Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2141901 Date:05/12/2018

Subject Name:Mechanical Measurement & Metrology

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.**

Q.1	**(a)**	Explain working principle of Piezoelectric Accelerometer with neat sketch.	**03**
	(b)	Differentiate the term (1) Limit and Span (2) Reproducibility and Repeatability	**04**
	(c)	Explain Generalized Measurement System using suitable example.	**07**
Q.2	**(a)**	State the working principal of Vernier Caliper. How least count of Vernier caliper can be calculated?	**03**
	(b)	Define Thermometric Fluid. List name of Thermometric fluid. State Characteristics of good Thermometric fluid	**04**
	(c)	Explain micrometer Screw with neat sketch, working principle, Construction and Least count.	**07**
		OR	
	(c)	Explain the procedure to measure angle using Sinbar table and state it's limitation.	**07**
Q.3	**(a)**	Differentiate Accuracy & Precision	**03**
	(b)	Write a short note on Errors in Screw Thread.	**04**
	(c)	Explain Constant chord method for gear tooth measurement.	**07**
		OR	
Q.3	**(a)**	Give comparision between involute and cycloidal gears.	**03**
	(b)	Distinguish between Primary, Secondary, Tertiary and working standards of length.	**04**
	(c)	Explain Three wire method for screw thread measurement.	**07**
Q.4	**(a)**	Explain surface texture characteristics.	**03**
	(b)	Explain adverse effect of poor surface finish.	**04**
	(c)	Classify torque and power measurement techniques. Explain torsion bar dynamometer.	**07**
		OR	
Q.4	**(a)**	Define Errors & Classify the Errors.	**03**
	(b)	Write a Short note on LVDT.	**04**
	(c)	Sketch and describe the construction and working of Tomlinson surface roughness tester.	**07**
Q.5	**(a)**	Explain Eddy current Dynamometer.	**03**
	(b)	Write short note on Optical Flat.	**04**
	(c)	Classify the Comparators and explain Sigma Comparators with neat sketch.	**07**
		OR	
Q.5	**(a)**	Explain the calibration of Thermometer.	**03**
	(b)	Write short note on LVDT with respect to force measurement	**04**
	(c)	Explain Tool Maker's Microscope with neat sketch.	**07**

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