

Code No: 57025

**R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, December - 2014

INSTRUMENTATION AND CONTROL SYSTEMS

(Common to ME, AME)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions  
All Questions Carry Equal Marks

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- 1.a) State and explain the dynamic characteristics of a measurement system.
- b) What is meant by Zero order system? Write the relevant governing equations.
- 2.a) Explain the working principle of Piezo electric type transducer with a neat sketch.
- b) State the advantages and limitations of thermocouples.
- 3.a) Explain how the micrometer type manometer is being used for static pressure measurement with a neat sketch.
- b) Explain the working principle of Piston gauge with a neat sketch.
- 4.a) Compare various indirect liquid level measuring meters.
- b) Explain the construction and working principle of Laser Doppler Anemometer (LDA) with a neat diagram.
- 5.a) Explain the construction and working principle of non-contact type tachometer.
- b) Explain the working principle of seismic transducer with relevant equations and diagrams.
6. Explain the need of temperature compensation in strain gauge measurement. List out the techniques for temperature compensation techniques. Explain them briefly.
- 7.a) Define the terms i) Humidity ratio ii) Dry bulb temperature iii) Relative humidity.
- b) List out various types of electrical hygrometers for measuring the relative humidity. Explain at least one in detail with a neat diagram.
- 8.a) State advantages and limitations of closed-loop control system.
- b) Draw and explain block diagram for temperature control system.

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