

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: X 21903

Date: 22/01/2013

Subject Name: Mechanical Measurement & Metrology

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) What is vernier principle and explain (i) Principle of 0.1mm vernier **07**
(ii) 0.02 mm vernier.
- (b) Draw micrometer and explain it's different parts. **07**
- Q.2** (a) Explain construction and working of vernier height gauge with neat **07**
sketch.
- (b) Explain the principle of sine bar with diagram. **07**
- OR**
- (b) Explain the block spirit level and it's principle with neat sketch. **07**
- Q.3** (a) Classify different types of errors in measurement systems. **07**
(b) Explain different elements of the screw threads. **07**
- OR**
- Q.3** (a) Explain measurement of Major diameter of a screw thread by using a **07**
bench micrometer.
- (b) Explain working of Gear tooth vernier with neat sketch. **07**
- Q.4** (a) Explain surface texture and describe briefly Primary and secondary **07**
texture.
- (b) Define "straightness" and explain the Wedge method and Straight **07**
edge method for measuring straightness.
- OR**
- Q.4** (a) What is flatness? Explain beam comparator used for measuring **07**
flatness.
- Q.4** (b) Name out different alignment tests carried on the lathe and explain **07**
Parallelism of spindle axis and bed test.
- Q.5** (a) What is manometer ? Explain working of U-tube manometer with neat **07**
sketch.
- (b) What is temperature? Explain Liquid –in-glass thermometer. **07**
- OR**
- Q.5** (a) What is meaning of the static characteristics of measurement? Write **07**
the main static characteristics and explain any one.
- (b) Explain the Prony brake dynamometer for measurement of the power **07**
with neat sketch.
