Seat No.:	Enrolment No.

Subject Code:2141901

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-IV(New) EXAMINATION - SUMMER 2016

Date:03/06/2016

Tir	_	Name:Mechanical Measurement & Metrology 0:30 AM to 01:00 PM Total Mark ns:	xs: 70
	1.	Attempt all questions.	
	3.	Figures to the right indicate full marks.	
			MARKS
Q.1		Short Questions	14
Ų.1	1	Define (i) Precision (ii) Accuracy	17
	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>(b)</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>V.</b>	(b)	List out various elements to be checked for accuracy of gear and	04
	(6)	describe any two.	0-1
	(c)	Explain pneumatic comparator and state the advantages and	07
	(0)	disadvantages	07
		OR	
Q.3	(a)	List out various characteristics of good comparators.	03
Q.J	( <b>a</b> ) ( <b>b</b> )	Explain proving ring with sketch.	03
		Discuss the gear tooth terminology with neat sketch.	07
	(c)	Discuss the gear tooth terminology with heat sketch.	U7
<b>Q.4</b>	(a)	Write a short note on: Spirit level	03
	<b>(b)</b>	Explain hemispherical bore gauge with applications.	04
	<b>(c)</b>	Discuss the elements of screw thread with neat sketch.	07
		OR	
<b>Q.4</b>	(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>(b)</b>	Why sine bar is not preferred for angles greater than 45 <sup>0</sup> ? 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>(b)</b>	Explain the flash light stroboscope.	04
	(c)	Explain optical pyrometer with neat sketch.	07

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