

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:162401**Date:15/12/ 2015****Subject Name: Industrial Instrumentation****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)** Define following. **07**
1. Accuracy 2. Precision 3. Repeatability 4. Resolution
5. Threshold 6. Hysteresis 7. Minimum Detectable Signal
- (b)** Derive the equation of the gauge factor for the resistance strain gauge. **07**
- Q.2 (a)** Explain the construction and working of LVDT. List advantages of LVDT. **07**
(b) Explain electrical and mechanical characterization of transducers. **07**
- OR**
- (b)** Explain the construction and working of Capacitive transducer for displacement measurement. **07**
- Q.3 (a)** Explain the construction and working of Resistance thermometer. List advantages and disadvantages of RTD. **07**
(b) Explain the construction and working of electromagnetic flow meter. **07**
- OR**
- Q.3 (a)** Explain the pyroelectric thermal sensors for temperature measurement. **07**
(b) Explain the working principle and construction of Hall effect sensors. **07**
- Q.4 (a)** Explain the construction, working and characteristics of Photovoltaic cell. **07**
(b) Write technical note on: Standard Hydrogen Electrode. **07**
- OR**
- Q. 4 (a)** Explain the fiber optic liquid level sensing in detail. **07**
(b) Write technical note on: Ion Selective Membrane Electrode. **07**
- Q.5 (a)** Explain the data communication in smart transducers. **07**
(b) Explain the oxygen sensors in detail. **07**
- OR**
- Q.5 (a)** Explain the thin film sensors in detail. **07**
(b) Explain the static pressure sensor in detail. **07**
