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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17CH3003** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ORGANIC REACTION MECHANISM AND STEREOCHEMISTRY** | **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. | Describe in detail the resonance and inductive effect. | CO1 | 10 |
| b. | Give an account on Annulenes and Hetero annulenes with two examples each. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | What is aromatic electrophilic substitutions? Explain importance of σ and ρ values in aromatic electrophilic substitutions. | CO1 | 10 |
| b. | Using Linear Free Energy Relationship (LFER), derive Hammet equation. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Describe the mechanism of SN1 pathway in aliphatic nucleophilic substitution with one example. Mention the rate equation and energy profile for SN1 reaction. | CO2 | 10 |
| b. | Explain the mechanism of neighbouring group participation with two examples. | CO2 | 10 |
| **(OR)** | | | | |
| 4. | a. | Explain benzyne mechanism for aromatic nucleophilic substitution with one example. | CO2 | 10 |
| b. | Describe the mechanism of SNi pathway in aliphatic nucleophilic substitution with one example. Mention the rate equation for SNi reaction. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Write down the products for the following reactions. Explain the mechanism in each case.  i)  ii) | CO3 | 10 |
| b. | Describe the mechanisms of E2 elimination reaction with two examples. | CO3 | 10 |
| **(OR)** | | | | |
| 6. | a. | Write down the products for the following reactions. Explain the mechanism in each case.  i)  ii) | CO3 | 10 |
| b. | Describe the mechanisms of E1CB elimination reaction with two examples. | CO3 | 10 |
|  |  |  |  |  |
| 7. | a. | Explain enantiomers and diastereomers with two examples. | CO4 | 10 |
| b. | Explain the term axial chirality with two examples. | CO4 | 10 |
| **(OR)** | | | | |
| 8. | a. | Write down Fischer and Newman projection forms of L-Terteric acid. | CO4 | 10 |
| b. | Write down all stereoisomers of lactic acid. | CO4 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain both stereoselectivity and stereospecificity with one example each. | CO5 | 10 |
| b. | Write down with proper explanation of most stable conformers of both trans-1,2-dimethylcyclohexane and  cis-1,3- dimethylcyclohexane. | CO5 | 10 |