Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2130903 Date: 11/06/2019

Subject Name:Electrical Measurement and Measuring Instruments

Time: 02:30 PM TO 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.**

			MARKS
Q.1	**(a)**	State the difference between systematic and random Errors.	**03**
	(b)	Differentiate between analog and digital Instruments.	**04**
	(c)	With a neat diagram explain the construction, working and torque equation of dynamometer type instruments.	**07**
Q.2	**(a)**	What are the errors due to connections of wattmeter in a circuit?	**03**
	(b)	Write advantages and disadvantages of Electrostatic type instruments?	**04**
	(c)	Explain method of three phase power measurement using two wattmeter method for balanced 3-phase load.	**07**
		OR	
	(c)	Explain working of kelvin's double bridge for measurement of low resistance with neat diagram.	**07**
Q.3	**(a)**	Discuss the applications and limitations of whetstones bridge.	**03**
	(b)	Explain the working of multi range electronic multimeter for measurement of D.C and A.C voltage measurement.	**04**
	(c)	Explain working of Hay's bridge with suitable phasor diagram.	**07**
		OR	
Q.3	**(a)**	Explain the working principle of Q-meter.	**03**
	(b)	Draw and explain basic block diagram of Digital frequency meter.	**04**
	(c)	Discuss with neat sketch working and application of Schering bridge.	**07**
Q.4	**(a)**	Explain working principle of D.C Techometer.	**03**
	(b)	Explain working of Resistive Hygrometer.	**04**
	(c)	Explain the construction and working of RTD. Also state its applications.	**07**
		OR	
Q.4	**(a)**	How bourdon tube can be used for pressure measurement?	**03**
	(b)	Explain various applications of LVDT and RVDT.	**04**
	(c)	State various thermoelectric laws. Also list out various materials used for construction of thermocouples.	**07**
Q.5	**(a)**	Write application of X-Y recorders.	**03**
	(b)	How strain gauge can be used for torque measurement?	**04**
	(c)	Define telemetry? With the help of block schematic explain basic telemetry system.	**07**
		OR	
Q.5	**(a)**	Discuss various applications of Digital storage oscilloscopes.	**03**
	(b)	Write applications of hall effect transducers.	**04**
	(c)	With the help of block schematic, explain principle of operation and various methods of data recording in strip chart recorder.	**07**

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