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 :** | **15EI2037** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INTELLIGENT INSTRUMENTATION SYSTEMS** | **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 down the various steps involved for the conversion of assembly code into machine implementable code. | CO2 | 8 |
| b. | Write short notes on various design process used in embedded system design. | CO2 | 12 |
| (OR) | | | | |
| 2. | a. | Explain in detail about the various components of embedded system architecture. | CO2 | 10 |
| b. | Comment briefly on the following interface related to embedded systems.   1. Switch Interface 2. LED Interface | CO1 | 10 |
| 3. | a. | With neat sketch, describe the generation of pulse width modulation signals in software and hardware. | CO2 | 15 |
| b. | Write short notes on Digital to Analog Converter. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Design an embedded based data acquisition system to measure and display the body temperature from the patient. | CO2 | 10 |
|  | b. | Describe the operation of successive approximation type ADC. | CO1 | 10 |
| 5. | a. | Write short notes on Simulation and Emulation of an embedded systems. |  | 10 |
| b. | Explain in detail about the various software development tools used in real time system. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | It is desired to set up a completely automated automobile industry in which conveyors are used to transfer the parts from one station to the other. The stepper motors are used as the drivers in the conveyors. Enumerate the various methods involved in automatic control of a stepper motor using a microcontroller. | CO2 | 16 |
| b. | List the different characteristics of an embedded systems. | CO2 | 4 |
| 7. | a. | Discuss the following.   1. Message Queues 2. Mail Box | CO3 | 10 |
|  | b. | Describe the various RTOS task states with an example. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Explain in detail about the interrupt routines in RTOS Environment. | CO3 | 16 |
| b. | What is Host and Target system in embedded system application development? | CO3 | 4 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain how priority inversion problem is solved by Real Time Kernel. | CO3 | 15 |
| b. | List the various services of real time kernel | CO3 | 5 |

ALL THE BEST