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## Sixth Semester B.E. Degree Examination, July/August 2022

### Process Instrumentation

Time: 3 hrs.

Max. Marks: 100

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

#### Module-1

- 1 a. Distinguish between NULL type and Deflection type instruments. With a neat diagram, explain the working of Deflection Type Instrument. (10 Marks)
- b. Explain the different types of Inputs with a neat diagram. Describe the generalized input – output configuration of measuring system. (10 Marks)

**OR**

- 2 a. Make use of the variable inductance transducer in the measurement of displacement and state its advantages. (10 Marks)
- b. With a diagram, explain the working of variable Resistance transducer. (10 Marks)

#### Module-2

- 3 a. Make use of the Strain gauge for the measurement of torque on a shaft. (10 Marks)
- b. Explain the working of Bonded Strain gauge. (10 Marks)

**OR**

- 4 a. Make use of a Piezo electric transducer to measure the force. (10 Marks)
- b. What is a Load Cell? Make use a load cell to measure force applied on a load cell in terms of electrical signal. (10 Marks)

#### Module-3

- 5 a. Define See beck effect. With a suitable diagrams and circuits describe the working of different thermocouple circuits. (10 Marks)
- b. Make use of Resistance Thermometer to measure temperature. (10 Marks)

**OR**

- 6 a. Explain the construction and working principle of Bimetallic thermometers. (10 Marks)
- b. Explain with a diagram and the construction / working of liquid – in – glass thermometer with partially and fully immersion type. (10 Marks)

#### Module-4

- 7 a. Write any five basic pressure sensors with the diagrams. (10 Marks)
- b. Make use of a dual gauge technique to measure pressure. (10 Marks)

**OR**

- 8 a. Make use of McLeod gauge for the measurement of Low Pressure Signals. (10 Marks)
- b. Make use of Ionization gauges for the measurement of Low Pressure Signals. (10 Marks)

#### Module-5

- 9 a. Describe the working of Pitot static tube for the measurement of flow of a liquid. (10 Marks)
- b. Describe the working of Yaw tube for the measurement of flow. (10 Marks)

**OR**

- 10 a. Make use of Hot wire anemometer for the measurement of flow of liquid. (10 Marks)
- b. Describe the working of Dynamic wind vector indicator with a suitable diagram. (10 Marks)