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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

M.Code : 70488

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 has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A**Q1. Answer briefly :**

- a. Differentiate primary, secondary and tertiary standards.
- b. List the instruments that can be used for angular speed measurement.
- c. What are various systems of measurement of surface roughness?
- d. Differentiate between step input, ramp input and sinusoidal input.
- e. Differentiate between absorption and transmission dynamometer.
- f. Explain briefly Moire-Fringe.
- g. What is the importance of gauge factor in the design of strain gauges?
- h. What is the function of proving ring? Write its various industrial applications.
- i. What is Seebeck effect?
- j. Explain the difference between an analog signal and a digital signal.

SECTION-B

- Q2. Classify various comparators. Compare any two comparators in terms of at least one advantage and limitation in reference to each other.
- Q3. Following ten measurement were recorded when measuring temperature :
- 98.2, 97.8, 98.8, 97.1, 98.8, 96, 97.9, 97.5, 97, 98.1
- Calculate :
- Mean
 - Median
 - Standard deviation
 - Variance
- Q4. What is flow visualization? Briefly explain various flow visualization techniques.
- Q5. What are systematic and random errors? How these errors are measured? What are various precautions for minimizing these errors?
- Q6. On what principle do the “Bell gauges” operate? Name the different type of bell gauges used in practice.

SECTION-C

- Q7. State the limitation of mechanical amplification. Briefly, explain the buffer amplifier and differential amplifier.
- Q8. What is torque? Explain the construction and working principle of Mechanical torsion meter. Also mention its advantages and limitations.
- Q9. a. Write a short note on hot wire anemometer.
- b. Explain in brief Pitot gauge and Ionization gauge.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.