Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – WINTER 2018

Subject Code:2141003 **Date:01/12/2018**

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		**Fill in the blanks**	**14**
	1	The repeat accuracy of an instrument can be judged from its _____ of error.	
	2	A _____ device prevents the oscillation of the moving system and enables the latter to reach its final position quickly.	
	3	A _____ is a passive transducer and is employed for converting mechanical displacement into a change of resistance.	
	4	LVDT windings are wound on _____ material.	
	5	A permanent magnet moving coil instrument can be used as _____ by using a low resistance shunt.	
	6	A null type of bridge with DC excitation is commonly known as _____ bridge.	
	7	Storage oscilloscope operates on _____ principle.	
	8	To avoid the effect of _____ in AC bridges we can use magnetic screening.	
	9	To measure the flux, devices used are based on _____ effect.	
	10	A spectrum analyzer is used to measure _____ .	
	11	_____ shape signals are generated by Wien-bridge oscillators.	
	12	Most suitable material for a thermocouple is _____ .	
	13	Focusing and accelerating anodes are of _____ shape.	
	14	_____ technique is most widely used in the single channel data acquisition system.	
Q.2	**(a)**	Define: (1) Sensitivity, (2) Reproducibility, (3) Repeatability.	**03**
	(b)	Give the difference between Systematic error and Random error.	**04**
	(c)	What are the difficulties associated with low resistance measurement? Explain working principle of Kelvin's double bridge.	**07**
		OR	
	(c)	Elaborate the Maxwell's induction-capacitance bridge and give its advantages and disadvantages.	**07**
Q.3	**(a)**	What is deflection defocusing and its causes?	**03**
	(b)	Why phosphor screen is provided with an aluminum layer in Cathode Ray Tube?	**04**
	(c)	Explain Digital frequency meter.	**07**
		OR	
Q.3	**(a)**	Define: (1) gating error, (2) time base error, (3) trigger level error.	**03**
	(b)	Explain constant current mode and constant voltage mode with respect to Vector impedance meter.	**04**
	(c)	Draw and explain neat schematic diagram of Cathode Ray Tube.	**07**
Q.4	**(a)**	Write advantages of Wien Bridge Oscillator.	**03**
	(b)	Explain the two types of delay line in CRO.	**04**
	(c)	Explain the sweep frequency generator.	**07**

OR

Q.4	**(a)**	Give applications of Wave analyzer.	**03**
	(b)	Compare standard signal generator with modern signal generator.	**04**
	(c)	Explain Resistance Temperature Detector and its lead compensation method.	**07**
Q.5	**(a)**	What are the piezoresistive and piezoelectric effects?	**03**
	(b)	What is Lock-in amplifier?	**04**
	(c)	Elaborate Hall-effect transducer.	**07**

OR

Q.5	**(a)**	Note the importance any three components of Digital Acquisition System.	**03**
	(b)	What are the advantages of opto-couplers?	**04**
	(c)	Explain principle, operation, working, applications of LVDT.	**07**

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