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 :** | **14ME2024** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MECHATRONICS** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. |  | Illustrate the basic elements of following systems, explain with an example.   1. Closed loop system 2. Open loop system. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | Build a general pneumatic system with double acting cylinder and discuss the comonents of it with suitable neat diagrms if any. | CO1 | 14 |
| b. | List various types of switching mechanisms used for DCVs. | CO1 | 6 |
|  |  |  |  |  |
| 3. |  | Illustrate the commonely used DC/AC motors in detail, with suitable sketches. | CO2 | 20 |
| (OR) | | | | |
| 4. | a. | Eloboratethe working principle of stepper motor with a neat diagram. | CO2 | 14 |
|  | b. | Summerise the parameters needed for specifying a stepper motor. | CO2 | 6 |
|  |  |  |  |  |
| 5. | a. | Compose the working nature of the following: Capasitive type proximity sensor and Hall EffectType proximity sensors. | CO1 | 10 |
|  | b. | Compare and constrastanalog to digital converter and digital to analogue converters. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Describe how the Relay and Solinoid works with neat diagrams. | CO2 | 14 |
|  | b. | Design the electropneumatic circuit for opening and closing of the door of a warehouse using one push button. | CO2 | 6 |
|  |  |  |  |  |
| 7. | a. | Discuss in detail the pin diagram of commonly used microcontroller with a neat block diagram. | CO2 | 12 |
|  | b. | How does a microcontroller differ from the microprocessor? | CO2 | 8 |
| (OR) | | | | |
| 8. |  | Illustrate the architecture of a programmable logic controller and explain its components in detail. | CO2 | 20 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | Define the term mechanotincs. | CO1 | 5 |
|  | b. | Elaborate the historical developments of mechatronics with neat sketch. | CO1 | 10 |
|  | c. | List out various applications of mechatronics systems. | CO1 | 5 |

ALL THE BEST