

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.Ph. - SEMESTER-III • EXAMINATION – SUMMER -2022**

**Subject Code: BP301TP****Date:01/09/2022****Subject Name: Pharmaceutical Organic Chemistry II****Time:02:30pm to 05:30pm****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) | Explain the general mechanism of electrophilic aromatic substitution in detail.  | <b>06</b> |
|            | (b) | Explain the orientation of nitrobenzene and phenol towards electrophilic substitution reaction giving reactions.   | <b>05</b> |
|            | (c) | Write and explain Huckel's rule for aromaticity with examples.   | <b>05</b> |
| <b>Q.2</b> | (a) | Justify the below statements.<br>i) Even though benzene is having three double bond do not undergo addition reaction<br>ii) Aryl halide or vinyl halide do not show Friedel Craft alkylation reaction. | <b>06</b> |
|            | (b) | Give structure and uses of DDT, Saccharin, and BHC.  | <b>05</b> |
|            | (c) | What are the limitations of Friedel Craft alkylation explain with suitable examples.   | <b>05</b> |
| <b>Q.3</b> | (a) | What is Bayer's strain theory? Explain it and also discuss its limitations.  | <b>06</b> |
|            | (b) | Which theory explains the stability of cyclohexane? Draw all the possible conformer of cyclohexane and comment on its stability.   | <b>05</b> |
|            | (c) | Write any two reactions of cyclopropane and cyclobutane.   | <b>05</b> |
| <b>Q.4</b> | (a) | Explain, Haworth synthesis of naphthalene in detail.   | <b>06</b> |
|            | (b) | Comment on the given below statements.<br>i) Nitration of naphthalene gives 1-Nitronaphthalene.<br>ii) Para nitro phenol is less acidic than phenol  | <b>05</b> |
|            | (c) | Write structure and medicinal uses of Phenanthrene, Diphenylmethane and Triphenylmethane   | <b>05</b> |
| <b>Q.5</b> | (a) | Define the following and give its significance;<br>i) Acid value<br>ii) Iodine value<br>iii) Reichert Meissl (RM) value  | <b>06</b> |
|            | (b) | Give the reactions of Fatty acid.  | <b>05</b> |
|            | (c) | Write the general method to prepare benzene diazonium salt and explain its synthetic applications.   | <b>05</b> |
| <b>Q.6</b> | (a) | Explain the effect of substituents on acidity of benzoic acid with suitable examples.  | <b>06</b> |
|            | (b) | Give structure and uses of phenol, cresols, and naphthols.   | <b>05</b> |
|            | (c) | Explain about qualitative tests of phenols.  | <b>05</b> |
| <b>Q.7</b> | (a) | Explain about Dow process and Cumene process to synthesize phenol.   | <b>06</b> |
|            | (b) | Comment on the basicity of ethyl amine, ammonia, aniline and pyrrole.  | <b>05</b> |
|            | (c) | Write any two methods for preparation of aromatic amines.  | <b>05</b> |