

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2141003

Date:15/05/2019

Subject Name: Electronics Measurement and Instrumentation

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) Define the term (i) Accuracy (ii) Precision (iii) Sensitivity	03
	(b) Define following term. (i) Average value (ii) Arithmetic mean (iii) Deviation (iv) Standard deviation	04
	(c) Describe the operation of a Kelvin's bridge.	07
Q.2	(a) Compare AC and DC bridge. Draw a Wheatstone bridge and derive equation for unknown resistance.	03
	(b) Describe the working of digital frequency meter with schematic block diagram.	04
	(c) Draw and explain the working of true RMS responding voltmeter.	07
OR		
Q.3	(c) Explain with the help of neat diagram, the working of a vector impedance meter.	07
	(a) What are the advantages of dual trace over dual beam CROs for multiple trace?	03
	(b) List the various controls on the front panel of the pulse generator. Mention their uses.	04
(c) Draw the basic block diagram of an oscilloscope and explain the functions of each block.	07	
OR		
Q.3	(a) What principle is employed for the operation of a function generator?	03
	(b) Explain the working of a standard sweep generator with a diagram.	04
	(c) Explain salient features of Maxwell's induction capacitance bridge. Draw phasor diagram and derive balance equation.	07
Q.4	(a) Define transducer. List five physical quantities that transducer measures.	03
	(b) Explain the operating principal of an LVDT.	04
	(c) Describe the working of frequency synthesizer with schematic block diagram.	07
OR		
Q.4	(a) List the application of Digital Storage Oscilloscope.	03
	(b) Draw the block diagram of square wave pulse generator.	04
	(c) List various types of temperature transducers and describe the application of each.	07
Q.5	(a) Explain the principal of Hall Effect.	03
	(b) What are the important factors that decide the configuration and sub system of a DAS.	04
	(c) Where are sample and hold circuits used? Sketch the circuit arrangement along with output waveforms and discuss briefly the operation of the circuit.	07
OR		
Q.5	(a) Explain the measurement of phase difference using X-OR.	03
	(b) Explain Piezo electrical transducer.	04
	(c) Explain with a neat diagram the working of a single DAS and give example.	07
