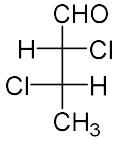
PART I

A. Objective type questions (Answer all questions) (5 x 02 = 10 marks)

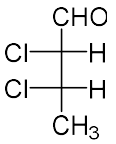
1. Define specific rotation.
2. Draw the *R* and *S* configurations of the following molecule using Fischer Projection formula?



3. Write the nomenclatures of the following compounds based on the *R* and *S* configuration.

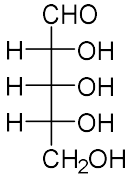


(I)

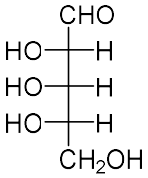


(II)

4. Identify the asymmetric centres, and D and L configurations of the following structures.



(I)



(II)

5. Define optical purity. Write the conditions required for optical activity.

PART II

B. Long Answers (Answer any one out of two) (01x10=10 marks)

1. Explain the R/S system of nomenclature with the help of the sequence rule. Give examples.
2. Define and classify elements of symmetry. Explain with example (a) plane of symmetry (σ), (b) centre of symmetry (i), (c) rotary-reflection axis (Sn).

PART III

C. Short Answers (Answer any two out of three) (02x05=10 marks)

1. Explain enantiomers, diastereoisomers and meso-compounds with example.
2. Define racemic modification. Explain the biochemical and chemical methods of resolution of racemic mixture.
3. What is asymmetric synthesis? Give example.

::::::24/02/2025::::::E