

**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. **07**  
How is the gear tooth thickness at PCD measured?
- 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**

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