Roll No. | | | | | | | | | | | | | 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 :

a. Mean

b. Median

c. Standard deviation

d. 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.