

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016**

**Subject Code: 170803****Date: 23/11/2016****Subject Name: Electrical and Electronics Measuring Instruments****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is measurement standard? List out different types of standard. Explain voltage standard in brief. **07**
- (b) Explain Maxwell's bridge. Determine condition for balance. Also mention its applications. **07**
- Q.2** (a) Explain construction and working of PMMC instrument & derive the torque equation. **07**
- (b) Describe the various operating torque needed for proper operation of an analog indicating instrument. Draw the neat sketch & explain in detail of eddy current damping torque in analog instrument. **07**
- OR**
- (b) What is measurement standard? List out different types of standard. Explain voltage standard in brief. **07**
- Q.3** (a) Describe the working of Hay's bridge for the measurement of inductance. Derive the condition for balance and draw the phasor diagram. **07**
- (b) What is difference between Current transformer and Potential transformer? Explain construction of potential transformers. **07**
- OR**
- Q.3** (a) Explains the electrodynamicometer type low power factor wattmeter. **07**
- (b) Explain the construction and working of and moving iron type instruments. **07**
- Q.4** (a) Give construction and explain working of Thermocouple. Also state merits and demerits and application of it. **07**
- (b) State different types of transducers used for the measurement of temperature. Explain thermistor in detail. **07**
- OR**
- Q.4** (a) Explain frequency selective wave analyzer with block diagram **07**
- (b) Write short note on Phase angle measurement using CRO. **07**
- Q.5** (a) Explain with block diagram the working of Digital Storage Oscilloscope **07**
- (b) Write short note on Data Acquisition System. **07**
- OR**
- Q.5** (a) (i) Why platinum is commonly used metal for RTD? **07**
- (ii) Why thermocouple is called active transducer?
- (iii) Core of LVDT is slotted- justify the statement.
- (b) Explain with the help of a block diagram the working of a spectrum analyzer? **07**
- Where is spectrum analyzers commonly used?

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