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

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC SEM-II Examination-Dec-2011

Subject code: X20902 **Date: 24/12/2011**
Subject Name: Electrical Measurements I & II
Time: 10.30 am -1.00 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 Kelvin's double bridge with a circuit diagram.	**07**
	(b)	Explain Loss of charge method to measure high value resistance.	**07**
Q.2	**(a)**	Derive expression for unknown capacitance by Schering bridge method.	**07**
	(b)	Explain working of digital LCR meter.	**07**
		OR	
	(b)	A capacitor bushing forms arm AB of a Schering bridge, a standard capacitor of 500 pica farad and negligible loss forms arm AD, arm BC consist of noninductive resistance of 300 ohms, The bridge is balanced when arm CD has a resistance of 72.6 ohm in parallel with a capacitance of 0.148 micro farad. Supply frequency = 50 Hz. Determine capacitance and loss angle of a capacitor bushing.	**07**
Q.3	**(a)**	Explain Two Wattmeter method to measure 3 phase power with necessary circuits.	**07**
	(b)	Explain single phase induction type watt hour meter.	**07**
		OR	
Q.3	**(a)**	Derive Torque equation of a Moving Iron instrument.	**07**
	(b)	Explain Rectifier type instrument with neat diagram.	**07**
Q.4	**(a)**	Explain two applications of D.C. Potentiometer with necessary circuits.	**07**
	(b)	Explain Gall Tinsley type A.C. Potentiometer.	**07**
		OR	
Q.4	**(a)**	Explain Tri vector meter with a neat diagram.	**07**
	(b)	Explain Weston frequency meter.	**07**
Q.5	**(a)**	Explain D'Arsonaval Galvanometer.	**07**
	(b)	Explain Ballistic Galvanometer with diagram.	**07**
		OR	
Q.5	**(a)**	Derive the dimensions of the following quantities in L,M,T,I units: 1. Potential Gradient 2. Capacitance 3. Magnetic Flux Density	**07**
	(b)	Define : 1. True value, 2. Precision, 3. Error, 4. Sensitivity, 5. Resolution, 6. Accuracy.	**07**

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