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Total No. of Questions: 09

Total No. of Pages: 02

**B. Tech. (ME) (Sem. 5)**  
**MECHANICAL MEASUREMENT AND METROLOGY**  
**Subject Code: BTME-503**  
**Paper ID: A2130**

Time: 3 Hrs.

Max. Marks: 60

**INSTRUCTIONS 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**

1.

- a) Distinguish between threshold and resolution.
- b) Explain principle of operating a dead weight gauge tester.
- c) What is difference between absolute pressure and gauge pressure?
- d) Suggest a method for measuring dynamic pressure variations in the exhaust manifold of an IC engine.
- e) What is bimetallic thermometer? Which material is used in this type of thermometer?
- f) What is a clinometer?
- g) What is pneumatic load cell?
- h) Suggest suitable transducers to convert each of the following into electrical signals:  
i) Pressure ii) Acceleration iii) Angular speed of shaft iv) Liquid level
- i) How the temperature of a furnace is measured?
- j) What is difference between systematic and random errors?

### SECTION-B

2. Explain construction and working of Mcleod gauge.
3. What is proving ring? How is it used to measure force?
4. Explain construction, working and applications of optical pyrometer.
5. Explain different sources of errors in measurement.
6. Explain any two methods to measure velocity.

### SECTION-C

7. What are comparators? Explain their types and relative merits and limitations.
8. Explain various types of manometers with the help of diagrams.
9. What are strain gauges? Explain their applications and working.