

Duration: 2 hrs

Marks: 60

- N.B. : (1) Question No 1 is Compulsory.  
(2) Attempt **any three** questions out of the remaining five.  
(3) All questions carry equal marks.  
(4) Assume suitable data, if required and state it clearly.

- 1 Attempt any Five** [15]
- a Define standardization and calibration of instruments.
  - b Draw and explain Wheatstone bridge for measurement of resistance
  - c Compare analog and digital instruments
  - d List different types of errors in measurement
  - e Compare RTD and Thermistor
  - f Define accuracy, precision and resolution
- 2 a Explain operating, controlling and damping torques with suitable diagrams. [8]  
b Explain the measurement of unknown resistance using Kelvin Double Bridge. [7]
- 3 a Explain the procedure of calibration of voltmeter and wattmeter using Potentiometer. [7]  
b With neat diagram, explain the construction and working of CT and PT [8]
- 4 a Describe the measurement of temperature using RTD and Thermocouple. [8]  
b Explain the construction, working and operation of Digital Frequency Meter [7]
- 5 a Explain various features of digital storage oscilloscope. [8]  
b Explain the construction and working of linear variable differential transformer. [7]
- 6 a Explain Data Acquisition System with suitable block diagram. [7]  
b Write short notes on: **(Any two)** [8]
  - i. Smart Sensor
  - ii. Harmonic Analyzer
  - iii. Smart Energy Meter

\*\*\*\*\*

00636