22335

21819

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) Differentiate between primary and secondary transducer (two points).

b) List different types of pressure.

c) Give classification of level measurement.

d) Define laminar flow and turbulent flow.

e) State working principle of RTD.

f) Classify the following transducer on the basis of "active and passive":

(i) LVDT

(ii) RTD

g) List any two application of air purge level measurement.

Marks

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

a) Describe with neat sketch working principle of Coriolis mass flow meter.

b) Explain with neat labelled sketch the working of Bourdon tube.

c) Describe with sketch the calibration procedure for dead weight tester.

d) Differentiate between orifice and venturi tube with reference to:

(i) Construction.

(ii) Pressure drop.

(iii) Shape

(iv) Cost

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

a) Explain with labelled sketch the working principle of Bellow.

b) Explain with neat sketch the working of radiation pyrometer temperature measuring device.

c) Explain with neat sketch the working of nuclear radiation type level measurement.

d) Calculate output resistance of RTD pt 100 at temp 0°C and 75°C.

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

a) Describe with sketches the calibration procedure for the air purge types of level transducer.

b) Write one example and application of:

(i) Resistance transducer

(ii) Capacitive transducer

(iii) Inductive transducer

(iv) Piezoelectric transducer.

Marks

c) Select relevant temperature transducer for measuring temperature at 1200° C with justification.

d) Explain with neat labelled sketch the working of electromagnetic flow meter.

e) Convert the value of 640 mm of Hg into bar and psi units.

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

a) Write the effect in resistance value of strain gauges in the following Fig. No. 1.

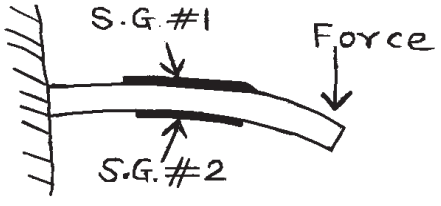

Fig. No. 1

b) Describe calibration procedure of RTD digital temperature indicating instruments with neat sketch and reading in the range of 0 to 600°C.

c) Describe venturimeter flow measuring device with reference to:

(i) Construction

(ii) Working

(iii) Merits.

Marks

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

a) Describe nutating disc types flow measuring device with reference to:

(i) Construction

(ii) Working

(iii) Merits

b) Describe with neat labelled sketch the capacitance level measurement with reference to:

(i) Calibration procedure

(ii) Merits

c) (i) Write the specification of J type's thermocouple.

(ii) Convert 90°C into three other temperature scales.