

R09

Code No: 57025

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2017

INSTRUMENTATION AND CONTROL SYSTEMS

(Common to ME, AME)

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

- 1.a) Explain the generalized measurement system.
- b) What are the various methods of measurements? Explain them with examples. [7+8]
- 2.a) What is calibration? How is it indicated?
- b) What are the requirements of transducers? Classify mechanical transducers. [7+8]
- 3.a) Explain the measurement of positive and negative pressure using various types of manometers.
- b) Explain the working principle of pressure measurement using bellows with a neat sketch. [7+8]
- 4.a) Explain the importance of Reynolds number in measurement of flow.
- b) Explain the working principles of various floats with neat sketches. [8+7]
- 5.a) Explain the working principle of a piezoelectric accelerometer with a schematic diagram.
- b) Explain the working principle of seismic velocity pickup with the help of neat sketch. [8+7]
- 6.a) Explain the factors influencing the selection and installation of strain gauges.
- b) Define gauge factor. How to determine bonding stresses in a beam using strain gauge method. [8+7]
- 7.a) Classify the instruments used to measure moisture and humidity in gases. Explain the operating principle of any one.
- b) Explain the working principle of centrifugal force tachometer with a neat sketch. [7+8]
- 8.a) What is servomechanism? Explain the speed control system with a neat diagram.
- b) What is a transfer function? Derive the transfer function of an open loop control system. [7+8]

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