

GUJARAT TECHNOLOGICAL UNIVERSITY**B E Sem-VI Examination May 2011****Subject code: 162401****Subject Name: Industrial Instrumentation****Date: 16/05/2011****Time: 10:30am To 1:00pm****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) Classify the transducer based on property. **07**
 (b) List the types of variable resistance transducer and Explain construction and working of Resistance Strain Gauge. **07**
- Q.2** (a) Define the following terms: **07**
 1. Sensor and Transducer
 2. Resolution ,Threshold and Sensitivity
 3. Distortion and Selectivity
 (b) Explain the comparison between : **07**
 (i) Nonlinearity and Hysteresis
 (ii) Electrical Characterization and Mechanical or Thermal characterization
OR
 (b) Explain the comparison between : **07**
 1. Sensor and Transducer
 2. Thick Film sensor and Thin film sensors
- Q.3** (a) Draw and Explain working of Linear Variable Differential Transformer. **07**
 (b) Describe in Detail working of Electromagnetic Flow meter. **07**
- OR**
- Q.3** (a) Explain working of synchros for measurement of distant points. **07**
 (b) Draw structure of Photovoltaic Cell and Explain its working. **07**
- Q.4** (a) What is an Optocoupler? Describe different types of Optocoupler and Explain its operating principle along with its application. **07**
 (b) Write a Short Note on: SHE **07**
- OR**
- Q.4** (a) What is basically the concept of ‘Smart Sensor’? Explain with the help of a diagram the arrangement of its elements. **07**
 (b) Write a Short Note on : Nano sensors **07**
- Q.5** (a) Explain the use of sensor for Measuring Temperature. **07**
 (b) Explain in details use of sensors for manufacturing. **07**
- OR**
- Q.5** (a) Explain the use of sensor for Measuring Force. **07**
 (b) Explain in details use of sensor for Home Appliances. **07**