

# ***B. Tech Degree VIII Semester Examination April 2011***

## **EE 803 ELECTRONIC INSTRUMENTATION (2006 Scheme)**

Time : 3 Hours

Maximum Marks : 100

### **PART – A (Answer ALL questions)**

(8 x 5 = 40)

- I. (a) Explain the working of semiconductor strain gauge.  
(b) Explain the working of shaft encoder.  
(c) Explain the ideal characteristics of instrumentation amplifier.  
(d) Explain the principle of null type and deflection bridges.  
(e) Explain the dynamic characteristics of a measurement system.  
(f) Explain the principle of vector impedance meter.  
(g) Explain the basic digital tape recording.  
(h) Explain the classification of errors.

### **PART – B**

(4 x 15 = 60)

- II. Write short note on piezoelectric transducers. Derive expression for crystal voltage sensitivity and charge sensitivity.  
**OR**

- III. Write short notes on :  
(i) Hall effect transducer  
(ii) Bellows  
(iii) Thermocouple.

- IV. Derive the expression for output voltage in an instrumentation amplifier.  
Explain the working.  
**OR**

- V. Explain the different types of modulation techniques as applied to telemetry.

- VI. Explain the digital methods for frequency, phase, time and period measurements.  
**OR**

- VII. Draw the block diagram of a general data acquisition system and explain.

- VIII. Explain the following  
(i) LCD  
(ii) LED  
**OR**

- IX. Explain the working of a Galvanometric recorder with necessary diagrams.