

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – WINTER • 2014

Subject Code: 162401**Date: 26-11-2014****Subject Name: Industrial Instrumentation****Time: 02:30 pm - 05:00 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) Define the term 1. Precision 2. Resolution 3. MDS 4. Threshold 5. Hysteresis 6. Sensor 7. Transducer **07**
 (b) Classify the transducer based on property. **07**
- Q.2** (a) Explain LVDT transducer and its usage in practice. **07**
 (b) Describe the principles of a ‘Smart transmitters’. What and where does it transmit? Discuss some aspects of its development in recent years. **07**
- OR**
- (b) Define strain gauge. Describe working of un-bounded resistance type strain gauge. How strain gauge sensitivity is calculated? **07**
- Q.3** (a) Draw and Explain working of Linear Variable Differential Transformer. **07**
 (b) Compare the following terms : Primary and Secondary Temperature Sensor. **07**
- OR**
- Q.3** (a) Draw structure of Photovoltaic Cell and Explain its working. **07**
 (b) Compare the following terms : Unbounded and Bounded strain gauge. **07**
- Q.4** (a) What is an Optocoupler? Describe different types of Optocoupler and Explain its operating principle along with its application. **07**
 (b) What is basically the concept of ‘Smart Sensor’? Explain with the help of a diagram the arrangement of its elements. **07**
- OR**
- Q.4** (a) Enlist applications of optical fiber. Also, explain any one of them in detail. **07**
 (b) What are the different types of magnetic sensors? On what principle do they work? **07**
- Q.5** (a) Explain in details use of sensors for manufacturing. **07**
 (b) Describe the concept of industrial automation. **07**
- OR**
- Q.5** (a) Write a short note on: Nano sensor. **07**
 (b) What is compensation? List various sensor defects and explain any three of them in brief. **07**
