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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **15CH3003** | **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. | Comment on the statement “Electronic effects decide the direction of an organic reaction”. | CO1 | 10 |
| b. | Explain the salient features of Inductive effect and Hyperconjugative effect with examples. | CO1 | (5+5) |
|  | **(OR)** |  |  |
| 2. | a. | What are ‘Nitrenes’? Discuss their generation and characteristic reactions. | CO1 | (3+5+5) |
| b. | Explain the important reactions of carbene. | CO1 | 7 |
| 3. | a. | What are Beta Eliminations? Give an example. | CO1 | 5 |
|  | b. | Discuss the different mechanism by which Beta Elimination operate. | CO1 | 10 |
|  | c. | Explain the structure of a carbene. | CO1 | 5 |
|  |  | **(OR)** |  |  |
| 4. | a. | Discuss in detail the various parameters that affect the rate of SN2 reactions. | CO1 | 10 |
|  | b. | What are ‘Syn’ and ‘Anti’ additions? Give specific examples. | CO1 | (5+5) |
| 5. | a. | Explain the Arenium ion mechanism of substitution and compare it with the Meisenheimer complex mechanism. | CO1 | 10 |
|  | b. | How are carbonium ions generated? Discuss their important reactions. | CO1 | (5+5) |
|  |  | **(OR)** |  |  |
| 6. | a. | What is an SE2 mechanism? Give an example. | CO1 | 5 |
|  | b. | Elaborate the mechanism of nucleophilic addition reactions and electrophlic addition reactions using suitable examples. | CO1 | (7.5+7.5) |
| 7. | a. | Write short notes on  (i) Cahn-Ingold prolog’s rule. (ii) Conformatons of cyclohexanes. | CO1 | (7.5+7.5) |
|  | b. | Assign R/S notation to the chiral centres in the following  (i)  (ii) | CO1 | 5 |
|  |  | **(OR)** |  |  |
| 8. | a. | Assign E/Z notation to the following  (i)  (ii) | CO1 | 4 |
|  | b. | What is chirality? Give examples. | CO1 | 4 |
|  | c. | Illustrate a D/L isomer and a R/S isomer with proper reasoning? | CO1 | 6 |
|  | d. | Differentiate configuration and conformation with suitable examples? Which is the stable conformation of cyclohexane and why? | CO1 | (3+3) |
|  | | **Compulsory:** |  |  |
| 9. | a. | What are ylids? How are they generated? Give their characteristic reactions? | CO1 | (2+4+4) |
|  | b. | State Hofmann and Zaitsev’s rule? Discuss the factors that favour Zaitsev product and Hofmann product? | CO1 | (4+6) |