

B.Tech III Year I Semester (R13) Regular Examinations December 2015

INDUSTRIAL INSTRUMENTATION
(Electronics and Instrumentation Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) State the principle of direct measuring pressure transducers and list the types of instruments operated under direct measuring pressure transducers.
 - (b) Define the following pressure referencing terms: (i) Absolute pressure. (ii) Gauge pressure.
 - (c) Define a thermocouple and thermopile.
 - (d) State the principle of venturimeter.
 - (e) List some applications of level measurement.
 - (f) Define force and list any two force measuring devices.
 - (g) Define torque and state its units.
 - (h) State the principle of stroboscope
 - (i) State the principle of accelerometer and list the main elements of accelerometers.
 - (j) What is sound level meter and list the main elements in sound level meter?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 With a neat sketch explain the working of low pressure using McLeod gage.

OR

- 3 Explain the measurement of temperature using liquid in glass thermometer, liquid in metal thermometer and gas filled thermometer with a neat sketch.

UNIT – II

- 4 List head type flow meters. Explain flow measurement using Orifice plate.

OR

- 5 Explain with a neat sketch hydrostatic pressure type level measurement.

UNIT – III

- 6 Define force. Describe the measurement of force using spring balance.

OR

- 7 Define Magneto-strictive effect and explain with neat sketch. Explain how torque is measured using magneto-strictive transducer.

UNIT – IV

- 8 Explain with a neat sketch the construction and working principle stroboscope.

OR

- 9 With a neat sketch, explain the working and different modes of operation of a piezoelectric accelerometer.

UNIT – V

- 10 Define microphone and identify the basic sensing element in a microphone. With a neat sketch explain the working of Ribbon type and condenser type microphones.

OR

- 11 Define density and state its units. With a neat sketch explain the working of reference column method of density measurement.