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Fourth 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. With the neat diagram, explain the working of Liquid filled temperature sensors. (10 Marks)
- b. Define Setback effect. Explain the working of thermocouple circuits. (10 Marks)

OR

- 2 a. Explain the construction of Platinum Resistance Thermometer Elements. (10 Marks)
- b. Describe the working of optical pyrometer. (10 Marks)

Module-2

- 3 a. With the necessary equation, explain the working of Head type flow meter. (10 Marks)
- b. Discuss the working of electromagnetic flow meter with an equation. (10 Marks)

OR

- 4 a. Illustrate the working of Ultrasonic flow meter with its principle and equations. (10 Marks)
- b. Explain the working of Laser Doppler anemometer. (10 Marks)

Module-3

- 5 a. Describe the working of velocity transducer. (10 Marks)
- b. With its equation, explain the working of Force balance Accelerometer. (10 Marks)

OR

- 6 a. Discuss the working of in – line hydrometer. (10 Marks)
- b. Explain the operation of sound velocity types density measurement. (10 Marks)

Module-4

- 7 a. With a neat diagram, explain the working of capillary extrusion viscometer. (10 Marks)
- b. Describe the operation of differential pressure type capillary viscometer. (10 Marks)

OR

- 8 a. Illustrate the working of Rotary viscometer used for the measurement of viscosity of fluids. (10 Marks)
- b. Define Turbidity. Explain the working of light scattering turbidity meter. (10 Marks)

Module-5

- 9 a. Explain the working of microprocessor based dew point instrument. (10 Marks)
- b. Discuss the operation of Electrolytic hygrometer for the measurement of humidity. (10 Marks)

OR

- 10 a. Describe the working of Infrared absorption hygrometer. (10 Marks)
- b. With the necessary diagram and equation. Discuss the working of Nuclear moisture gauge. (10 Marks)