B.Tech. || ME || 5TH Sem

Mechanical Measurement and Metrology (RP)

Subject Code: BTME-503

Paper ID: M|18 (for office use)

(2011-2014 batch)

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

Important Instructions:

- **Section A is compulsory.**
- **Attempt any four questions from section B**
- **Attempt any two questions from section C**
- **Assume any missing data**
- **Additional instructions, if any**

PART A (2marks ×10)

Q. 1. Short-Answer Questions:

(a) Define the terms 'Fidelity and Speed of Response'.
(b) What are piezoelectric transducers?
(c) List the instruments that can be used for angular measurement.
(d) Define error. How errors can be classified?
(e) Explain the term "measurand".
(f) What are the various factors affecting surface roughness?
(g) What are the two basic methods of measuring low pressure?
(h) Name the various instruments used for temperature measurement.
(i) What do you mean by load cell?
(j) How dynamometers are classified?

PART B (8×5)

Q. 2. With the help of an example explain primary, secondary and tertiary measurements. CO1

OR

Discuss with the help of an example the basic and auxiliary functional elements of measurement systems. CO1

Q. 3. Elaborate in detail the construction and working of optical radiation pyrometer. CO2

OR

State the objectives of flow visualization. Explain some of the methods commonly adopted for flow visualization. CO2

Q. 4. Explain the principle and working of Talysurf surface roughness tester with neat sketch. CO4

OR

Draw a neat sketch of a reed type mechanical comparator and explain its working principle. CO4

Q. 5. What is the principle of capacitive transducers? What are their advantages, disadvantages and applications? CO3

OR

Describe the construction and working of a "Dead weight gauge tester". State the factors which affect the accuracy of dead weight tester. CO3

Q. 6. Describe with sketches the basic principle of working of stroboscope for speed measurement. CO4

OR

What is torsion dynamometer? Explain briefly how a strain gauge torsion meter is used to measure torque. CO4