

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2020

Subject Code: 3141901

Date:09/02/2021

Subject Name: Mechanical Measurement and Metrology

Time:02:30 PM TO 04:30 PM

Total Marks:56

Instructions:

- 1. Attempt any FOUR questions out of EIGHT questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1**
- (a) What do you understand by measurement? **03**
 - (b) What is the difference between Line standard and End standard? **04**
 - (c) State various sources of errors. What are the difference between systematic error and random error? **07**
- Q.2**
- (a) Explain the term range and sensitivity. **03**
 - (b) What is tolerance? Why tolerance are specified? **04**
 - (c) Define fit. Describe various types of fits. **07**
- Q.3**
- (a) Give the classification of comparators. **03**
 - (b) Explain Dial indicator. **04**
 - (c) Explain with neat diagram, working principle and application of Sigma comparator. **07**
- Q.4**
- (a) Give the classification of threads. **03**
 - (b) Explain various forms of gear teeth. **04**
 - (c) Describe the construction and working of Tool maker's microscope. **07**
- Q.5**
- (a) Differentiate: Precision and accuracy. **03**
 - (b) Explain the term hysteresis and repeatability. **04**
 - (c) Explain the two-wire method of measuring the effective diameter of a screw thread. **07**
- Q.6**
- (a) Write the advantages of lasers. **03**
 - (b) Describe LVDT giving its advantages, limitations & field of applications. **04**
 - (c) Write a short note on Cathode ray Oscillographs. **07**
- Q.7**
- (a) Explain slip gauges. **03**
 - (b) Explain rope brake dynamometer. **04**
 - (c) Explain McLeod gauge with a diagram. **07**
- Q.8**
- (a) Give the classification of instruments for pressure measurement. **03**
 - (b) Explain the principle of electrical Strain gauges **04**
 - (c) Explain the principles of thermocouples stating an illustrations. **07**
