Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2015

Subject Code: 152402 **Date: 05-05-2015**

Subject Name: Electrical Measurement & Electronics Instrument

Time: 02.30 pm - 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)	Explain the calibration of voltmeter and ammeter using potentiometer.	**08**
	(b)	Define following. 1. Drift 2. Reproducibility 3. Accuracy 4. Fidelity 5. Resolution 6. Backlash	**06**
Q.2	(a)	Draw the equivalent circuit and the phasor diagram of Current Transformer. Derive the equation for actual transformation ratio K_{act}.	**07**
	(b)	Explain in brief the low capacitance, high voltage and RF demodulator Probes.	**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 construction and working of D'Aasonval Galvanometer.	**07**
	(b)	Explain the shunt type ohmmeter and its design.	**07**
		OR	
Q.3	(a)	Explain the construction and working of Dynamometer type instruments.	**07**
	(b)	Explain the op-amp voltage follower and op-amp amplifier type voltmeters.	**07**
Q.4	(a)	Write a technical short note on : Dual-slope Integrator type DVM.	**07**
	(b)	Explain the construction and working of poly phase energy meter.	**07**
		OR	
Q. 4	(a)	Explain the Digital frequency meter with block diagram.	**07**
	(b)	Explain how the power loss in pressure coil is compensated in electrodynamic wattmeter. Explain the low power factor meter.	**07**
Q.5	(a)	Explain the Kelvin double bridge method of measurement of low resistance in detail.	**07**
	(b)	Explain the Hay's bridge for measurement of inductance.	**07**
		OR	
Q.5	(a)	Explain the loss of charge method of measurement of high resistance in detail.	**07**
	(b)	Explain the Schering's bridge for measurement of capacitance.	**07**

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