Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER– III EXAMINATION – SUMMER 2015

Subject Code:130903 **Date:**27/**05/2015**

Subject Name :Electrical and Electronics Measurement

Time: 02.30pm-05.00pm **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)**	Define and explain the types of errors possible in an instrument.	**07**
	(b)	Compare PMMC and moving iron type instruments.	**07**
Q.2	**(a)**	Explain in detail the construction and working of D'Arsonaal Galvanometer. Also derive the toque equation for the same.	**07**
	(b)	Explain range extension of analog voltmeter and ammeter in detail.	**07**
		OR	
	(b)	Write the importance of damping torque and also explain the various methods of providing the damping torque in an indicating instrument.	**07**
Q.3	**(a)**	Give the advantages and dis-advantages of Electrostatic instrument.	**07**
	(b)	Explain the principle of hot-wire type instrument and give their limitations.	**07**
		OR	
Q.3	**(a)**	With a neat diagram explain the working of three phase energymeter.	**07**
	(b)	An energymeter is designed to make 100 revolutions of disc for one unit of energy. Calculate the number of revolutions made by it when connected to a load carrying 20A at 230-V at 0.8 p.f. for an hour. If it actually makes 360 revolutions, find the percentage error.	**07**
Q.4	**(a)**	List and explain in brief the advantages of Electronic voltmeter.	**07**
	(b)	Write a short note on True R.M.S. Responding voltmeter.	**07**
		OR	
Q.4	**(a)**	Explain with a neat diagram the working of Synchroscope.	**07**
	(b)	With a neat circuit diagram explain the calibration of a Ammeter with help of DC potentiometer.	**07**
Q.5	**(a)**	State the different methods of 3-phase power measurement. Explain two wattmeter method of 3-phase power measurement in detail.	**07**
	(b)	Explain with a neat diagram the working of a Trivector meter.	**07**
		OR	
Q.5	**(a)**	Explain Resistance standard, Inductance standard and capacitance standard	**07**
	(b)	Explain the working principle of dynamometer type instruments.	**07**

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