

**B.Tech. 6th Semester (Mech. Engg.) Examination,
May-2012**

MEASUREMENT AND INSTRUMENTATION

Paper-ME-310-E

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five out of eight questions. All questions carry equal marks.

1. (a) Explain functional elements of measurement system. 10
- (b) Explain the typical applications of instruments system. 10
2. (a) Explain the formulation of differential equations for dynamic performance of first order system. 10
- (b) Define drift, threshold, hysteresis and backlash. 10
3. (a) Explain inductive self generating and non-self generating type electro mechanical transducers. 10
- (b) Differentiate between electronic transducer and opto-electrical transducers. 10

4. (a) Explain the classifications of filters. 10
- (b) Explain working principle of mechanical amplifying element. 10
5. (a) Explain elastic force devices and separation of force components. 10
- (b) Explain the various relative motion measuring devices. 10
6. (a) Explain and differentiate between electronic flow meter and electro magnetic flow meter. 10
- (b) Explain the working principle of manometer. Derive the expression for the inclined tube manometer. 10
7. (a) Explain total radiation pyrometer and selective radiation pyrometer. 10
- (b) Explain and derive the method of temp. measurement. 10
8. (a) Explain and derive the methods of least squares. 10
- (b) Explain median, arithmetic mean, modal value and central tendency of data. 10