

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – SUMMER 2016

Subject Code:141901**Date:03/06/2016****Subject Name:Mechanical Measurement & Metrology****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.

1.
 - Q.1 (a) With the help of neat sketch, explain the working principle, construction and applications of Vernier Calliper. **07**
 - (b) Describe with sketch, working and applications of the following: **07**
 - (i) Sin bar
 - (ii) Sin center
 - Q.2 (a) What is a comparator? Explain the desirable characteristics that any comparator must possess. **07**
 - (b) State the limitations of gear tooth vernier caliper and explain the Base Tangent method to measure gear tooth thickness. **07**

OR

 - (b) (i) Explain the various factors to be considered while selecting a measuring instrument. **04**
 - (ii) State the limitations of material length standard. **03** - Q.3 (a) With the help of neat sketch , explain the three wire method to measure the effective diameter of given screw thread. **07**
 - (b) Explain the working principle and application of Solex Pneumatic comparator. **07**
- OR**
- Q.3 (a) Describe the construction and working principle of The Taylor Hobson Talysurf surface roughness tester with the help of neat sketch. **07**
 - (b) Explain the Tool Maker's microscope in detail and also state its applications. **07**
 - Q.4 (a) Explain any three alignment tests to be performed on Lathe in detail. **07**
 - (b) Explain NPL Flatness Interferometer with the help of neat sketch. **07**
- OR**
- Q.4 (a) Describe the working of a Bimetallic thermometer with the help of a neat sketch. **07**
 - (b) Explain the working principle of Total radiation pyrometer along with its advantages. **07**
 - Q.5 (a) Explain the Thermocouple Vacuum gauge in detail and also state its limitations. **07**
 - (b) Explain the construction and operation of Rope brake type absorption dynamometer. **07**
- OR**
- Q.5 (a) Explain with a neat sketch, the constructional features and basic working principle of Mcleod gauge used for the measurement of low pressure. **07**
 - (b) Define and explain the following terms: **07**
 - (i) Thershold (ii) Resolution (iii) Reproducibility (iv) Hysteresis
