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. END SEMESTER EXAMINATION APRIL/NOV - 2021
SEMESTER - V
17UCHCT5010 - Organic Chemistry - I

Total Duration : 3 Hrs		**Total Marks : 75**	
MCQ	: 30 Mins	MCQ	: 15
Descriptive	: 2 Hrs.30 Mins	Descriptive	: 60

Section B

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

1. "Sodium borohydride is more selective reducing agent than lithium aluminium hydride". Justify with suitable example.
2. Write the keto-enol tautomeric structure of ethyl acetoacetate and any two evidences for the characteristic reactions for *keto*- and *enol*- form.
3. Discuss the conformational analysis of cyclohexane and explain the relative stability of mono substituted cyclohexane.
4. What is meant by an asymmetric synthesis? Illustrate with any one method.
5. "Pyridine undergoes electrophilic substitution at C-3 position but nucleophilic substitution at C-2".
   Explain.
6. Write the mechanism of Skraup synthesis of quinoline.
7. Explain any two methods of resolution of racemic mixture with suitable example.
8. Define the following terminologies with an example for each.
   (i) Dihedral angle (ii) Torsional strain (iii) 1,3-interaction

Section C

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

9. Write the mechanism of the following reactions.
   (i) Aldol condensation (ii) Wittig reaction (iii) Cannizaro reaction
   (iv) MPV- reduction (v) Knoevenagel reaction.

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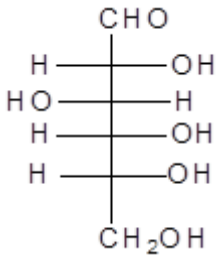
10. How would you effect the following conversions? Give mechanism.
    (i) Ethyl acetoacetate $\rightarrow$ Glutaric acid (ii) Ethyl acetoacetate $\rightarrow$ Crotonic acid
    (iii) Ethyl acetoacetate $\rightarrow$ 2-pentanone (iv) Malonic ester $\rightarrow$ n-hexane
    (v) Malonic ester $\rightarrow$ Butanoic acid

11. (a) Asssign R, S configurations to the following molecule and give its newman and sawhorse projection. (6)



    (b) Discuss the optical activity of biphenyl compounds. (4)

12. Explain any five synthetic applications of benzene diazonium chloride.

13. How is isoquinoline prepared? Explain any five of its electrophilic substitution reactions.