

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:2141901****Date: 06-02-2024****Subject Name: Mechanical Measurement & 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) Define: (i) Precision (ii) Accuracy	03
	(b) Explain the working principal of Pneumatic comparators with a neat sketch.	04
	(c) Describe errors and sources of errors.	07
Q.2	(a) Draw a sketch of Vernier Caliper and label its important parts.	03
	(b) What is the importance of surface finish? List mechanical components where surface finish is very important.	04
	(c) Write a short note on Auto collimator.	07
	OR	
	(c) Explain the proving ring with neat sketch.	07
Q.3	(a) State the applications of seismic accelerometer.	03
	(b) Explain Radiation Pyrometer.	04
	(c) Write a note on the Parkinson Gear Tester.	07
	OR	
Q.3	(a) Define the following terms related to screw thread (i)Effective diameter (ii) Number of start (iii) Depth of thread	03
	(b) State the working of liquid in glass thermometer.	04
	(c) Sketch and describe the construction and working of Piezo Electric accelerometer with neat sketch. Also state advantages and limitations.	07
Q.4	(a) Explain Indirect Method of measurement.	03
	(b) Briefly explain working of rotameter as flow measuring device with a neat sketch.	04
	(c) What is CMM? Explain different configuration of CMM with neat sketch.	07
	OR	
Q.4	(a) List out various characteristics of good comparators.	03
	(b) Write Short note on Surface roughness symbols.	04
	(c) What is LVDT device? Explain construction and working of LVDT with neat sketch, Mention its advantages and limitations.	07
Q.5	(a) What is Interferometry? Enlist the variety of light source used for Interferometry.	03
	(b) Explain calibration process in brief.	04
	(c) Explain surface texture and elements of surface roughness.	07
	OR	
Q.5	(a) What is a 'Peltier effect' in thermocouple?	03
	(b) Explain wringing process of slip gauges.	04
	(c) Explain with neat sketch in details Tool maker's Microscope.	07
