Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–III (New) EXAMINATION – WINTER 2015**

**Subject Code:2133501** **Date:02/01/2016**

**Subject Name:Organic Chemistry**

**Time: 02:30pm to 05:00pm** **Total Marks: 70**

**Instructions:**

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

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| **Q.1.** | | **Short Questions :** | **14** |
| | 1. | Give IUPAC name for Glycerol. | |
| | 2. | Give the reaction of Benzene Sulphonic acid with Acetic Anhydride. | |
| | 3. | Define Electrophile. | |
| | 4. | Which type of isomerism is shown by Acetone and Propanal. | |
| | 5. | What will happen when Benzene is nitrated at 100°c. | |
| | 6. | Which is the reagent for Diazotization reaction? | |
| | 7. | Define Specific Rotation. | |
| | 8. | What do you mean by NGP. | |
| | 9. | Draw the structure of salicyaldehyde and give its IUPAC name. | |
| | 10. | Draw the conformers of cyclohexane. | |
| | 11. | Give Anti-Markonikov rule. | |
| | 12. | What do you mean by resolution? | |
| | 13. | Show one reaction to generate free radical. | |
| | 14. | Define Stereospecific reactions. | |
| **Q.2** | (a) | Explain : Resonance and Inductive effect. | **03** |
| | (b) | Explain the methods of formation of carbenes. | **04** |
| | (c) | Explain the mechanism of Hydroboration-Oxidation reaction | |
| | | **OR** | |
| | (c) | Explain the mechanism of Pinacol-Pinacolone rearrangement. | **07** |
| **Q.3** | **(a)** | Write the mechanism of Benzidine rearrangement. | **03** |
| | **(b)** | Explain generation and stability of carbocation. | **04** |
| | **(c)** | Explain SN1 mechanism in detail. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Explain the difference between E1 and E2 mechanism. | **03** |
| | **(b)** | Explain generation and stability of carbanion. | **04** |
| | **(c)** | Explain SN1 mechanism in detail. | **07** |
| **Q.4** | **(a)** | Explain Stereoisomerism in Tartaric acid. | **03** |
| | **(b)** | Give the reactions of Bromobenzene with Ethyl bromide, $KNH_2$, Ni-Al/NaOH and Mg/ether. | **04** |
| | **(c)** | Draw a detailed flowsheet for chemical reactions of Phenol. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain Tautomerism. | **03** |
| | **(b)** | Give the reactions of Chlorobenzene with Chlorine, NaOH under drastic conditions, Nitrating mixture, Sulphuric acid/oleum. | **04** |
| | **(c)** | Draw a detailed flowsheet for chemical reactions of Aniline. | **07** |

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| **Q.5** | **(a)** | Explain the importance of Hydrogenation reaction in organic synthesis. | **03** |
| | **(b)** | Explain conformers of Ethane. | **04** |
| | **(c)** | Explain Hoffmann reaction in detail with proper mechanism and examples. | **07** |

**OR**

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|---|---|---|---|
| **Q.5** | **(a)** | Show the Aldol and Cross Aldol condensation with proper example. | **03** |
| | **(b)** | Explain conformers of Butane. | **04** |
| | **(c)** | Explain Grignard reaction in detail with proper mechanism and examples. | **07** |

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