## **GUJARAT TECHNOLOGICAL UNIVERSITY** ME- SEMESTER II– EXAMINATION – SUMMER 2015

## Subject Code: 2722809Date: 01/06/2015Subject Name: METROLOGY AND COMPUTER AIDED INSPECTIONTime: 2:30 PM - 5:00 PMTotal Marks: 70

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

Q.1	(a) (b)	Define linear measurement. Explain in brief about Vernier caliper with sketch. Write the different terminology used in surface roughness. Describe any four terminologies.	07 07
Q.2	<b>(a)</b>	Define Error in measurement. Write the types of Error and explain about any	07
	(b)	Write the Sine Principle. Explain how to find unknown angle by using the sine Principle with sketch.	07
	(b)	<b>OR</b> Explain with a neat sketch Tomlinson surface recorder? Explain the construction of it.	07
Q.3	(a) (b)	Define comparator. Explain sigma comparator with a neat sketch. Write short note on õLASER Interferometerö	07 07
Q.3	(a)	Explain alignment test on machine tools using LASER. Why they are necessary.	07
	(b)	State the basic principle of LASER. Discuss use of LASER in metrology.	07
Q.4	(a) (b)	Describe the operating principle of a color sensor and its industrial application. Write the working principle of machine vision system. List out the function of machine vision.	07 07
		OR	
Q.4	(a) (b)	List out main types of CMM. Elaborate the working principle of CMM. Explain calibration process of CMM. Enlist application, advantages and limitations of CMM.	07 07
Q.5	<b>(a)</b>	Describe the Classification of microwave sensing technology. Discuss the characteristics of microwave Sensors.	07
	(b)	Write short note on Proximity Sensor. Enlist the typical application of inductive proximity sensors.	07
		OR	
Q.5	(a)	Define sensor. Explain basic operating principle of sensor with a schematic diagram.	07
	<b>(b)</b>	Explain the operating principle of capacitive proximity sensor and discuss the major characteristics of it.	07

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