

R09

Code: 9A03704

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013

INSTRUMENTATION & CONTROL SYSTEMS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

1. Draw a block diagram representation of a generalized measurement system. Identify the various elements and point out the function performed by each element.
2. (a) What are transducers and how are they classified?
(b) Describe the principle of operation of a piezo-electric transducer. Identify the input and output of the system.
(c) List the advantages and disadvantages of capacitive transducers.
3. Explain with a neat sketch the constructional features and working principle of McLeod gauge used for the measurement of low pressures.
4. (a) Distinguish between the direct and indirect modes of level measurement.
(b) Explain the working of capacitive liquid level sensor with a neat sketch.
5. (a) Describe with sketches the basic principle of working of a stroboscope for speed measurement.
(b) Explain the principle of operation of electrical tachometers.
6. (a) Define gauge factor of a resistance strain gauge.
(b) Distinguish between bonded and unbonded type of resistance strain gauge.
7. Explain the working of sling psychrometer for the measurement of humidity.
8. (a) Draw the block diagrams of open loop and closed loop control system and discuss the differences between them.
(b) Briefly explain the working principle of servomechanism.
