SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[2]**

Total number of questions:06

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

Mechanical Measurement and Metrology

Subject Code: BTME-504A

Paper ID: (for office use)

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

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**
- **Additional instructions, if any**

PART A (2×10)

Q. 1. Short-Answer Questions: All COs

(a) List the basic functional elements of a measurement system.
(b) Differentiate between threshold and resolution.
(c) What is dynamometer?
(d) Define error. How can errors be classified?
(e) List the instruments that can be used for angular measurement.
(f) What is inverse transducer? Give an example.
(g) Define gauge factor.
(h) What are the two basic methods of measurement of low pressure?
(i)Write two applications of thermistos.
(j) Differentiate between roughness and waviness.

PART B (8×5)

Q. 2. Draw a block diagram representation of generalized measurement system. Identify the various elements and point out the function performed by each element. CO1

OR

State different types of errors which can occur during the process of measurement. Discuss the methods to reduce such errors. CO1

Q. 3. Describe the working of LVDT for measurement of displacement. What are their advantages and disadvantages? CO2

OR

Explain briefly bonded and unbounded type of strain gauges. Which out of these two finding wide industrial applications? CO2

Q. 4. Describe the construction, working of McLeod gauge for measurement of vacuum. Lists its advantages and disadvantages. CO3

OR

Explain with neat sketch the working of ultrasonic flow meter. What are its advantages, disadvantages and applications? CO3

Q. 5. Explain constructional detail and working of radiation pyrometer and list its notable characteristics. CO3

OR

Describe the construction and operation of Rope brake type of absorption dynamometer. Explain a suitable arrangement of cooling the pulley of rope brake dynamometer. CO3

Q. 6. Write short notes on any two of the following CO4

1) Sine Bar
2) Measurement of flatness by interferometry.
3) Reed type mechanical comparator

OR

What is calibration and why is it necessary for an instrument? How do you proceed to draw the calibration curve, a correction curve and an error curve? CO4