

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – WINTER 2013

Subject Code: 170803**Date: 07/12/2013****Subject Name: Electrical and Electronics Measuring Instruments****Time: 10:30 TO 01:00****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) Define and explain different types of error that may occur in measurements. **07**
(b) What do you mean by low, medium, and high resistances? State various methods for measuring low resistance. Explain any one in detail. **07**
- Q.2** (a) What are the problems associated with high resistance? Explain any one method for measurement of insulation resistance of a cable. **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) State the application of Schering bridge. Explain its working with circuit diagram & phasor diagram. Why earth screen is required in High voltage Schering bridge? **07**
(b) Explain the construction and working of an electrodynamicometer type of wattmeter. **07**
- OR**
- Q.3** (a) Draw the phasor diagram & derive the expression for deflecting torque & braking torque in single phase induction type energy meter. **07**
(b) Explain the construction and working of and moving iron type instruments. **07**
- Q.4** (a) Draw the equivalent circuit & phasor diagram of a potential transformer. Derive the expressions for its ratio and phase angle errors. **07**
(b) Write short note on Phase angle measurement using CRO. **07**
- OR**
- Q.4** (a) Explain theory of working of current transformer with the help of phasor diagram. **07**
(b) Explain construction and working of induction type Energy meter. **07**
- Q.5** (a) What is Transducer? Explain: **07**
1) Active transducer – Passive transducer
2) Primary transducer – Secondary transducer
(b) State different types of transducers used for the measurement of temperature. Explain any one in detail. **07**
- OR**
- Q.5** (a) Explain different factors to be considered while selection of transducers. **07**
(b) Write short note on Hall effect transducer. **07**
