

# GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm – SEMESTER – IV - EXAMINATION – SUMMER- 2016

Subject Code: 240003

Date: 01/06/2016

Subject Name: Pharmaceutical Chemistry –IV

Time: 10:30 AM to 1:30 PM

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> | <b>(a)</b> | Define conformation. Discuss the stability and potential energy changes of all conformation for n-Butane.                                                                                                         | <b>06</b> |
|            | <b>(b)</b> | Write a note on stereochemistry of Biphenyls and Allens.                                                                                                                                                          | <b>05</b> |
|            | <b>(c)</b> | Explain stereoselective and stereospecific reaction.                                                                                                                                                              | <b>05</b> |
| <b>Q.2</b> | <b>(a)</b> | What is racemic mixture? Give importance of resolution of racemic mixture? What are the methods used to resolve it?                                                                                               | <b>06</b> |
|            | <b>(b)</b> | What do you understand by Grignard reagents? Discuss its utility in organic chemistry with specific example.                                                                                                      | <b>05</b> |
|            | <b>(c)</b> | What is polynuclear aromatic compound? Give the chemistry of Anthracene.                                                                                                                                          | <b>05</b> |
| <b>Q.3</b> | <b>(a)</b> | Write a note on Friedel craft alkylation and Friedel craft acylation with mechanism. Discuss the limitation of it.                                                                                                | <b>06</b> |
|            | <b>(b)</b> | What are phenols? Explain the preparation of Phenol in detail.                                                                                                                                                    | <b>05</b> |
|            | <b>(c)</b> | Give the structures of Picric acid, Catechol, Phloroglucinol, o-Xylene and Picric acid                                                                                                                            | <b>05</b> |
| <b>Q.4</b> | <b>(a)</b> | Explain Riemeier Tiemann reaction and Kolbe reaction with mechanism.                                                                                                                                              | <b>06</b> |
|            | <b>(b)</b> | Which are the functional derivatives of carboxylic acid? Give two methods for preparation of each. What are the applications of these products?                                                                   | <b>05</b> |
|            | <b>(c)</b> | Comment on each of the following statements:<br>(i) Chloroacetic acid is stronger than acetic acid.<br>(ii) Benzene is not cyclohexatriene.<br>(iii) m-Nitrobenzoic acid is more acidic than p-Nitrobenzoic acid. | <b>05</b> |
| <b>Q.5</b> | <b>(a)</b> | Give conversion of following:<br>(i) p-Nitro Aniline from Aniline<br>(ii) m-nitro benzoic acid from Toluene<br>(iii) Phenol from Aniline                                                                          | <b>06</b> |
|            | <b>(b)</b> | Write various reactions involved in oxidation and reduction of Aldehydes and Ketones.                                                                                                                             | <b>05</b> |
|            | <b>(c)</b> | Explain Cannizzaro reaction and Aldol condensation reaction with mechanism.                                                                                                                                       | <b>05</b> |
| <b>Q.6</b> | <b>(a)</b> | Comment on each of the following statements:<br>(i) p-Toluidine is strong base than aniline.<br>(ii) Staggered conformation is more stable than eclipsed.<br>(iii) Phenol is weak acid.                           | <b>06</b> |
|            | <b>(b)</b> | Write a note on following reactions Hofmann degradation of Amide.                                                                                                                                                 | <b>05</b> |
|            | <b>(c)</b> | Explain the basicity of amines.                                                                                                                                                                                   | <b>05</b> |
| <b>Q.7</b> | <b>(a)</b> | Define Nucleophilic aromatic substitution reaction. Explain the generation and mechanism of Benzyne in detail.                                                                                                    | <b>06</b> |
|            | <b>(b)</b> | What is green chemistry? What are the approaches to achieve it? Discuss it with suitable examples.                                                                                                                | <b>05</b> |
|            | <b>(c)</b> | Write notes on Diels-Alder reaction with reference to conservation of orbital symmetry rules.                                                                                                                     | <b>05</b> |

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