

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV(New) EXAMINATION – SUMMER 2016

Subject Code:2141901

Date:03/06/2016

Subject Name:Mechanical Measurement & Metrology

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	Short Questions	14
	1 Define (i) Precision (ii) Accuracy	
	2 List out various sources of errors in measurement.	
	3 Explain Indirect Method of measurement.	
	4 Define Least count of an instrument with example.	
	5 State the different use of Telescopic gauge.	
	6 Define Comparators.	
	7 Define following terms related to screw thread measurement: (i) Lead, (ii) Pitch, (iii) Crest	
	8 Define Pitch circle diameter.	
	9 Define terms: (i) Primary texture (ii) Secondary Texture.	
	10 Explain Dead zone and Drift.	
	11 List out different standards to calibrate thermocouple.	
	12 Give the classifications of Tachometers.	
	13 Define: (i) Resolution (ii) Threshold.	
	14 Explain Range and Span	
Q.2	(a) Explain any one Method used for force measurement.	03
	(b) Explain Radiation Pyrometer.	04
	(c) Describe construction, working principle and applications of Vernier height gauge.	07
	OR	
	(c) Describe with sketch the construction and working of sigma comparator.	07
Q.3	(a) Explain construction and applications of Micrometer clinometer.	03
	(b) List out various elements to be checked for accuracy of gear and describe any two.	04
	(c) Explain pneumatic comparator and state the advantages and disadvantages	07
	OR	
Q.3	(a) List out various characteristics of good comparators.	03
	(b) Explain proving ring with sketch.	04
	(c) Discuss the gear tooth terminology with neat sketch.	07
Q.4	(a) Write a short note on: Spirit level	03
	(b) Explain hemispherical bore gauge with applications.	04
	(c) Discuss the elements of screw thread with neat sketch.	07
	OR	
Q.4	(a) Explain adverse effect of poor surface finish.	03
	(b) Write a short note on: International temperature scale (ITS).	04

- (c) Explain the construction and working of bourdon tube pressure gauge with neat sketch. 07

- Q.5
 - (a) List out the various applications of Bimetallic thermometer. 03
 - (b) Why sine bar is not preferred for angles greater than 45⁰? Explain. 04
 - (c) Discuss the construction and working of thermocouple with neat sketch. 07

- OR**

- Q.5
 - (a) Explain Light wave length standard. 03
 - (b) Explain the flash light stroboscope. 04
 - (c) Explain optical pyrometer with neat sketch. 07
