

CBGS SCHEME

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15MT662

Sixth Semester B.E. Degree Examination, June/July 2018 Process Instrumentation

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Explain the block diagram of functional elements of an instrument. (05 Marks)
b. With necessary diagram, explain active and passive transducer. (05 Marks)
c. Explain the generalized I/O configuration for manometer. (06 Marks)

OR

- 2 a. Explain Resistive potentiometer. (08 Marks)
b. Explain Variable – inductance pickup. (08 Marks)

Module-2

- 3 a. Explain the characteristics of elastic force transducer. (04 Marks)
b. Explain Piezoelectric transducer. (08 Marks)
c. Explain the Bonded strain – gauge transducer. (04 Marks)

OR

- 4 a. Explain variable reluctance / FM – Oscillator digital system. (06 Marks)
b. Describe Loading effects. (03 Marks)
c. Explain Shaft – power measurement (Servo controlled dynamometer). (07 Marks)

Module-3

- 5 a. With a neat diagram, explain pressure thermometer. (06 Marks)
b. Explain the 5 laws of thermocouple behaviour. (05 Marks)
c. Explain isothermal block reference junction technique. (05 Marks)

OR

- 6 a. Explain Pulsed – thermocouple technique. (08 Marks)
b. Explain Resistive thermometer (Conductive sensor) with necessary diagram. (08 Marks)

Module-4

- 7 a. Explain deaweight gage and manometer (U-tube). (08 Marks)
b. What are the basic 3 elastic transducer and explain electro – optic pressure transducer? (08 Marks)

OR

- 8 Write short notes on :
a. Mcleod gauge.
b. Knudsen gauge.
c. Thermal conductivity gage.
d. Ionization gauge. (16 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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Module-5

- 9 a. Explain velocity magnitude from pitot static – tube. (06 Marks)
b. With necessary diagram and characteristic wave, explain Hot – wire anemometer. (08 Marks)
c. Briefly describe Vane – type probes. (02 Marks)

OR

- 10 a. Explain Hot – Film Anemometer (Velocity sensor), with neat diagram. (08 Marks)
b. Explain Laser Doppler velocimeter. (08 Marks)

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