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 – April/May – 2017**

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| **Code :** | **16CH2002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ORGANIC REACTION INTERMEDIATES 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. | Write the name of the following compounds: | CO1 | 4 |
| b. | Define: addition reactions and substitution reactions. Give an example for each. | CO1 | 8 |
| c. | Define: delocalization of electrons. | CO1 | 2 |
| d. | Draw all the resonance structures of aniline. | CO1 | 6 |
| (OR) | | | | |
| 2. | a. | Arrange the following carbocations in the increasing order of their stability: | CO2 | 4 |
| b. | What do you understand by the terms free radical and nucleophile? Illustrate with examples. | CO2 | 6 |
| c. | Name the following as per IUPAC rules: | CO2 | 6 |
| d. | Write the structure of 4-hydroxyundecane and 3-oxoheptanol. | CO1 | 4 |
| 3. | a. | Write any three rules of writing resonance structures. Give a brief account of inductive effect citing out suitable examples. | CO2 | 10 |
|  | b. | List out the types of organic reactions and briefly explain with example for each type. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Draw all the conformational structures of 1,2-dichlorobutane along with their potential energy profile. Point out the least stable isomer. | CO3 | 10 |
|  | b. | Which of the following isomers is more stable than the other? Give reasons. | CO3 | 4 |
|  | c. | Justify that the pKa values of the following acids are different from each other: | CO3 | 4 |
|  | d. | Write the Newman projection formula of 1,2-dihydroxyethane. | CO3 | 2 |
| 5. | a. | Explain hyperconjugation with an example. | CO2 | 5 |
|  | b. | Describe the classifications of organic compounds with examples. | CO2 | 5 |
|  | c. | Draw all the conformational structures of 1,2-dimethylcyclohexane along with their potential energy profile. Point out the least stable isomer. | CO4 | 10 |
| (OR) | | | | |
| 6. | a. | Explain any three methods of enantioselective synthesis. | CO4 | 10 |
|  | b. | Define: stereospecificity with an example. | CO4 | 4 |
|  | c. | Denote R, S configuration for the chiral centers in the following compounds: | CO4 | 6 |
| 7. | a. | Write the rules of assigning R, S configuration to chiral centers. | CO4 | 8 |
|  | b. | Assign E, Z nomenclature for the following: | CO4 | 6 |
|  | c. | Mark the chiral centers in the following molecules with an asterisk: | CO4 | 6 |
| (OR) | | | | |
| 8. | a. | Establish, citing out examples, that conformation can influence the reactivity of steroisomers. | CO3 | 10 |
|  | b. | Define: stereospecificity with an example. | CO3 | 4 |
|  | c. | Which one of the following isomers is more stable than the other? Justify your answer. | CO4 | 6 |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain the general methods of determination of alkaloids, writing the reactions involved. | CO2 | 20 |

ALL THE BEST