Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **17EI2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRICAL AND ELECTRONIC MEASUREMENTS** | **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. | Explain the construction and working of d’Arsonval Galvanometer and derive its torque equation. | CO1 | 12 |
| b. | Discuss the extension of range in an ammeter and voltmeter with necessary circuits and equations. | CO2 | 8 |
| (OR) | | | | |
| 2. | a. | Describe the constructional details and working of attraction type moving iron instrument with a neat diagram. | CO1 | 10 |
| b. | Write short notes on the errors caused in the PMMC instrument. | CO2 | 6 |
|  | c. | Interpret the term “ Q Factor” and give the mathematical expression to calculate Q Factor. | CO2 | 4 |
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| 3. | a. | Draw the circuit diagram of a differential amplifier voltmeter and explain its working. | CO2 | 12 |
|  | b. | Derive the expression for braking torque in an Energy Meter. | CO1 | 8 |
| (OR) | | | | |
| 4. | a. | Explain the constructional details of an Electrodynamometer type wattmeter and derive the torque equation. | CO1 | 14 |
|  | b. | Discuss the calibration of Energy Meter with necessary circuit diagram and equations. | CO2 | 6 |
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| 5. | a. | Derive the expression for determining the unknown inductance using Maxwell’s bridge at balance condition. | CO3 | 10 |
|  | b. | Descibe the working of series and shunt type ohmmeter. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the measurement of unknown resistance using Kelvin Double Bridge and derive its expression. | CO3 | 10 |
|  | b. | Illustrate the working of Pulse Generator with a neat diagram. | CO4 | 10 |
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| 7. | a. | Discuss on the various methods adopted in analyzing Harmonic Distortion. | CO4 | 12 |
|  | b. | Explain the principle and working of LED display. | CO4 | 8 |
| (OR) | | | | |
| 8. | a. | Interpret the different modes of counting using an Electronic Counter. | CO4 | 10 |
|  | b. | Describe the working of Digital Voltmeter with a neat block diagram. | CO3 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Elaborate the construction and working of Analog Storage Oscilloscope. | CO4 | 10 |
|  | b. | Explain the role of Virtual Instrumentation in a process industry. | CO5 | 10 |