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



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

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| **Code :** | **14EI2011** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ELECTRONIC INSTRUMEMTATION** | **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. | Sketch the complete circuit of an emitter – follower voltmeter using a FET stage and explain the circuit operation. | CO1 | 12 |
| b. | Discuss in detail on AC electronic voltmeter using half wave rectifier. | CO1 | 8 |
| **(OR)** | | | | |
| 2. | a. | Give the advantages of using an electronic instruments over electrical instruments in measuring Voltage and Current. | CO2 | 8 |
| b. | Draw the circuit diagram of a Q meter and explain its operation in detail. | CO2 | 12 |
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| 3. | a. | Draw the logic diagram for a decade counter, and explain its operation. Prepare a table showing the counter output states for each input pulse. | CO2 | 20 |
| **(OR)** | | | | |
| 4. | a. | Discuss in detail on the types of Electronic voltmeter. | CO1 | 12 |
|  | b. | A 20 V dc voltage is measured by analog and digital multi-meters. The analog instrument is on its 25 V range, and its specified accuracy is ± 2%. The digital meter has 3½ digit display and an accuracy of ± (0.6+1). Determine the measurement accuracy in each case. (1 digit = 0.1 V) | CO1 | 8 |
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| 5. | a. | A ±40V, 500Hz triangular wave is applied to the vertical deflecting plates of a CRT, and a ±50V, 250 Hz saw tooth wave is applied to the horizontal deflecting plates. The CRT has a 0.1 cm/V vertical deflection sensitivity and a 0.08cm/V horizontal deflection sensitivity. Assuming that the two inputs are synchronized, construct the waveform displayed on the screen. | CO1 | 20 |
| **(OR)** | | | | |
| 6. | a. | Summarize the block diagram and system waveforms for a Ramp Generator DVM. | CO1 | **10** |
|  | b. | Draw the basic circuit diagram of a digital frequency meter using SR flipflop and sketch the waveforms and explain the instrument operation. | CO2 | 10 |
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| 7. | a. | Discuss in detail about the Wein bridge oscillator with the circuit diagram. | CO3 | 10 |
|  | b. | Draw an op-amp Monostable multi-vibrator circuit with the waveforms at various points in the circuit and explain its operation. | CO3 | 10 |
| **(OR)** | | | | |
| 8. | a. | Draw a basic block diagram and waveforms for a sampling oscilloscope with neat sketch. | CO3 | 10 |
|  | b. | Explain the block diagram of Spectrum analyzer & describe its working in detail. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. |  | Describe in detail about the process involved in LabVIEW environment with the numeric and Boolean controls and indicators. | CO3 | 20 |