Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2015

Subject Code: 2143402 **Date:01/06/2015**

Subject Name: Metrology and Computer Aided Inspection

Time: 10:30am-1.00pm **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)**	Differentiate between systematic error and random error.	**07**
	(b)	State necessity and objectives of metrology. Also explain in brief precision and accuracy.	**07**
Q.2	**(a)**	Name the different types of the Comparators and explain Sigma Comparators with neat sketch.	**07**
	(b)	Explain the construction and working of Vernier Bevel protractor.	**07**
		OR	
	(b)	Explain Slip Gauges.	**07**
Q.3	**(a)**	Explain with the help of neat sketches the principle and construction of an auto-Collimator.	**07**
	(b)	Explain Gear Tooth Vernier Caliper.	**07**
		OR	
Q.3	**(a)**	Explain Profilometer with neat sketch.	**07**
	(b)	Define flatness. How it is to be measured? Explain.	**07**
Q.4	**(a)**	Explain the construction and working principle of Tool makers microscope.	**07**
	(b)	Write a short note on Laser Interferometers.	**07**
		OR	
Q.4	**(a)**	Briefly explain the working principle of Laser.	**07**
	(b)	Explain the construction and working principle of Optical microscope.	**07**
Q.5	**(a)**	Explain the types of Coordinate measuring machine.	**07**
	(b)	State applications of Machine Vision in Metrology.	**07**
		OR	
Q.5	**(a)**	Explain the principle of Nanometrology.	**07**
	(b)	State applications and advantages of CMM.	**07**

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