GUJARAT TECHNOLOGICAL UNIVERSITY PDDC - SEMESTER-II • EXAMINATION – SUMMER 2013

Subject Code: X21903 Date: 13-06-2013

Subject Name: Mechanical Measurement & Metrology

Time: 02.30 pm - 05.00 pm 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)	Define Measurement and Metrology. State the necessity of metrology.	07
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		Explain the role of different standards.	
	(b)	How is the vernier micrometer better than vernier caliper or micrometer?	07
Q.2	(a)	What is a sine center? Briefly describe its use and limitations.	07
	(b)	What is the use of telescopic gauge? Explain its constructional features	07
		and applications in the industries.	
		OR	
	(b)	Discuss the construction and working of vernier bevel protector with neat	07
		sketch.	
Q.3	(a)	Explain the three wire method to measure the effective diameter of screw	07
		thread.	
	(b)	Explain the alignment test on lathe machine with neat sketch.	07
		OR	
Q.3	(a)	Explain Parkinson gear tester with a neat sketch.	07
	(b)	Explain pneumatic comparator and state the advantages and	07
		disadvantages.	
Q.4	(a)	Define the following terms	07
		(1)Threshold (2) Sensitivity (3) Hysteresis (4) Precision	
		(5) Dead zone (6) Drift (7) Reproducibility	
	(b)	Discuss the static characteristics of the instrument briefly.	07
		OR	
Q.4	(a)	Explain working principle of rope brake dynamometer.	07
Q.4	(b)	Explain the procedure to measure the speed of given shaft with help of	07
		flushing stroboscope.	
Q.5	(a)	Explain working principle of bimetallic thermometer with neat sketch.	07
		Also state its working range and application.	
	(b)	Explain the calibration of pressure measuring instrument briefly.	07
		OR	
Q.5	(a)	State advantages and limitations of manometers & state the ideal	07
		Characteristics of manomatric liquid.	
	(b)	Discuss the construction and working of RTD with neat sketch.	07