

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022

Subject Code:3141901

Date:23-06-2022

Subject Name:Mechanical Measurement and Metrology

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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Discuss the factors relating the selection of instruments.	03
	(b) Differentiate (1) Accuracy and Precision (2) Reproducibility and Repeatability	04
	(c) Define Transducer and Transfer efficiency. Classify the Transducer in Details.	07
Q.2	(a) Explain the Source of errors in Micrometer.	03
	(b) Differentiate between following Instruments : (1) Sine bar (2) Sine center	04
	(c) Describe Hole Basis System and Shaft Basis System.	07
OR		
	(c) State different types of Fits and Explain it with neat sketch.	07
Q.3	(a) Explain Strain gauge sensitivity factor with its significance.	03
	(b) Explain Maximum Material Condition and Least Material Condition with suitable example.	04
	(c) Write a short note on Surface roughness symbols.	07
OR		
Q.3	(a) Define Surface texture with necessary sketch.	03
	(b) Explain sigma comparator	04
	(c) Explain the 3 wire method for Screw thread Measurement.	07
Q.4	(a) Explain the International Temperature Scale with all the important standard points.	03
	(b) State the full form of LASER. Explain the principles of LASER Based Interferometer.	04
	(c) Explain the generalized measurement system with neat sketch.	07
OR		
Q.4	(a) Define the Temperature compensation. Explain the Temperature Compensation in Liquid filled Thermometer.	03
	(b) Write a Short note on Angle dekkor.	04
	(c) What unit is used to measure Vacuum? Explain any one instruments used to measure vacuum.	07
Q.5	(a) State the full name of LVDT. Explain the Principle of LVDT with neat sketch.	03
	(b) Write a short note on RTD.	04
	(c) State vernier Principle. Explain the vernier caliper with construction, Least count, and methods of measurement.	07

OR

- Q.5** (a) Explain any three Elements of Screw threads. **03**
(b) Write a short note on Prony Brake Dynamo meter **04**
(c) How Gear tooth is measured by using Gear tooth vernier caliper? **07**

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