Seat No.: _____ Enrolment No._____

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 electrodynamometer 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: 1) Active transducer – Passive transducer 2) Primary transducer – Secondary transducer	**07**
	(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**

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