

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER II- • EXAMINATION – SUMMER 2015

Subject Code: X21903**Date: 05/06/2015****Subject Name: Mechanical measurement & metrology****Time: 10:30 am to 1:00 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) Explain the construction and working of bourdon tube pressure gauge (along with tube materials) with neat sketch. **07**
 (b) (i) Explain the flash light stroboscope. (ii) Explain the diaphragm gauges in brief. **07**
- Q.2** (a) Explain the constructions and working of Mcleod gauge with neat sketch. **07**
 (b) (i) Explain the proving ring in brief. **07**
 (ii) Explain the difference between bellow gauge and diaphragm gauge.
- OR**
- (b) Explain the construction and working of standard gear tooth tester with neat sketch. **07**
- Q.3** (a) Explain the bimetallic thermometer in detail. **07**
 (b) Explain the importance of alignment test for machine tools. Briefly explain the alignment test for machine tool (Any ONE) **07**
- OR**
- Q.3** (a) Explain the thermoelectric Pyrometer in detail. **07**
 (b) (i) Write short notes on: international temperature scale (ITS). **07**
 (II) Explain flatness measurement in brief.
- Q.4** (a) Draw a block diagram of generalized measurement system (GMS) and explain the various elements of it in detail. **07**
 (b) Explain the construction and working of gear tooth Vernier caliper. How will you measure gear tooth thickness with this instrument. **07**
- OR**
- Q.4** (a) List and explain the different terms related to screw threads. Explain the difference between two wire and three wire method used for screw thread measurement. **07**
 (b) Explain the following giving suitable examples: **07**
 (i) Range and span (ii) Accuracy and precision
 (iii) Calibration (iv) Threshold and resolution
- Q.5** (a) Explain the construction and working of Vernier height gauge with neat sketch. **07**
 (b) (i) It is not perfect to use sine bar for measuring angle more than 45° why? **07**
 (ii) Explain the different surface roughness evolution methods.
- OR**
- Q.5** (a) Explain construction and working of telesurf surface roughness measuring instrument with neat sketch. **07**
 (b) Explain the construction and working with neat sketch: **07**
 (i) Telescopic gauge (ii) Universal bevel protector
