Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–II • EXAMINATION – WINTER • 2014

Subject Code: X20902 **Date: 30-12-2014**

Subject Name: Electrical Measurement I and II

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 construction and working of Maxwell bridge.	**7**
	(b)	Construction and working of D'Arsonval galvanometer.	**7**
Q.2	**(a)**	Define and explain: 1. True value, 2. Precision, 3. Error, 4. Sensitivity, 5. Resolution, 6. Accuracy. 7. Threshold.	**7**
	(b)	Define Gauge factor with respect to resistance strain gauge. Obtain an expression for the gauge factor in terms of poison's ratio.	**7**
		OR	
	(b)	Explain with suitable diagram de'sauty's bridge	**7**
Q.3	**(a)**	Explain Drysdale-Tinsley polar type AC potentiometer	**7**
	(b)	Describe the constructional details and working of the electrodynamometer type instrument. How dynamometer type instrument is used as an ammeter, voltmeter and wattmeter?	**7**
		OR	
Q.3	**(a)**	Show that in two wattmeter method of power measurement for 3-Ø balanced load system, the total power consumed is the sum of reading of two watt meters.	**7**
	(b)	Explain working principle of Slide wire D.C. potentiometer. Also explain how it is standardized.	**7**
Q.4	**(a)**	Derive the torque equation for induction type single phase energy meter	**7**
	(b)	What do you understand by Low, Medium and High resistance? Describe Kelvin's double bridge method for measurement of small resistance.	**7**
		OR	
Q.4	**(a)**	Describe the Construction and working of a Single phase energy meter	**7**
	(b)	Explain construction and working of Anderson bridge.	**7**
Q.5	**(a)**	Construction and working of resonance type frequency meter	**7**
	(b)	Explain construction and working of Mexwell bridge	**7**
		OR	
Q.5	**(a)**	Explain construction and working of a basic electronic voltmeter	**7**
	(b)	With suitable vector diagram explain working principal of a potential transformer. Define ratio and phase angle errors. Discuss applications of a P.T	**7**

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