22335

11920

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) 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 transducer.

b) Give classification of pressure measuring devices.

c) Sketch the neat diagram of sight glass measurement.

d) Draw the neat diagram of capsule.

e) State working principle of RTD.

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

(i) RTD

(ii) Piezoelectric

g) List the materials for RTD and Thermocouple.

Marks

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

a) Describe with neat sketch working of pitot tube.

b) Explain with neat labelled sketch the working of piezoelectric transducer.

c) State the following for diaphragm and bourdon tube

(i) Material of construction

(ii) Range of Pressure

d) Describe with neat diagram air-purge method of level measurement.

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

a) Explain with labelled sketch the working of "U tube manometer'.

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

c) Explain with neat sketch the working of ultrasonic level measurement

d) Calculate o/p resistance of RTD PT100 at temp 60°C and 110°C temperature.

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

a) Explain with neat labelled sketch the working of Electromagnetic flow meter.

b) Explain with neat labelled sketch working of Bimetallic thermometer.

c) Convert the value of 500mm of Hg into bar and psi units.

d) In a process industry, suggest a suitable level measuring technique for viscous liquid in a tank.

e) Describe with neat sketch function of each block of instrumentation system.

Marks

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

a) Explain with neat labelled sketch the electrical pressure transducer diaphragm strain gauge with reference to

(i) working

(ii) merits

b) Describe calibration procedure of RTD pt 100 with neat sketch and reading in the range of 0 to 500°C.

c) Describe ultrasonic flow meter with reference to

(i) Construction

(ii) Working

(iii) Merits

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

a) Describe coriolis mass flow measuring device with reference to

(i) Construction

(ii) Working

(iii) Merits

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

(i) Calibration procedure

(ii) Merits

c) Explain any eight points selection criteria of transducer used for suitable application.