22407

23242

3 Hours / 70 Marks Seat No. | | | | | | | | |

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 :

i) Precision

ii) Drift

b) Define turndown of control valve.

c) List any four basic control actions.

d) State the principle of electromagnetic flowmeter.

e) Define open loop control system.

f) Define the rangability of control valve.

g) Define :

i) Dead zone

ii) Static error

Marks

2. Attempt any THREE of the following: **12**

a) State the different electrical temperature transducer. Explain the working of any one of them.

b) Explain the construction and working of dead weight tester with neat diagram.

c) Describe with neat sketch heat transfer type mass flow meter.

d) Explain with the help of a block diagram the automatic control system.

3. Attempt any THREE of the following: **12**

a) Describe with neat sketch RTD.

b) Draw the neat sketch of C-type Bourdon tube.

c) State the principle of positive displacement flow meter with neat sketch.

d) Describe distributed control system.

4. Attempt any THREE of the following: **12**

a) A thermometer is calibrated from 0 to 200°C. The accuracy is specified to be within $\pm$ 0.25% of span and $\pm$ 0.75% of upper range value. Calculate the actual reading of temperature for 100°C measurement.

b) Define thermister. Explain NTC and PTC.

c) Describe the construction and working of LVDT.

d) Describe electromagnetic flow meter with neat sketch.

e) Explain factor to be considered in valve selection.

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

a) Describe the construction and working of optical pyrometer with neat diagram.

b) Explain construction, working and application of MCLeod gauge.

c) Describe the construction and working of air purge method of level measurement with neat diagram.

Marks

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

a) Explain piston type variable area flowmeter with neat sketch.

b) Explain the linear and equal % valve characteristics with neat graphs.

c) Describe the construction and working of pneumatic PI controller with neat sketch.