

22420

23242

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Define active and passive transducers.
 - b) List out pressure measuring devices.
 - c) Define laminar and turbulent flow.
 - d) State any two advantages of radiation level measurement.
 - e) Write any two limitations of electromagnetic flow meter.
 - f) State seeback effect.
 - g) Define PT-100.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Draw and explain labelled block diagram of instrumentation system.
 - b) Draw and explain C-type Bourbon tube.
 - c) Explain Piezoelectric effect. Name two piezoelectric materials.
 - d) Classify pressure measuring devices.
- 3. Attempt any THREE of the following: 12**
- a) Describe principle of operation of Doppler type ultrasonic flowmeter with diagram.
 - b) State selection criteria for transducer.
 - c) Describe working principle of U-tube manometer with neat diagram.
 - d) Draw symbol and characteristics of LDR.
- 4. Attempt any THREE of the following: 12**
- a) Draw and explain ultrasonic flowmeter.
 - b) State applications and compare the advantages and disadvantages of an orifice meter and a venturimeter.
 - c) Compare RTD with thermistor.
 - d) State the uses of RADAR type level measurement and list two advantages.
 - e) Describe the salient features of capacitor type level meter and nuclear radiation type level meter.
- 5. Attempt any TWO of the following: 12**
- a) Convert
 - i) 250° F
 - ii) 330° Finto Celsius ($^{\circ}\text{C}$), Kelvin ($^{\circ}\text{K}$) and Rankine ($^{\circ}\text{R}$)
 - b) What is pyrometry? Explain working of optical pyrometer with neat diagram. State its one application.
 - c) How pressure gauge is calibrated with dead weight tester. Explain with diagram.

6. Attempt any TWO of the following:**12**

- a) Draw constructional diagram of LVDT. State working principle. What is residual voltage. Explain neat diagram.
 - b) State advantages and disadvantages of Rotameter. Explain it with neat diagram.
 - c) Explain the hydrostatic type level instrument using air purge method. List its advantages and disadvantages.
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