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 EXAMINATIONS NOVEMBER-2022
SEMESTER - V
20UCHCT5010 - Organic Chemistry - I

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

Section A

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

1. Illustrate the reduction of carbonyl compounds to their corresponding alcohols utilizing aluminium alkoxide catalyst.
2. Sketch and explain the conformations of n-butane with energy profile diagram.
3. Classify the different methods of resolution of racemic mixture.
4. Explain the following conversions.
   i. Mucic acid to furan
   ii. Glutaronitrile to pyridine
5. Illustrate the reactions of malonic ester involving active methylene group.
6. Summarize $erythro$-and $threo$-nomenclature with examples.
7. Explain why maleic acid forms readily an anhydride but not fumaric acid.
8. Complete the following reactions.
   i. Furan $+ \mathrm{CH_3OH} + \mathrm{HCI} +$ $\longrightarrow$?
   ii. Thiophene $+ \mathrm{Na/liq \cdot NH_3} \longrightarrow$?
   iii. Pyrrole $+ \mathrm{NH_2OH} \xrightarrow[\mathrm{C_2H_5OH}]{}$?
   iv. Quinoline $+ \mathrm{CH_3I} \longrightarrow$?
   v. Pyridine $+ \mathrm{LiAIH_4} \longrightarrow$?

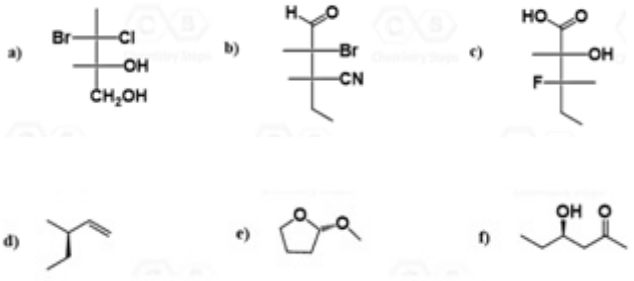
Section B

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

9. Explain the mechanism of the following
   i) Knoevenagel reaction
   ii) Cannizaro reaction
10. Define Tautomerism. Illustrate "$keto-enol$" tautomerism with suitable example and also the acid and base catalyzed inter conversion mechanism.

Contd...

11. Identify all the chiral centers in each Fischer projection and determine the absolute configuration as R or S:



12. Assess the optical activity of biphenyls and allenes.
13. Compare the nucleophilic substitution reactions of quinoline, isoquinoline and pyridine.

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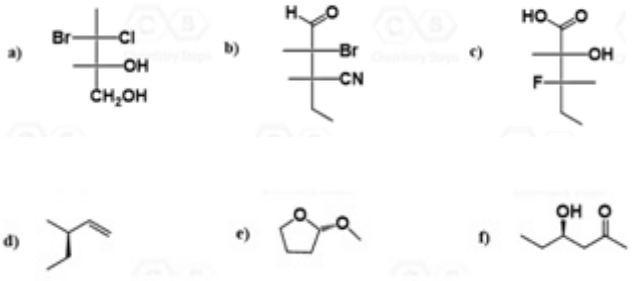

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