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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

M.Code : 70604

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 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 types of measurements.
- b. Define hysteresis in measurement systems.
- c. What is difference between accuracy and precision?
- d. Define threshold and resolution.
- e. How the least count of a vernier caliper is calculated?
- f. Define gauge factor of a strain gauge.
- g. What is the working principle of a thermocouple?
- h. What is Mcleod gauge?
- i. What is comparator? Name any two of them.
- j. Explain the function of a driving dynamometer.

SECTION-B

2. What are systematic and random errors? How these errors are measured? What are various precautions for minimizing these errors?
3. Describe zero, first and second order measuring instruments.
4. What is a dynamometer? Explain various types of dynamometers.
5. What is a sine bar? Explain its application in measurements.
6. What is flow visualization? Briefly explain various flow visualization techniques.

SECTION-C

7. (a) Explain the construction and working of a Bourden tube pressure gauge with a neat sketch.
(b) Explain the working principle of piezo-electric transducer. What are its advantages and limitations?
8. What is dynamometer? How they are classified? Describe transmission and driving dynamometers.
9. Write short notes on :
 - (a) Stroboscope
 - (b) Optical pyrometer

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.