Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2162005 Date:16/05/2019

Subject Name:Electro Mechanical Measurements & 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	**(a)**	Explain static correction.	**03**
	(b)	Differentiate between Reproducibility and Repeatability.	**04**
	(c)	Explain how the current and voltage range of PMMC type instruments extended with the help of shunts and multipliers and draw neat sketches.	**07**
Q.2	**(a)**	Define: Accuracy, Transducer and See back Effect.	**03**
	(b)	Compare Quarter bridge and Half bridge circuits for resistive strain gauges.	**04**
	(c)	Classify the errors in measurement with its remedies.	**07**
		OR	
	(c)	Explain the “Fall of Potential” method for measurement of earth resistance with neat sketch.	**07**
Q.3	**(a)**	Define: (1) Hysteresis (2) Threshold (3) Sensitivity.	**03**
	(b)	Explain the following terms with neat sketch. (1) Overshoot (2) Fidelity	**04**
	(c)	Differentiate between mechanical and electrical instruments.	**07**
		OR	
Q.3	**(a)**	Explain Drift with suitable examples.	**03**
	(b)	Formulate the governing equation for a second order system with spring-mass and damping	**04**
	(c)	Explain Seismic Transducer.	**07**
Q.4	**(a)**	What is Piezoelectric effect?	**03**
	(b)	A strain gauge bridge consists of two fixed 100 Ω resistor, one active gauge and one unstained temperature compensating gauge connected in adjacent arms. The two gauge have an unstrained resistance of 100 Ω each and a G.F = 2.1.calculate the strain which would be represented by 80000 Ω calibraium resistance.	**04**
	(c)	Classify Telemetry system also explain current telemetering system and draw block diagram of general telemetry system.	**07**
		OR	
Q.4	**(a)**	Define passive and active transducers with example.	**03**
	(b)	Discuss any one application of D.C. potentiometer.	**04**
	(c)	Discuss the advantages and disadvantages of LVDT/RVDT with its remedies.	**07**
Q.5	**(a)**	Explain briefly Voltage-Current characteristic of thermistor.	**03**
	(b)	Explain Electrical Tachometer.	**04**
	(c)	Briefly explain zero, first and second order systems giving suitable examples and governing equations.	**07**
		OR	
Q.5	**(a)**	What is load cell?	**03**
	(b)	Explain mechanical tachometer with neat sketch.	**04**
	(c)	Discuss the importance of A/D and D/A circuits in digital data acquisition system.	**07**

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