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 :** | **15CH3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SYNTHETIC REAGENTS AND CONCERTED REACTIONS** | **Max. marks :** | **100** |

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

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| Q. No | Sub Div. | Questions | Outcome | Marks |
| 1. | a. | Discuss the mechanism of the following reactions. |  |  |
| i) Swern Oxidation | CO 1 | 5 |
| ii) Baeyer-Villiger Oxidation | CO 1 | 5 |
| b. | Describe the idea of organic photochemistry highlighting the important features of various steps. | CO 1 | 10 |
|  | **(OR)** |  |  |
| 2. | a. | Explain the salient features of the mechanism of following organic reduction reactions. |  |  |
|  | i) Wolf- Kishner reduction | CO 1 | 5 |
|  | ii) Luche reduction | CO 1 | 5 |
|  | b. | Draw the Jablonski diagram and discuss the various electronic transitions? | CO 1 | 10 |
| 3. | a. | Highlight the salient charecteristics of a pericyclic reaction. Give suitable examples. | CO 1 | 10 |
|  | b. | What is quantum yield of a photochemical reaction? Why is it important? | CO 1 | 4 |
|  | c. | Predict the products when C6H5-CH2-CO-CH2-C6H5 is irradiated with light? | CO 1 | 6 |
|  |  | **(OR)** |  |  |
| 4. | a. | Write the products formed when cyclohexanone is irradiated with light? | CO 1 | 10 |
|  | b. | Write briefly on  i) Paterno-Buchi reaction  ii) Norrish type II mechanism | CO 1 | 10 |
| 5. | a. | What are sigmatropic reactions? How are they classified? | CO 1 | 5 |
|  | b. | Draw the orbital correlation diagram for the following reaction, Butadiene cyclobutene and predict the allowed and disallowed processes? | CO 1 | 10 |
|  | c. | Write a note on ENE reactions? | CO 1 | 5 |
|  |  | **(OR)** |  |  |
| 6. | a. | Using the FMO analysis predict the allowed and disallowed processes for the conversion of hexatriene to cyclohexadiene? | CO 1 | 10 |
|  | b. | Write down the orbitals of butadiene and hexatriene? | CO 1 | 10 |
| 7. | a. | What are electrocyclic reactions? Give an example? | CO 1 | 4 |
|  | b. | Describe the salient features of a chelotropic reaction with suitable examples. | CO 1 | 6 |
|  | c. | Describe the mechanistic details of the Diels-Alder reaction? | CO 1 | 10 |
|  |  | **(OR)** |  |  |
| 8. | a. | What are cycloaddition reactions? Give an example? | CO 1 | 4 |
|  | b. | Illustrate the Woodword-Hoffman rule for (2+2) and (4+2) Cycloaddition reactions? | CO 1 | 6 |
|  | c. | Write briefly on  i) Synthons | CO 1 | 10 |
|  |  | ii) Retrostrategies | | |
|  | | **COMPULSORY:** |  |  |
| 9. | a. | Define “ Retrosynthesis” | CO 1 | 2 |
|  | b. | Taking suitable examples, illustrate functional group interconversion? | CO 1 | 8 |
|  | c. | Outline the retrosynthetic scheme for synthesizing the following compounds |  |  |
|  |  | i) | CO 1 | 5 |
|  |  | ii) | CO 1 | 5 |