

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019****Subject Code: 2141901****Date: 13/12/2019****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 (a) State necessity and objectives of metrology.	03
(b) Differentiate following terms: i) Accuracy and precision ii) Repeatability and Reproducibility	04
(c) Describe errors and sources of errors.	07
Q.2 (a) What precaution should be taken while using micrometer.	03
(b) Write a short note on : Spirit level	04
(c) Explain the construction and working of a Vernier Caliper.	07
OR	
(c) Explain the followings: i) Mechanical strain gauges ii) Gauge factor	07
Q.3 (a) Write application and limitation of angle gauges.	03
(b) Explain Proving ring with sketch.	04
(c) Describe with sketch the construction and working of a RTD. Give advantages and disadvantages of RTD.	07
OR	
Q.3 (a) What is a 'Peltier effect' in thermocouple?	03
(b) Explain hemispherical bore gauge with applications.	04
(c) What are absorption dynamometers? Explain any one with a neat sketch.	07
Q.4 (a) List out various characteristics of good comparators	03
(b) Write a short note on seismic accelerometer.	04
(c) Explain Tool maker's Microscope.	07
OR	
Q.4 (a) Write the advantages of Coordinate measuring machines	03
(b) Explain Liquid in glass Thermometer.	04
(c) Explain the construction and working of LVDT with its advantage and disadvantages.	07
Q.5 (a) Explain surface texture characteristics.	03
(b) Explain adverse effect of poor surface finish.	04
(c) Explain Two wire method for measuring effective diameter of thread.	07
OR	
Q.5 (a) Give comparison between involute and cycloidal gears.	03
(b) Explain Parkinson gear tester with neat sketch.	04
(c) Sketch and describe the construction and working of Tomlinson surface roughness tester.	07
