

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016**

**Subject Code: 170204****Date: 25/11/2016****Subject Name: Automobile Mechanical Measurements****Time: 10:30 AM to 01:00 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) State the various sources of errors. What are the difference between systematic errors and random errors? **07**
- (b) Differentiate between unilateral and bilateral tolerances. Explain the following fits with neat sketch: **07**
- (1) Clearance Fit  
(2) Interference Fit  
(3) Transition Fit
- Q.2** (a) Describe with sketch the construction & working of a micrometer. Explain how least count is found? **07**
- (b) Define Straightness. State the methods for measurement of Straightness. **07**
- OR**
- (b) Define the following with reference to surface texture: **07**
- (i) C.L.A. (ii) R.M.S. (iii) Peak to valley height.
- Q.3** (a) Explain in brief: Bourdon tube pressure gauge. **07**
- (b) Explain with neat sketch. What are the characteristics of an optical pyrometer? **07**
- OR**
- Q.3** (a) Explain the constructional features and basic principles of McLeod gauge used for low pressure measurements. **07**
- (b) Describe with sketch bimetal strip thermometer stating salient features. **07**
- Q.4** (a) Explain all the Elements of Generalized measurement systems. **07**
- (b) Explain Screw Thread measurement using two wire methods. **07**
- OR**
- Q.4** (a) Explain Gear Tooth Thickness measurement using vernier gear tooth caliper with a neat sketch. **07**
- (b) Explain Angle dekkor with neat sketch stating applications of it. **07**
- Q.5** (a) Explain the construction and working principle of Rotameter. **07**
- (b) Describe with sketch the construction and working of an Optical bevel protractor. **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**

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