

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012****Subject code: 162401****Date: 02/01/2013****Subject Name: Industrial Instrumentation****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.

- Q.1** (a) Define the term 1. Precision 2. Resolution 3. MDS 4. Threshold 5. Hysteresis 6. Sensor 7. Transducer **07**
(b) Define LVDT. Explain the working and operation of an LVDT for measuring displacement. **07**
- Q.2** (a) List the types of variable resistance transducer and Explain construction and working of Resistance Strain Gauge. **07**
(b) How is 'bath tub' curve associated with failure of transducer? What are the screening steps taken in standard silicon integrated wafers? **07**
- OR**
- (b) Describe the principles of a 'Smart transmitters'. What and where does it transmit? Discuss some aspects of its development in recent years. **07**
- Q.3** (a) Compare the following terms : Unbounded and Bounded strain gauge **07**
(b) List similarities and dissimilarities between PZ and PLZT **07**
- OR**
- Q.3** (a) Compare the following terms : Primary and Secondary Temperature Sensor **07**
(b) List similarities and dissimilarities between J type and K type Thermocouple. **07**
- Q.4** (a) What is synchro resolver? Explain the operation of a synchro resolver for measuring angular position. Append diagram as needed. **07**
(b) Explain the working of electromagnetic flow meter with necessary diagram. **07**
- OR**
- Q.4** (a) Explain the level detector using optical fiber with neat diagram. **07**
(b) Explain the working of Radiation Pyrometer with lens and mirror optics. **07**
- Q.5** (a) Write technical note on Geiger counter describes diagram, construction, characteristics and application. **07**
(b) Write technical note on Photovoltaic Cell describes diagram, construction, characteristics and application. **07**
- OR**
- Q.5** (a) Write technical note on SHE describes diagram, construction, characteristics and application. **07**
(b) Write technical note on PH sensor describes diagram, construction, characteristics and application. **07**
