

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEMESTER– III(NEW) EXAMINATION – SUMME R2015

Subject Code: 2130903

Date: 04/06/2015

Subject Name: Electrical Measurements and Measuring Instruments

Time: 02.30pm-05.00pm

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) What is standard? Explain different types of standards. **07**
(b) Explain the static characteristics of an instrument. **07**

- Q.2** (a) Describe the construction and working of PMMC instrument. Derive the equation for deflection if the instrument is spring controlled. **07**
(b) Describe the various types of errors in measurement system. **07**

OR

- (b) Explain electro dynamic Wattmeter **07**
Q.3 (a) Describe the operation of Kelvin's bridge. **07**
(b) Explain working principal of Q meter **07**

OR

- Q.3** (a) Explain how an AC bridge circuit operates and derive an expression for the unknown parameters. **07**
(b) Explain the working of a digital frequency meter with block diagram **07**

- Q.4** (a) Explain the basic components of a magnetic tape recorder for instrumentation applications using direct recording techniques. Describe its advantages and disadvantages **07**
(b) Explain different methods for data transmission in telemetry systems **07**

OR

- Q.4** (a) Explain the construction wire wound strain gauges and derive the expression for the gauge factor. **07**
(b) Explain in detail harmonic analyzes. **07**

- Q.5** (a) Describe the construction, theory and working of thermocouples. **07**
(b) Explain the construction and principle of working of a linear voltage differential transformer (LVDT). Explain how the magnitude and direction of the displacement of core of an LVDT detected? **07**

OR

- Q.5** (a) Write a short note on digital storage oscilloscope. **07**
(b) Describe the working of a galvanometric type of strip chart recorder. What are the different types of tracing systems used in it? Explain with the help of suitable diagrams. **07**
