

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.Ph. - SEMESTER- IV EXAMINATION – SUMMER-2023**

**Subject Code:BP401TT****Date:13/07/2023****Subject Name: PHARMACEUTICAL ORGANIC CHEMISTRY-III****Time: 10:30AM TO 01:30PM****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|-------------|---|--------------------|
| <b>Q.1</b>  | (a) Answer the followings   | <b>06</b>          |
|             | 1. Compare the aromaticity of Pyrrole, Furan and Thiophene in detail.   |                    |
|             | 2. Justify statement “Pyridine gives Nucleophilic substitution reaction”  |                    |
|             | (b) Give an account for different synthetic methods for Thiophene   | <b>05</b>          |
|             | (c) Give different reactions of Furan.  | <b>05</b>          |
| <b>Q.2</b>  | (a) Describe chemistry and synthetic methods of Pyrrole.  | <b>06</b>          |
|             | (b) Explain in detail about Geometric isomerism with suitable examples  | <b>05</b>          |
|             | (c) Answer the followings   | <b>05</b>          |
|             | 1. What do you mean by chiral and achiral compounds? Explain in detail with suitable examples.                          |                    |
|             | 2. Explain about Basicity of Pyridine.  |                    |
| <b>Q.3</b>  | (a) Define following terms.   | <b>06</b>          |
|             | 1) Enantiomers  | 4) Atropisomers    |
|             | 2) Conformational isomer  | 5) Diastereoisomer |
|             | 3) Heterocyclic compound  | 6) Chirality       |
|             | (b) Write in detail about Resolution of Racemic mixture.  | <b>05</b>          |
|             | (c) Explain about Conformational isomerism in n-Butane  | <b>05</b>          |
| <b>Q.4</b>  | (a) Draw structure of following heterocyclic rings.   | <b>06</b>          |
|             | 1. Indole   | 3. Quinoline       |
|             | 2. Pyrimidine   | 5. Thiazole        |
|             | 4. Pyridine   |                    |
|             | (b) Explain about different reactions of Chiral molecules.  | <b>05</b>          |
|             | (c) Explain about Beckmanns rearrangement reaction in detail.   | <b>05</b>          |
| <b>Q.5</b>  | (a) Describe methods of synthesis of indole and explain any one method in detail.                                       | <b>06</b>          |
|             | (b) Explain about DL system of nomenclature of optical isomers and sequence rules of nomenclature of R and S isomerism. | <b>05</b>          |
|             | (c) Explain about Birch reduction reaction in detail.   | <b>05</b>          |
| <b>Q. 6</b> | (a) Give an account for stereochemistry of Biphenyl compounds   | <b>06</b>          |
|             | (b) Write in detail about application of stereochemistry in pharmacy.   | <b>05</b>          |
|             | (c) Explain Clemmensen reduction in detail.   | <b>05</b>          |
| <b>Q.7</b>  | (a) Explain about Assymmetric synthesis in detail.  | <b>06</b>          |
|             | (b) Explain Oppenauer-oxidation reaction in detail.   | <b>05</b>          |
|             | (c) Write a detailed note on Optical activity.  | <b>05</b>          |

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