

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019****Subject Code: 2143402****Date: 13/12/2019****Subject Name: Metrology and Computer Aided Inspection****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) Define calibration & its need.	03
	(b) Define Accuracy & Precision.	04
	(c) Define standard & its types.	07
Q.2	(a) State necessity and objectives of metrology.	03
	(b) Write short note on maintenance of measuring instrument.	04
	(c) Describe the different types of errors in measurement and their causes.	07
OR		
Q.3	(c) Explain the construction and working of a Vernier Caliper.	07
	(a) Explain use of height gauge with neat sketch.	03
	(b) Explain working principle of Micrometer with neat sketch.	04
	(c) Name the different types of the Comparators and explain Sigma Comparators with neat sketch.	07
OR		
Q.3	(a) Write short note on Limit Gauge.	03
	(b) Define flatness. How it is to be measured.	04
	(c) Write the terminology used for surface roughness with simple sketch.	07
Q.4	(a) Define straightness, roundness & circularity.	03
	(b) Explain various forms of Gear teeth.	04
	(c) Explain principle of Auto-collimator with sketch.	07
OR		
Q.4	(a) Write the principle of light interference.	03
	(b) Explain construction & working principle of optical microscope.	04
	(c) Explain & draw the schematic arrangement of Laser Interferometer.	07
Q.5	(a) Write the types of coordinate measuring machine.	03
	(b) Explain the principle of Nano-metrology.	04
	(c) Explain in brief about any one CMM with neat sketch.	07
OR		
Q.5	(a) Write short note computer aided inspection.	03
	(b) Write application & advantage of CMM.	04
	(c) Explain machine vision & its application in metrology	07
