Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**PDDC - SEMESTER–II • EXAMINATION – WINTER • 2014**

**Subject Code: X21903** **Date: 01-01-2015**

**Subject Name: Mechanical Measurement and Metrology**

**Time: 02:30 pm - 05:00 pm** **Total Marks: 70**

**Instructions:**

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | State the principle of Vernier Instrument and explain briefly construction and use of vernier caliper with neat sketch | **07** |
| | **(b)** | Explain principle of sine bar with neat sketch. | **07** |
| **Q.2** | **(a)** | Describe with sketch a liquid-in-glass thermometer. Write it's applications. | **07** |
| | **(b)** | Explain construction and working of Burden tube Pressure gauge with neat sketch | **07** |
| **Q.3** | **(a)** | Explain working principle of the thermocouple with neat sketch. | **07** |
| | **(b)** | Describe three wire method to measure the effective diameter of a given screw thread. | **07** |
| **Q.4** | **(a)** | Name the various alignment test to be performed on Milling machine and describe any three. | **07** |
| | **(b)** | Explain Taylor-Hobson Talysurf surface roughness tester with neat sketch. | **07** |
| **Q.5** | **(a)** | Explain construction and working of gear tooth vernier caliper with neat sketch. | **07** |
| | **(b)** | Explain Prony Brake dynamometer with neat sketch. | **07** |
| **Q.6** | **(a)** | Explain and classify different types of errors in measurement system. | **07** |
| | **(b)** | Define straightness and explain wedge method and straight edge method for measuring straightness. | **07** |
| **Q.7** | **(a)** | List out various element of Generalized measurement system. Explain in brief function of each element. | **07** |
| | **(b)** | What is manometer ? Explain working of U-tube manometer with neat sketch. | **07** |

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