

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

