



Roll No.:

End Semester Examination, December 2024
B.Sc. (Hons. /Hons. With Research) Chemistry -III Semester
ORGANIC CHEMISTRY-III (SCCH203)

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) Why are amines more basic than amides? | [CO-1] [L-2] 2 |
| (b) Why does α -hydrogen in nitro alkane show acidic behavior? | [CO-1] [L-2] 2 |
| (c) How will differentiate allyl amine from n-propyl amine? | [CO-1] [L-2] 2 |
| (d) Why do aliphatic amines have lower boiling point than corresponding alcohols? | [CO-1] [L-2] 2 |
| (e) How will you synthesize ethylamine from n-propyl chloride? | [CO-1] [L-2] 2 |
| (f) How will you separate a mixture of primary, secondary and tertiary amines? | [CO-1][L-2] 2 |
| (g) How will you convert an aniline to benzoic acid? | [CO-1] [L-2] 2 |

2x5

PART-B

- Q.2 i) Write short notes on: (a) Haworth Synthesis of Naphthalene (b) Conversion of Naphthalene to 9,10-Phenanthroquinone
- ii) How do phenanthrene react with: (i) $\text{Na}_2\text{Cr}_2\text{O}_7$ in CH_3COOH (ii) Ozone (iii) HNO_3 (iv) Friedal Craft's Reaction
- [CO-2] [L-3] **10**

OR

- i) Why does anthracene undergo electrophilic substitution at C-9 in preference to C-1 position? Explain with the help of resonating structure of the intermediate.
- ii) How naphthalene is converted into: (a) 2-Naphthylamine (b) 1-Naphthol
- [CO-2] [L-3] **10**

- Q. 3 i) Explain the following: (a) Pyridine is more basic compared to pyrrole.
b) Electrophilic substitution in pyrrole occurs at C2 than C3.
- ii) Give the mechanism of product based on Skraup's synthesis from 3-bromo-4-aminotoluene and glycerol.
- [CO-3] [L-3] **10**

OR

- i) Write short notes on the following: (a) Madelung synthesis of 2-substituted indole derivatives
(b) Hantsch synthesis for pyrrole derivatives
- ii) How will you obtain (a) Pyridine from Pyrrole (b) 4-aminopyridine from pyridine?
- [CO-3] [L-3] **10**

Q.4 i) An optically active amide **A**, $C_5H_{11}NO$, on acid hydrolysis gives acid and ammonia. When **A** is treated with bromine and alkali, a compound is obtained which on treatment with nitrous acid yields an optically active alcohol and nitrogen. The alcohol gives a positive iodoform test. What is the structure of **A**? Show the reactions involved.

ii) Give mechanism for a) Carbylamine b) Hoffmann Bromamide reaction.

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

OR

Discuss the methods of synthesis of amines?

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

Q.5 i) How will you establish the structure of α -terpeniol?

ii) How will you elucidate the structure of Nicotine?

[CO-5] [L-4] **10**

OR

i) What are terpenoids? How will you establish the structure of Citral? Illustrate the applications of terpenoids.

ii) How do you classify alkaloid? Explain Emde Modification.

[CO- 5] [L-3] **10**
