

May-2014 (CBUS)

S.E.-III) Inst / Transducers - I

INST
QP Code : NP-18684

(3 Hours)

[Total Marks : 80

- N.B. 1) Question No 1 is compulsory.
2) Solve any three questions from the remaining questions.
3) Assume suitable data if required and state it clearly.



1. Solve any five: 20
- a) What is lead compensation in RTD? Why it is require? State the methods for the same.
- b) Why in LVDT two secondary windings are connected in series opposition? Also state the causes of residual voltage in LVDT.
- c) Explain how physical properties of water can be used to calibrate scale of mercury thermometer?
- d) Give classification of level measurement.
- e) What is metrology? Give its importance.
- f) What is measurement? Briefly explain applications of measurement.
2. a) Draw and explain schematic of capacitive transducer used for displacement measurement based on change in dielectric constant, change in area and change in distance between the plates. 10
- b) State and explain law of intermediate temperatures and metals in case of thermocouples. Also give significance of these laws. 10
3. a) Give different methods of humidity measurement. Explain any one in detail. 10
- b) The resistance of a thermistor is 800 ohm at 50 ° C and 4 Kohms at ice-point. Calculate the characteristic constants(A,B) for the thermistor and also plot the graph of temperature vs resistance between 30 and 100 ° C. 10
4. a) Classify and Explain briefly generalized methods of measurements. 10
- b) Compare RTD, Thermistor and Thermocouple. 10
5. a) Explain use of potentiometer for angular displacement measurement with neat diagram and mathematical equations. 10
- b) Explain how capacitive transducers can be used for level measurement when liquid is conducting and non conducting? 10
6. Write short note on 20
- a) Lead wire compensation in RTD
- b) Comparison between i) Accuracy and Precision ii) Resolution and threshold.