

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC SEM-II Examination May 2012

Subject code: X21903

Subject Name: Mechanical Measurement & Metrology

Date: 25/05/2012

Time: 10.30 am – 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 principle on which Micrometer screw works and explain every part of micrometer screw with neat sketch. 07
- (b) Explain construction and working of Vernier Height gauge. 07
- Q.2** (a) Define Metrology. Write objective of metrology and explain necessity and importance of metrology. 07
- (b) How do you classify fit? Explain basis of Fit system. 07
- OR**
- (b) What is function of Mechanical comparators? Explain Dial indicator with neat sketch. 07
- Q.3** (a) Explain the following 07
- (i) Vernier Bevel protector and
- (ii) Optical Bevel protector.
- (b) Discuss the following thermometers. 07
- (i) Vapour pressure thermometer.
- (ii) Gas filled thermometer.
- OR**
- Q.3** (a) Explain measurement of the minor diameter of screw thread with neat sketch. 07
- (b) What is screw thread? Explain the following types of screw threads. 07
- (i) Square thread.
- (ii) Acme thread
- (iii) British standard Whitworth thread.
- Q.4** (a) Explain the following method for the measurement of the surface roughness. 07
- (i) Cross section method.
- (ii) Light section method
- (b) What is surface Texture? Explain primary and secondary textures. 07
- OR**
- Q.4** (a) Write different methods of measurement of Straightness. Explain The Wedge method. 07
- (b) List different Torque measurement methods and explain the Mechanical Torsion meter. 07
- Q.5** (a) Explain constant chord method to measure the gear tooth thickness and write its advantages. 07
- (b) Explain the alignment test for the Radial drilling machine. 07
- OR**
- Q.5** (a) Draw and explain U-tube differential manometer. 07
- (b) Explain McLeod gauge with neat sketch. 07
