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



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

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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. | Derive Hammett equation. What is the significance of substituent constant? | CO2 | 10 |
| b. | Draw all the possible resonance structures for the following compounds and categorize them as electron donating and electron withdrawing groups. | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Predict the aromaticity of the following compounds using Huckel’s Rule | CO2 | 10 |
| b. | Define primary and secondary kinetic isotopic effect with suitable example | CO1 | 6 |
| c. | Predict all the possible products one can expect on the nitration of deuterated benzene (C6H5D). | CO3 | 4 |
| 3. | a. | Differentiate between SN1 and SN2 reactions (any five). Explain the stereochemical outcome in the above reactions with mechanism. | CO2 | 10 |
|  | b. | Which one of the following is expected to undergo solvolysis faster? Justify your prediction. | CO4 | 4 |
|  | c. | Predict the product A and B with stereochemistry and mechanism. | CO4 | 6 |
| (OR) | | | | |
| 4. | a. | Predict the possible product in the following reactions with mechanism. | CO3 | 10 |
|  | b. | Explain the Anchimeric assistance exhibited by benzene ring and ether. Give suitable examples. | CO2 | 10 |
| 5. | a. | How will you achieve the following conversions? (May involve any number of reactions). | CO2 | 10 |
|  | b. | Write an essay on the generation of benzyne and selectivity in benzyne reactions. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the following rules with suitable example i. Brett’s rule ii. Saytzev rule. | CO4 | 10 |
|  | b. | How do we find out the N-terminal aminoacid using Sanger’s method? | CO2 | 5 |
|  | c. | Which one of the following is expected to undergo Addition- Elimination mechanism faster? | CO4 | 5 |
| 7. | a. | Define the following terms with suitable examples.  i. Chirality and chiral carbon ii. optical isomers iii. Diastereomers iv. Enantiotopic v. Stereospecific reactions. | CO5 | 10 |
|  | b. | Assign E, Z and R,S configuration for the following compounds (where ever applicable) | CO5 | 10 |
| (OR) | | | | |
| 8. | a. | Explain all the conformers of butane and discuss on the relative stability and energy of the conformers. | CO6 | 10 |
|  | b. | Convert the following molecule into Saw Horse and Newmann projections. | CO5 | 5 |
|  | c. | Predict the more stable conformer of the following compounds. | CO6 | 5 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Assign R and S configuration for the following compounds. | CO5 | 10 |
|  | b. | Write an essay on stereoselective synthesis taking Sharpless Asymmetric epoxidation as the example. | CO6 | 10 |

ALL THE BEST