Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– III(NEW) EXAMINATION – SUMME R2015

Subject Code: 2130903 **Date: 04/06/2015**

Subject Name: Electrical Measurements and Measuring Instruments

Time:02.30pm-05.00pm **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 standard? Explain different types of standards.	**07**
	(b)	Explain the static characteristics of an instrument.	**07**
Q.2	**(a)**	Describe the construction and working of PMMC instrument. Derive the equation for deflection if the instrument is spring controlled.	**07**
	(b)	Describe the various types of errors in measurement system.	**07**
		OR	
	(b)	Explain electro dynamic Wattmeter	**07**
Q.3	**(a)**	Describe the operation of Kelvin's bridge.	**07**
	(b)	Explain working principal of Q meter	**07**
		OR	
Q.3	**(a)**	Explain how an AC bridge circuit operates and derive an expression for the unknown parameters.	**07**
	(b)	Explain the working of a digital frequency meter with block diagram	**07**
Q.4	**(a)**	Explain the basic components of a magnetic tape recorder for instrumentation applications using direct recording techniques. Describe its advantages and disadvantages	**07**
	(b)	Explain different methods for data transmission in telemetry systems	**07**
		OR	
Q.4	**(a)**	Explain the construction wire wound strain gauges and derive the expression for the gauge factor.	**07**
	(b)	Explain in detail harmonic analyzes.	**07**
Q.5	**(a)**	Describe the construction, theory and working of thermocouples.	**07**
	(b)	Explain the construction and principle of working of a linear voltage differential transformer (LVDT). Explain how the magnitude and direction of the displacement of core of an LVDT detected?	**07**
		OR	
Q.5	**(a)**	Write a short note on digital storage oscilloscope.	**07**
	(b)	Describe the working of a galvanometric type of strip chart recorder. What are the different types of tracing systems used in it? Explain with the help of suitable diagrams.	**07**

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