

22407

22223

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) 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
 - i) Sensitivity
 - ii) Drift
 - b) Name any two examples of direct and indirect measurement each.
 - c) List out the basic control actions. (any four)
 - d) State the principle of electromagnetic flow meter.
 - e) Define the servo process.
 - f) Draw the block diagram of closed loop system.
 - g) List out any two application of calibration.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain with the sketch working of bimetallic thermometer.
 - b) Draw the neat sketch of bellows pressure gauge.
 - c) List the different level measuring instruments. Draw the neat sketch of ultrasonic level measurement.
 - d) Describe with graph equal % valve characteristics.
- 3. Attempt any THREE of the following:** **12**
- a) State the working principle of optical pyrometer with neat sketch.
 - b) Explain the construction and working of C-type bourdon tube with neat diagram.
 - c) State the principle of thermal mass flowmeter with neat sketch.
 - d) Describe with sketch the construction of solenoid valve.
- 4. Attempt any THREE of the following:** **12**
- a) Describe with sketch, the use of functional elements of any physical system.
 - b) Explain the construction of RTD with neat sketch.
 - c) Describe the construction and working of dead weight pressure gauge.
 - d) Explain with sketch, the air purge method of level measurement.
 - e) Draw the diagram of valve actuator and labelled it.
- 5. Attempt any TWO of the following:** **12**
- a) Describe the construction and working of radiation pyrometer with neat sketch.
 - b) Explain with sketch, the construction and working of McLeod gauge for low pressure measurement.
 - c) Describe with sketch, the construction of ultrasonic flow meter and state its principle.

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Marks

6. Attempt any TWO of the following:

12

- a) Explain with sketch, the construction and working of electromagnetic flowmeter.
 - b) Describe the construction and working of pneumatic PID controller with neat sketch.
 - c) Describe the block diagram of PLC, programmable logic control with its architecture.
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