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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (2011 Onwards) (Sem.-5)
MEASUREMENTS AND INSTRUMENTATION

Subject Code : BTAE-505

Paper ID : [A2065]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Write briefly :**

- a) Define the term Instrumentation.
- b) Name the various functional elements of a Bellow with the help of block diagram.
- c) What are piezo-electric transducers?
- d) How are errors classified?
- e) Differentiate between the terms "Sensitivity" and "Linearity".
- f) What is the working principle of Pitot Tube?
- g) State the important generalized elements of measurement.
- h) What are bonded and unbounded gauges?
- i) Explain RTD.
- j) What are the functions of Seismic devices?

SECTION-B

2. Explain in detail static characteristics of measuring instruments.
3. Discuss the application of strain gauges for the measurement of torque.
4. Explain the working of relative motion measuring device.
5. Explain in detail the various statistical concepts of mean, median, mode, range, standard deviation and variance.
6. State different types of sources of errors in a measurement. Differentiate between systematic and random errors.

SECTION-C

7.
 - a) Explain with the help of a neat sketch the working of a Hot-wire Anemometer.
 - b) Discuss the application of Electrical Resistance Thermometers for temperature measurement.
8.
 - a) Explain the difference between a Torque transducer and Torque meter.
 - b) Compare the relative advantages and disadvantages of Electromechanical and Electromagnetic transducers.
9. Write short notes on the following :
 - a) Dead weight gauge tester.
 - b) Automotive sensors.