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End Semester Examination, December 2024
B.Sc.(Hons.) Chem – 1st Semester
ORGANIC CHEMISTRY-I (SCCH103)

Time: 2.5 hrs.

Max Marks: **50**

Note: *All Questions are compulsory. Marks are indicated against each question.*

PART-A

Q.1 **Attempt any Five Questions.**

- | | |
|--|----------------------|
| (a) Discuss the stability order of Carbocations. | [CO-1][L-1] 2 |
| (b) Write a short note on Resonance. | [CO-1] [L-1] |
| 2 | |
| (c) What are Electrophiles? | [CO-1] [L-1] |
| 2 | |
| (d) What are Enantiomers? | [CO-1] [L-1] |
| 2 | |
| (e) Discuss Wurtz Synthesis. | [CO-1] [L-1] |
| 2 | |
| (f) Define Specific Rotation. | [CO-1] [L-1] |
| 2 | |
| (g) What is Huckel Rule? | [CO-1] [L- |
| 1]2 | |

2x5

PART-B

- Q.2 a) Discuss the stability of cycloalkanes on the basis of Bayer's Strain Theory and its further development.
b) Discuss the different conformations of ethane with the help of energy level diagram.

[CO-2] [L-2] **10**

OR

- a) Differentiate between Enantiomers and Diastereomers with the help of examples.
b) What is Racemization? Explain with the help of example.

[CO-2] [L-2] **10**

- Q.3 a) Write short note on Keto-Enol Tautomerism.
b) Explain aromatization of n-hexane with the help of Reaction.

[CO-3] [L-2]

10

OR

- a) Discuss the mechanism of SN¹ and SN² reactions.
b) Discuss Hofmann Elimination Reaction with mechanism.

[CO-3] [L-2] **10**

- Q.4 a) What will the products be when we do Oxymercuration of alkenes? Discuss reactions with the help of mechanism.
b) Discuss Friedel's Craft Acylation of benzene with the help of its mechanism.

[CO-4] [L-3] **10**

OR

- a) Discuss Diel's- Alder reaction in context of 4+2 cycloaddition reaction.
b) Discuss the optical behaviour of cumenes, biphenyls and ketoximes.

[CO- 4] [L-3] **10**

- Q.5 A primary alkyl bromide (A), C₄H₉Br, reacted with hot alcoholic KOH to give compound (B). Compound (B) reacted with hydrogen bromide to give an isomer of (A), (C). When (A) was reacted with Sodium it gave compound (D), C₈H₁₈, which was different than the compound produced when n-butyl bromide was reacted with sodium. Draw the structure of (A) and write equations for all the reactions.

[CO-4] [L-4] **10**

OR

- a) How will you synthesize propane from isopropyl alcohol?
- b) How can you prepare acetylene from Calcium Carbide?
- c) What happens when Ethylbenzene is treated with alkaline KMnO_4 ?
- d) Explain the aromatic behavior of pyrrole and furan.

[CO- 4] [L-4]