

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV • EXAMINATION – WINTER • 2014

Subject Code: 143402

Date: 29-12-2014

Subject Name: Metrology and Computer Aided Inspection

Time: 02:30 pm - 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) Describe the different types of errors in measurement and their causes. **07**
(b) With suitable example, explain the difference between precision and accuracy. **07**
- Q.2** (a) What is the need of calibration? Explain the process of calibration of instruments. **07**
(b) Explain with neat sketch how a vernier caliper is used for linear measurements. **07**
- OR**
- (b) Describe with the help of neat diagram, vernier bevel protector. **07**
- Q.3** (a) With the help of neat sketch, describe the construction and working of profilometer. **07**
(b) Define straightness. Describe any one method of measuring straightness of surface. **07**
- OR**
- Q.3** (a) Describe the methods used for measuring the radius of surface. **07**
(b) Explain the different types of surface texture. **07**
- Q.4** (a) With a neat sketch, explain the working of laser interferometer. **07**
(b) Describe briefly the construction and operation of CMM. **07**
- OR**
- Q.4** (a) What are the applications of vision system in metrology? **07**
(b) List out the various probes used in CMM and explain the working principle of touch trigger probe. **07**
- Q.5** (a) Briefly explain POKA-YOKE method with a suitable sketch. **07**
(b) Explain image models and histogram models. **07**
- OR**
- Q.5** (a) Discuss about the zero defects in computer integrated quality assurance **07**
(b) Explain laser micrometer with a neat sketch. **07**
