

Roll No.

22222

**M. Tech. 1st Sem. Mechanical Engg.
(Machine Design)**

Examination – January, 2016

INSTRUMENTATION AND MEASUREMENT

Paper : M-803-A

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Draw block diagram of measurement system and explain its elements. 10
- (b) Explain importance of sensors in measuring system. 10
2. (a) Explain impedance matching technique. 10
- (b) Explain sampling theorem and its applications. 10

3. (a) Explain linear variable differential transformer. 10
(b) Explain mechanical and electrical tachometer. 10
4. (a) Explain piezoelectric force transducer. 10
(b) Explain shaft deflection torque measurement. 10
5. (a) Explain bimetal type thermometer. 10
(b) Explain RTD in details. 10
6. (a) Explain Piezometer. 10
(b) Explain diaphragm type pressure transducer. 10
7. (a) Explain venture meter. 10
(b) Explain turbine flow meter. 10
8. Write short notes on : $10 \times 2 = 20$
(a) Boiler power plant instrumentation.
(b) Mechanical and hydraulic power measurement method.