SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc.Chemistry - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - V
22UCHCT5010 - Stereo Chemistry, Reaction Mechanism and Rearrangement

Total Duration : 2 Hrs.30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

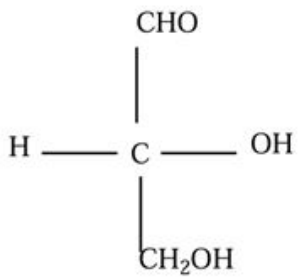
1. Describe Walden inversion and its significance in stereochemistry.
2. Interpret how biphenyls can show optical activity.
3. Relate the chair and boat conformations of cyclohexane and explain.
4. Explain the factors influencing the conformational stability of alkanes.
5. Discuss the mechanism of Knoevenagel condensation
6. What is Birch reduction? Explain its significance.
7. Illustrate the mechanism of Beckman rearrangement.
8. Examine Wolff's rearrangement and outline its mechanism.

Section C

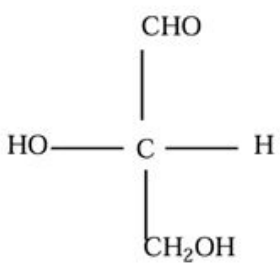
Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. a) Write a note on
   i) asymmetric carbon, ii) enantiomers, iii) diasteromers (1+2+2)
   b) Explain the term racemization? Mention any one method of racemization.(5)
10. a) Predict the conformational analysis of n-butane and discuss the stability of its conformers.
    b) Find R and S configuration (6+4)

i)



ii)



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11. Ascertain the mechanisms of aldol condensation and Claisen-Schmidt condensation. (10)

12. a) Discuss the Diels-Alder reaction mechanism and explain how the nature of the diene and dienophile affects the reaction.

    b) Explain the Chichibabin reaction with an example. (5+5)

13. a) Explain the mechanism for Fries rearrangements.

    b) Assess the stereochemical implications of ring contraction reactions in molecular rearrangements. (5+5)

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