

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.
