

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015****Subject Code:2141901****Date:30/12/2015****Subject Name: Mechanical Measurements & Metrology****Time: 2:30pm to 5:00pm****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) Explain the construction and working of a Vernier Caliper.. **07**  
(b) State necessity and objectives of metrology. Also explain in brief precision and accuracy. **07**

- Q.2** (a) Enlist methods of measurements. Explain Slip gauges with wringing process. **07**  
(b) Explain briefly: **07**  
1) Telescopic Gauge  
2) Dial Bore Gauge

**OR**

- (b) Classify the Comparators and explain Sigma Comparators with neat sketch. **07**
- Q.3** (a) Describe with neat sketch the construction and working of Vernier bevel protractor. **07**  
(b) Explain various forms of Gear teeth and explain Gear tooth vernier caliper with neat sketch. **07**

**OR**

- Q.3** (a) Give the classification of threads. Explain the two-wire method of measuring the effective diameter of a screw thread. **07**  
(b) Explain with the help of neat sketches the principle and construction of an auto-Collimator. **07**

- Q.4** (a) Describe with sketch the construction and working of a RTD. Give advantage and disadvantage of RTD. **07**  
(b) Describe with sketch bimetal strip thermometer stating salient features. **07**

**OR**

- Q.4** (a) Sketch and describe the construction and working of Bellows pressure gauge. **07**  
(b) Explain the construction and working of LVDT with its advantage and disadvantages. **07**

- Q.5** (a) Explain the followings: **07**  
i) Optical strain gauges  
ii) Gauge factor  
(b) Explain the construction and working principle of Rotameter. **07**

**OR**

- Q.5** (a) Give the detail classification of Tachometer and explain briefly photoelectric generator. **07**  
(b) Explain the working principle of Ionization gauge with advantages and disadvantages **07**

