Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY

**BE – SEMESTER - IV EXAMINATION – WINTER 2015** 

	•	ject Code: 2143402 Date:30/12/	2015
	Tim	ject Name: Metrology and Computer Aided Inspection e:02.30 to 05.00 Total Marl uctions:  1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.	ks: 70
Q.1	(a)	How do you check unknown angles by using Sine Bar? Explain with neat sketch.	07
	<b>(b)</b>	How to use Tool makers Microscope for taking measurements? Explain with neat sketch.	07
Q.2	(a) (b)	Write the types of CMM. Explain the performance and advantages of CMM. Write any four characteristics for good Comparator. Classify Comparator. Explain any one comparator with neat sketch.	07 07
	<b>(b)</b>	OR How do you surface finish by using Tomlinson surface meter? Explain with neat sketch.	07
Q.3	(a) (b)	Write short notes on following Errors in Measurement: Static Error, Environmental Error & Loading Error.  Illustrate the distinction between Accuracy & Precision with suitable sketch.	07 07
	(0)	OR	U7
Q.3		Write the types of Limit gauges used for gauging internal diameters. Explain any two with sketch.	07
	<b>(b)</b>	What do you mean by Wringing of Slip gauges? Write the procedure for Wringing. Write any four applications of Slip gauges.	07
Q.4	(a) (b)	Draw and explain the various components of Optical Bevel Protector. How do you measure Linear measurements by using Vernier Caliper? Explain	07
		with neat sketch.  OR	07
Q.4	(a)	Explain the Principle of Autocollimator. Explain, how you measure surface flatness by using Angle Dekkor?	07
	<b>(b)</b>	Explain and draw the schematic arrangement of Laser Interferometer.	07
Q.5	(a)	What is Nano metrology? Explain Scanning Probe Microscopy (SPM) in Nano Metrology.	07
	<b>(b)</b>	What is Machine Vision System? Explain the Principle of working with suitable sketch.	07
0.5	(-)	OR	07
Q.5	(a) (b)	Write short notes on Computer Aided Inspection.  Explain in detail about Cantilever type CMM with neat sketch.	07 07

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