SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | |

Total number of pages:02
Total number of questions: 06

B.Tech. || ME || 5th Sem

Mechanical Measurements and Metrology

Subject Code:BTME-503

Paper ID: (for office use)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **Section A is compulsory.**
- **Assume any missing data**

PART A (2marks ×10)

Q. 1. Short-Answer Questions:

a) What do you understand by working standards?
b) Define dead zone.
c) What is a transducer?
d) What is meant by random error?
e) What is gauge factor?
f) How surface roughness is measured?
g) What is a bimetallic thermometer?
h) What is a sensor?
i) Define Frequency and Time period?
j) Name different mechanical tachometers?

PART B (8marks ×5)

Q. 2. What are different sources of error in measurement and measuring instruments? Explain.

OR

What is calibration and why it is necessary for an instrument? How do you proceed to draw the calibration curve, a correction curve and an error curve. [CO1]

Q. 3. Explain the use of gauge blocks and angle gauges in the field of metrology.

OR

What are piezo-electric transducers? How it works? Explain. [CO2]

Q. 4. Describe the working of a bimetallic thermometer with a help of neat sketch.

OR

Compare and contrast the advantages and limitations of

(i) resistance thermometers and thermistors
(ii) thermocouples and resistance thermometers [CO3]

Q. 5. What are sine bars and how are they used for angular measurements?

OR

Explain the difference between a comparator and a measuring instrument. State the field of application of comparators. [CO4]

Q. 6. Describe the principle and operation of :

Taylor-Hobson Talysurf surface roughness instrument.

OR

Describe the principle and operation of "The Tomlinson Surface Meter" [CO5]