# GUJARAT TECHNOLOGICAL UNIVERSITY
## BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

**Subject Code:2142503**                    **Date:19/12/2015**
**Subject Name: Metrology and Measurement**
**Time: 2:30pm to 5:00pm**                    **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 "Generalized measurement system", in brief. | **07** |
| | **(b)** | Explain different types of measurement with example. | **07** |
| **Q.2** | **(a)** | Enlist different Temperature measuring instruments. Explain any one of them with neat sketch. | **07** |
| | **(b)** | Enlist different Torque measuring instruments. Explain any one of them with neat sketch. | **07** |
| | | **OR** | |
| | **(b)** | Explain the function of Transducer. Enlist different types of Transducer. Explain any one of them with neat sketch. | **07** |
| **Q.3** | **(a)** | Explain the need for Inspection. Explain the difference between Accuracy and Precision with neat sketch. | **07** |
| | **(b)** | Explain working principle and elements of Vernier caliper with neat sketch. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Enlist various types of linear measuring instruments. Explain working principle and elements of Micrometer with neat sketch. | **07** |
| | **(b)** | Enlist various types of angular measuring instruments. Explain working principle of Sine Bar with neat sketch. | **07** |
| **Q.4** | **(a)** | Explain the working principle of the Gear Tooth Vernier caliper with neat sketch. | **07** |
| | **(b)** | Explain the working principle of Taylor Hobson Talysurf with neat sketch. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Explain the various methods of measuring surface finish. Briefly explain any one of them with neat sketch. | **07** |
| | **(b)** | Explain the various types of Thread. Briefly explain any one of them with neat sketch. | **07** |
| **Q.5** | **(a)** | Explain the various types of Comparators. Briefly explain mechanical comparator with neat sketch. | **07** |
| | **(b)** | Explain the working principle of Bevel Protector. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain the alignment testing of gear with neat sketch. | **07** |
| | **(b)** | Briefly explain Tool Maker's Microscope. | **07** |

************