Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

Subject Code: 160905   **Date: 24/10/2016**
Subject Name: Electrical & Electronic Measurement
Time: 10:30 AM to 01:00 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 Maxwell's bridge for measurement of self inductance.	07
	(b)	Explain following term	07
		1 Accuracy 2. Precision. 3. Sensitivity 4. Resolution	
Q-2	(a)	The four arms of bridge are as per given	07
		Arm AB : capacitor C_1 with internal resistor r_1	
		Arm BC: Non inductive resistance of R_3=2000Ohm.	
		Arm CD: Non inductive resistance of R_4=2850Ohm	
		Arm DA: capacitor C_2= 0.5micro F, internal resistance r_2=0.4Ohm and	
		Resistor R_2=4.8Ohm.	
		Supply frequency 450Hz between A and C and detector between B and D.	
		For balance by above component. Find out capacitance C_1 and internal	
		resistor $r_1$and also the dissipating factor for the capacitor.	
	(b)	Explain Anderson's Bridge.	07
		OR	
	(b)	An Owen's bridge is used to measure the properties of a sample sheet	07
		steel at 2 kHz . At balance, arm ab is test specimen; arm bc is R_3 =100Ω;	
		arm cd is C_4 =0.1µFand arm da is R_2= 834 in series with C=0.124 µF .	
		Determine balance condition and calculate the effective impedance of the	
		specimen under test condition.	
Q-3	(a)	What are the different difficulties encountered in the measurement of high	07
		resistance? Explain how these difficulties are over come.	
	(b)	Draw the circuit of a Wheatstone bridge and derive the condition of	07
		balance.	
		OR	
	(a)	Explain megger for high resistance measurement	07
	(b)	Draw the circuit of Kelvin's double bridge used for measurement of low	07
		resistance. Derive the condition for balance	
Q-4	(a)	Explain Flux meter with suitable diagram.	07
	(b)	Explain Murray loop test for location cable fault.	07
		OR	
	(a)	Describe the method for determination of B-H curve of magnetic material.	07
	(b)	Discuss principle and working of digital LCR meter.	07
Q-5	(a)	Explain construction and working of current transformer.	07
	(b)	Explain harmonic distortion analyzer.	07
		OR	
	(a)	Derive equation for ratio and phase angle error of a potential transformer	07
	(b)	Explain Hetrodyne wave analyzer.	07

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