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	
	(c)	Explain with the help of neat diagram, the working of a vector impedance meter.	**07**
Q.3	**(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**

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