

17551

21718

3 Hours / 100 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 :

20

- (a) Define :
 - (i) Speed of Response
 - (ii) Measuring Lag
 - (iii) Fidelity
 - (iv) Overshoot
- (b) What is transducer ? State the classification of transducer.
- (c) Explain how the displacement transducers are selected for specific application.
- (d) State the advantages and disadvantages of liquid in glass type thermometer.
- (e) State the advantage and disadvantages of differential flow meter.
- (f) State the various requirements of the strain gauge.
- (g) State the advantages and disadvantages of feedback control system.

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P.T.O.

2. Attempt any FOUR of the following :**16**

- (a) State the classification of error and explain any one in detail.
- (b) Explain the working principle of LVDT with neat sketch.
- (c) Explain the vapour pressure thermometer with neat sketch.
- (d) Explain the rotameter with neat sketch. State its any two advantages.
- (e) Explain sound level meter with neat sketch.
- (f) Explain the feed forward control system with neat sketch.

3. Attempt any FOUR of the following :**16**

- (a) Explain the concept of Hysteresis, Threshold, Dead zone and Backlash with suitable sketch.
- (b) Explain the digital encoder with neat sketch.
- (c) Explain the Resistance Thermometer with neat sketch. State its any two advantages.
- (d) Explain the vortex shedding flow meter with neat sketch.
- (e) Explain the inductive pickup type electrical tachometer.
- (f) Compare the hydraulic and pneumatic control system.

4. Attempt any FOUR of the following :**16**

- (a) Explain the working principle of capacitive transducer with neat sketch.
- (b) Explain the thermal conductivity gauge with neat sketch.
- (c) What is thermister ? Draw its minimum four shapes.
- (d) Explain the ultrasonic flow meter with neat sketch.
- (e) Explain the float and shaft gauge with neat sketch.
- (f) State the comparison between hydraulic and electronic control system.

5. Attempt any FOUR of the following :**16**

- (a) Distinguish between Accuracy and Precision.
- (b) Explain the calibration and testing procedure of the pressure gauge in laboratory.
- (c) Explain the law of intermediate temperature and law of intermediate metals.
- (d) Explain the hair hygrometer with neat sketch.
- (e) Explain Proportional controllers. State their two advantages and disadvantages.
- (f) Explain the servomotor mechanism for controlling the speed of motor with suitable sketch.

P.T.O.

6. Attempt any FOUR of the following :**16**

- (a) What is systematic error in measurement ? How it can be reduced ?
 - (b) Explain the construction and working of bourdon tube type pressure gauge.
 - (c) Explain the suitable control system for controlling the temperature of blow moulding machine at certain temperature.
 - (d) Explain the construction and working of radiation pyrometer with neat sketch.
 - (e) What is a rosette ? Explain any one with neat sketch.
 - (f) Explain the setup for controlling the various parameters of the boiler with neat sketch.
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