

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
