Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec - 2017**

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| **Code :** | **14CH2008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASIC REACTION MECHANISM** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Selecting a suitable example, highlight the mechanism of a NGP reaction? | CO1 | 12 |
| b. | What are the evidences for the operation of a NGP reaction? | CO1 | 8 |
| (OR) | | | | |
| 2. | a. | Write the Hammett equation? | CO1 | 2 |
| b. | What does the sign and magnitude of the ρ value imply? | CO1 | 10 |
| c. | Outline the significance of the σ value in the Hammett equation? | CO1 | 8 |
| 3. | a. | Explain the various mechanistic pathways followed in aromatic nucleophilic substitution reaction giving suitable examples? | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Discuss the mechanism of the SN1 and SN2 reactions | CO1 | 10 |
|  | b. | Highlight the factors that affect the rate of both SN1 and SN2? | CO1 | 10 |
| 5. | a. | State the Markonikoff’s rule? | CO2 | 3 |
|  | b. | Briefly describe the various stages in the mechanism of a free radical addition? | CO2 | 8 |
|  | c. | Taking a suitable example, highlight the mechanism involved in a nucleophilic addition reaction? | CO2 | 9 |
| (OR) | | | | |
| 6. | a. | Illustrate anti addition reaction with a suitable example? | CO2 | 5 |
|  | b. | Discuss the mechanism of HBr addition to 1,3-butadiene? | CO2 | 10 |
|  | c. | Write a note on cycloaddition reactions? | CO2 | 5 |
| 7. | a. | Differentiate between a nucleophile and an electrophile? | CO3 | 4 |
|  | b. | What is an SE2 reaction? | CO3 | 4 |
|  | c. | Discuss the mechanism of a i. Hydrogenation reaction and ii. a Hydration reaction | CO3 | 6 + 6 |
| (OR) | | | | |
| 8. | a. | Differentiate between a Wheland intermediate and a Meisenheimer intermediate? | CO3 | 6 |
|  | b. | Discuss the mechanism operating in  i. Dehydrohalogenation reaction ii. Hydroxylation reaction | CO3 | 7 + 7 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss the important features of the mechanism of a E2 reaction? | CO3 | 8 |
|  | b. | Explain the factors favoring a E2 mechanistic pathway? | CO3 | 4 |
|  | c. | Formulate two suitable examples of reactions following the E2 pathway? | CO3 | 8 |

ALL THE BEST