

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(OLD) – EXAMINATION – SUMMER 2019

Subject Code:141901

Date:17/05/2019

Subject Name: Mechanical Measurement & Metrology

Time:02:30 PM TO 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 and Explain following terms: **07**
(i) Accuracy and Precision (ii) Error (iii) Threshold.
- (b) Explain the construction and use of the Sine bar. **07**
- Q.2** (a) Explain construction and working of LVDT. **07**
(b) Explain pneumatic comparator and state the advantages and disadvantages. **07**
- OR**
- (b) Describe followings with neat sketch. **07**
(i) Slip Gauge (ii) Dial Indicator.
- Q.3** (a) Explain three wire method to measure the effective diameter of given screw thread with neat sketch. **07**
(b) List and explain characteristics of measuring devices stating illustrations. **07**
- OR**
- Q.3** (a) What are the various possible sources of errors in measurement? Define static error and explain any two static errors with example. **07**
(b) Describe with sketch the construction and use of Gear Tooth Vernier Caliper. How is the gear tooth thickness at PCD measured? **07**
- Q.4** (a) Explain Surface Texture and Elements of Surface Roughness. **07**
(b) Describe construction and working of Optical pyrometer. **07**
- OR**
- Q.4** (a) Define Flatness and describe a method to find out the flatness of a surface plate. **07**
(b) Describe the construction and working of resistance temperature detector (RTD) with its advantages and disadvantages. **07**
- Q.5** (a) Explain with sketch, construction and working of Piezometer & U-Tube Manometer stating application. **07**
(b) Explain construction and working of vibrating reed tachometer. **07**
- OR**
- Q.5** (a) Explain briefly the construction and working of bourdon tube pressure gauge. **07**
(b) Explain working principle of Stroboscope. And list steps to measure angular speed of shaft using stroboscope. **07**
