

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2130903

Date: 05/06/2017

Subject Name: Electrical Measurement and Measuring Instruments

Time: 10:30 AM to 01:00 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	Short Questions	14
	1 Define Resolution.	
	2 Define Stability.	
	3 Define Active and Passive instruments.	
	4 Define Accuracy.	
	5 Define Indicating instruments.	
	6 Define Integrating instruments.	
	7 State methods used to produce damping torque.	
	8 State methods used for measurement of medium resistance.	
	9 Give the classification of transducers.	
	10 List out the errors present in dynamometer type wattmeter.	
	11 Define creeping.	
	12 What is phantom loading?	
	13 Give classification of graphic recorders.	
	14 List out the transducers used for measurement of temperature.	
Q.2	(a) Explain the voltage standards.	03
	(b) Explain the various effects with which deflecting torque is produced.	04
	(c) Explain construction working, torque equation, advantages and disadvantages of moving iron instrument with diagram.	07
	OR	
	(c) Explain construction, working, advantages and disadvantages of hot wire instrument.	07
Q.3	(a) Explain principle of operation of thermo couple instrument.	03
	(b) Explain controlling systems used in an instrument.	04
	(c) Explain construction working, torque equation, advantages and disadvantages of permanent magnet moving coil instrument with diagram.	07
	OR	
Q.3	(a) List advantages and disadvantages of electrostatic instruments.	03
	(b) Explain Digital storage oscilloscope with block diagram.	04
	(c) Explain construction, working, torque equation, advantages and disadvantages of single phase induction	07

	type wattmeter with neat diagram.	
Q.4	(a) Derive bridge balance equation for Kelvin's double bridge.	03
	(b) Explain construction and working of Megger.	04
	(c) Explain Maxwell's inductance-capacitance bridge for measurement of inductance. Derive bridge balance equation and draw vector diagram.	07
	OR	
Q.4	(a) Explain CT and PT.	03
	(b) Explain piezo electric transducer.	04
	(c) Explain construction, working advantages and disadvantages of RTD with neat diagram.	07
Q.5	(a) Explain digital voltmeter with block diagram	03
	(b) Explain harmonic analyzer.	04
	(c) What is Hall effect? Describe construction, working principle and applications of hall effect transducer.	07
	OR	
Q.5	(a) Explain strip chart recorders.	03
	(b) Explain block diagram of a general telemetry system	04
	(c) Explain the construction and principle of working of a L.V.D.T. Explain how the magnitude and direction of the displacement of core of L.V.D.T. detected?	07
