



02-12-14

QP Code :14608

(3 Hours)

Total Marks : 80

- N. B. : (1) Question no. 1 is compulsory.
 (2) Attempt any three out of remaining questions.
 (3) Assume suitable data wherever required.

1. Answer the following (any Four)--
 - (a) State True/False and justify-Bimetallic thermometer is unsuitable if the temperature changes are rapid. 5
 - (b) What do you mean by calibration? What is the need of calibration? 5
 - (c) The output of LVDT is connected to a 5V Voltmeter through an amplifier whose amplification factor is 250. An output of 2mV appears across the terminals of LVDT when the core moves through a distance of 0.5mm. Calculate the sensitivity of LVDT. 5
 - (d) Write the criteria to be considered while selecting transducers. 5
 - (e) Explain-Absolute humidity and relative humidity. 5
2. (a) Explain the flapper-nozzle system and write its applications. 10
 (b) Discuss the role of National Physical Laboratory in metrology. Write its advantages and disadvantages. 10
3. (a) Describe a rotational speed measurement system. 10
 (b) Explain the following with respect to RTD- 10
 - (i) Working principle
 - (ii) Materials used
 - (iii) Construction
 - (iv) Self heating effect
4. Explain the law of intermediate temperatures and law of intermediate metals in case of thermocouple and give its significance. 10
4. (a) State different types of pyrometers. Explain with a neat sketch any one of them. 10
 (b) Explain with a neat schematic diagram how the capacitance probe can be used for level measurement of non-conducting and conducting liquids. 10
5. (a) A thermistor has a resistance of 3980 Ω at the ice point (0°C) and 794 Ω at 50 °C. The resistance-temperature relationship is given by $R_T = a R_0 \exp (b/T)$. 10
 - (i) Calculate the constants a and b
 - (ii) Calculate the range of resistance to be measured in case the temperature varies from 40 °C and 100 °C.
 (b) Explain any five static characteristics of transducers with suitable example. 10
6. Write short notes: 20
 - (a) Solid level detectors
 - (b) Cold junction compensation in thermocouples.

GN-Con.:9123-14.



Course : S.E (INSTRUMENTATION) (SEM III)
(CBSGS) EXAMINATION OCTOBER, 2014

Q.P Code : 14608

Correction :

Please read Q.4. Explain the law of intermediate temperatures-----
-----and give its significance. as Q4.(c) and Solve any two from
Q.4(c), Q.4(a) and Q.4(b).

Query Update time : 02/12/2014 04:00 pm

muquestionpapers.com

11, 14, 17