

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION,  
DECEMBER 2009**

EE 04. 803 IS INSTRUMENTATION SYSTEMS

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

- I. (a) Differentiate between active and passive transducers with examples.  
(b) Describe the dynamic characteristics of typical transducers.  
(c) What is telemetry ? Which are the modulation schemes in it ?  
(d) Describe one method for period measurement.  
(e) Explain the characteristics of Gaussian distribution.  
(f) Differentiate between accuracy and precision.  
(g) Explain one method for PLC programming.  
(h) Write a note on signal conditioning in data acquisition.
- (8 × 5 = 40 marks)
- II. (a) Explain the construction and working of transducer based systems for the measurement of acceleration and angular rotation.
- Or*
- (b) Give the construction, working and characteristics of piezoelectric and LVDT transducers.
- III. (a) Explain the principles of null type and deflection bridges with suitable examples.
- Or*
- (b) With suitable circuit/functional diagram and waveforms, explain the working of integrating type DVM.
- IV. (a) With suitable diagram, explain galvanometric type recorders. Where they are used ?
- Or*
- (b) How measurement errors are classified. Illustrate with arbitrary examples.
- V. (a) Derive the unit impulse response of a second order system and define and explain the various parameters.
- Or*
- (b) Write short notes on order of a instrument, frequency response and virtual instrumentation.
- (4 × 15 = 60 marks)