

Roll No.

24358

**B. Tech 6th Semester (ME)
Examination – May, 2018**

MEASUREMENT & INSTRUMENTATION

Paper : ME-310-F

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 *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Define and mention : 5 × 4 = 20

- (a) Resolution and Threshold.
- (b) Torque Transducer and Ionisation Transducers.
- (c) Eddy Current and Magnetostrictive.
- (d) Moire-Fringe and Strain Gage.
- (e) Rotameters and Toque Meter.

SECTION - A

2. What is Instruments? Explain their different classifications and typical Applications of Instrument Systems. 20
3. Explain the following :
- (a) Response of First and Second Order Systems to Step, Ramp. 10
 - (b) Threshold, Sensitivity, Linearity, Hysteresis, Drift. 10

SECTION - B

4. Explain the Transducer Elements: Analog and Digital Transducers, Electromechanical; Potentiometric, Inductive Self Generating and Non-Self Generating. 20
5. Explain following :
- (a) Mechano Electronic Transducers and Frequency Domain Transducer. 10
 - (b) Opto-Electrical Transducers and Ionisation Transducers. 10

SECTION - C

6. (a) Explain the elastic force device and Separation of force components. 10
- (b) Explain the Pneumatic, and, Electrical Amplifying. 10

7. Explain the Electro Mechanical Methods with suitable diagram and Toque Meter. 20

SECTION - D

8. Explain the following :
- (a) Positive Displacement and Meters, 10
 - (b) Rotameters, and Pitot-Static Tube Meter. 10
9. Describe Following Temperature Measurement methods :
- Non Electrical Methods - Solid Rod Thermometer, Liquid-in-Glass thermometer, Bimetallic Thermometer. 20
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