Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 3131706 Date: 30/11/2019

Subject Name: Measurement and 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)**	Demonstrate Indicating type instruments.	**03**
	(b)	Compare: Accuracy and Precision with example.	**04**
	(c)	Explain Loading effect and its elimination in AC and DC Meters.	**07**
Q.2	**(a)**	What is transformer? Write down types and application of transformers.	**03**
	(b)	Explain frequency measurement using Zero beat frequency meter.	**04**
	(c)	Explain working principle of PMMC meter in detail with its neat diagram.	**07**
		OR	
	(c)	Explain Digital multimeter with its block diagram.	**07**
Q.3	**(a)**	Explain RS 232C Standards in brief	**03**
	(b)	Obtain Lissajous pattern using CRO in X-Y mode for frequency measurement of 2:1, 3:1, 3:2 & 4:1 with its procedure & Waveform.	**04**
	(c)	Explain block diagram of CRO with function of each block in details.	**07**
		OR	
Q.3	**(a)**	Identify different techniques for measurement of medium resistance. Explain any one in detail.	**03**
	(b)	Find resistance values for Ayrton shunt to provide an ammeter with current ranges of 1 A, 5 A and 10 A. A basic PMMC meter with an internal resistance of 50 Ohm and a full scale deflection current of 1 mA is to be used	**04**
	(c)	Explain Kelvin double bridge for low resistance measurement with neat diagram	**07**
Q.4	**(a)**	Explain Electronic Timers.	**03**
	(b)	Explain Hay's bridge method to measure unknown Inductance.	**04**
	(c)	Explain Schering bridge method to measure unknown capacitance with its circuit diagram and calculations.	**07**
		OR	
Q.4	**(a)**	Explain Distortion Analyzer with example.	**03**
	(b)	Explain Sweep frequency generator.	**04**
	(c)	Explain Universal Timer-Counter with its block diagram.	**07**
Q.5	**(a)**	Explain Conductive coupling interference with example.	**03**
	(b)	What is Inductive Interference? Explain How it can be reduced.	**04**
	(c)	What is Current transformer? Explain its working with construction diagram.	**07**
		OR	
Q.5	**(a)**	Explain Ground level interference in brief.	**03**
	(b)	Explain Power factor measurement using Analog meter.	**04**
	(c)	Explain 3 – Phase Power measurement using 2 watt meter method with necessary diagrams.	**07**

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