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

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (2011 Onwards) (Sem.–5)

MECHANICAL MEASUREMENT AND METROLOGY

Subject Code : BTME-503

Paper ID : [A2130]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION 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

Q.1 Write briefly :

a) What do you understand by the term "measurement"?

b) Differentiate between the terms "repeatability" and "reproducibility".

c) What are photo cell transducers?

d) Define gauge factor.

e) What is temperature compensation in strain gauges?

f) What is "Chauvenet's Criterion"? Explain briefly.

g) How can hysteresis errors in bourdon tube be minimized?

h) Give the review of electro-mechanical sensor.

i) Explain the difference between an analog signal and a digital signal.

j) What are angle gauges? How are they used?

SECTION-B

Q.2 Elaborate in detail the specifications and measurement of surface roughness by Talysurf technique.

Q.3 Explain the working of a Linear Variable Differential Transformer for measurement of displacement.

Q.4 Differentiate between primary, secondary and working standards of measurement.

Q.5 What are zero, first and second order systems and their response to step, ramp and sinusoidal input signals?

Q.6 Explain along with the constructional details the measurement of temperature with metal resistance thermometer and thermistors.

SECTION-C

Q.7 Explain the construction, working and applications of a rope brake absorption dynamometer with the help of a neat sketch.

Q.8 Elaborate in detail the construction and working of a hot wire anemometer and Mcleod gauge.

Q.9 Write short notes on the following :

a) Interferometery

b) Proving Ring