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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, September - 2021
INSTRUMENTATION AND CONTROL SYSTEMS
(Mechanical Engineering)

Time: 3 hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks

1.a)   Draw the block diagram of a generalized measurement system and explain the functions of various elements in it.
  b)   Explain the principle and working of capacitive transducers.   [8+7]

2.a)   Describe static and dynamic characteristics of measurement systems with neat sketches.
  b)   Explain the principle and working of inductive transducers for measurement of displacement with neat sketches.   [8+7]

3.a)   Explain the principle and working of resistance thermometer with the help of measuring circuits.
  b)   Explain the construction and working of Bourdon tube pressure gauge.   [8+7]

4.   Explain the working of Bulk modulus pressure gauge with neat sketch.   [15]

5.   Explain with sketches the measurement of liquid level using ultrasonic method.   [15]

6.   Explain the methods of measurement of vibration and acceleration using piezoelectric transducers.   [15]

7.   Explain the principle and working of strain gauges and describe methods of measuring compressive and tensile stress using strain gauges with neat diagrams.   [15]

8.a)   Draw the block diagram of a closed loop temperature control system and explain the functions of various elements in it.
  b)   Derive the Transfer function of a second order mechanical systems.   [8+7]

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