GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–IV (NEW) EXAMINATION – WINTER 2020

Subject Code: 3141901   **Date:09/02/2021**

Subject Name: Mechanical Measurement and Metrology

Time:02:30 PM TO 04:30 PM   **Total Marks:56**

Instructions:
1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	What do you understand by measurement?	**03**
	(b)	What is the difference between Line standard and End standard?	**04**
	(c)	State various sources of errors. What are the difference between systematic error and random error?	**07**
Q.2	**(a)**	Explain the term range and sensitivity.	**03**
	(b)	What is tolerance? Why tolerance are specified?	**04**
	(c)	Define fit. Describe various types of fits.	**07**
Q.3	**(a)**	Give the classification of comparators.	**03**
	(b)	Explain Dial indicator.	**04**
	(c)	Explain with neat diagram, working principle and application of Sigma comparator.	**07**
Q.4	**(a)**	Give the classification of threads.	**03**
	(b)	Explain various forms of gear teeth.	**04**
	(c)	Describe the construction and working of Tool maker's microscope.	**07**
Q.5	**(a)**	Differentiate: Precision and accuracy.	**03**
	(b)	Explain the term hysteresis and repeatability.	**04**
	(c)	Explain the two-wire method of measuring the effective diameter of a screw thread.	**07**
Q.6	**(a)**	Write the advantages of lazers.	**03**
	(b)	Describe LVDT giving its advantages, limitations & field of applications.	**04**
	(c)	Write a short note on Cathode ray Oscillographs.	**07**
Q.7	**(a)**	Explain slip gauges.	**03**
	(b)	Explain rope brake dynamometer.	**04**
	(c)	Explain McLeod gauge with a diagram.	**07**
Q.8	**(a)**	Give the classification of instruments for pressure measurement.	**03**
	(b)	Explain the principle of electrical Strain gauges	**04**
	(c)	Explain the principles of thermocouples stating an illustrations.	**07**

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