Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 152402 **Date: 05/05/2017**

Subject Name: Electrical Measurements & Electronics Instruments

Time: 02:30 PM to 05:00 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)**	State various types of errors in potential transformer. Explain how they can be reduced.	**07**
	(b)	Explain the classification of Electrical and Electronics Instruments.	**07**
Q.2	**(a)**	Explain principle and operation of PMMC instrument. Derive torque equation for it.	**07**
	(b)	Explain the calibration of voltmeter and ammeter using potentiometer.	**07**
		OR	
	(b)	Define measurement. Draw the diagram of generalized measurement system. Explain the standards of measurement in detail.	**07**
Q.3	**(a)**	Explain the Hay's bridge for measurement of inductance.	**07**
	(b)	Explain the construction and working of D'Arsonval Galvanometer.	**07**
		OR	
Q.3	**(a)**	Explain the Kelvin double bridge method of measurement of low resistance in detail.	**07**
	(b)	Explain the Schering's bridge for measurement of capacitance.	**07**
Q.4	**(a)**	Explain the static and dynamic characteristics of measuring instruments.	**07**
	(b)	Explain the testing of instrument transformer.	**07**
		OR	
Q.4	**(a)**	With neat diagram explain construction and operation of single phase energy meter.	**07**
	(b)	Write short note on how to extend range of different instruments.	**07**
Q.5	**(a)**	Define Q-factor of Inductor. Explain the working of Digital LCR Meter with neat block diagram.	**07**
	(b)	Explain the op-amp voltage follower and op-amp amplifier type voltmeters.	**07**
		OR	
Q.5	**(a)**	Explain Maxwell's bridge with necessary diagrams.	**07**
	(b)	Explain the construction and working of poly phase energy meter.	**07**

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