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 – 2017**

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| **Code :** | **14EI3019** | **Duration :** | **3hrs** |
| **Sub. Name :** | **EMBEDDED INSTRUMENTATION** | **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. | Define Piezo-Electric Effect. Explain how a Piezo-Electric Crystal is used for the measurement of force with necessary derivations. | CO1 | 16 |
| b. | A 0-50 V Voltmeter is specified to be accurate within +1 % of full scale.  Calculating the limiting error. | CO1 | 4 |
| (OR) | | | | |
| 2. | a. | Illustrate the construction and principle of working of a Linear Voltage Differential Transformer (LVDT). Explain how it will be detect the number of currency bills dispensed by an ATM. | CO1 | 15 |
| b. | Explain the principle of working, constructional details and applications of Photo Diodes. | CO1 | 5 |
| 3. | a. | With a neat sketch explain the principle and applications of Proximity Sensors. | CO1 | 15 |
|  | b. | List any five applications of Potentiometer Sensor. | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Suggest a suitable sensor to detect the movement of the object. The sensor must give an electric signal as output. | CO1 | 15 |
|  | b. | Outline the operation of Half-Effect transducer. | CO1 | 5 |
| 5. | a. | Create a VI to display the varying potentiometer reading voltage on a 7 segment LCD. | CO2 | 15 |
|  | b. | Compare and contrast virtual instruments versus traditional instruments. | CO2 | 5 |
| (OR) | | | | |
| 6. | a. | Create a VI to compare the elements of two clusters. If the values of orresponding elements of both the VIs are the same, switch on an LED in the output cluster. | CO2 | 10 |
|  | b. | Outline the various programming techniques and recent research achivements adapted for LabVIEW environment. | CO2 | 10 |
| 7. | a. | Illustrate with necessary diagrams for the different memory techniques used in PC systemsto speed up memory access? | CO3 | 10 |
|  | b. | Explain the architecture of a suitable bus that is used to overcome the bottleneck problem in ISA buses. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Identify the factors to be considered in designing an AD board when used for any application. Explain with neat sketch. | CO3 | 15 |
|  | b. | Write a Programme to acquire data at the rate of 1 Hz from the ADC | CO3 | 5 |
|  | | **Compulsory:** |  |  |
| 9. |  | Explain the functions of GT 200 digital frequency meter with a neat block diagram | CO3 | 20 |

ALL THE BEST