

Total No. of Questions : 09]

[Total No. of Pages : 02

**B. Tech. (Sem. - 5<sup>th</sup>)**

**MECHANICAL MEASUREMENT AND METROLOGY**

**SUBJECT CODE : ME - 307**

**Paper ID : [A0817]**

[Note : Please fill subject code and paper ID on OMRI

**Time : 03 Hours**

**Maximum Marks : 60**

**Instruction to Candidates:**

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

**Section - A**

**Q1)**

**(10 × 2 = 20)**

- a) What is the need of measurement?
- b) Define hysteresis.
- c) What is a bimetallic thermometer?
- d) What is a sensor?
- e) What do you understand by systematic error?
- f) What is the use of micrometer?
- g) What are photocells?
- h) What is a dynamometer?
- i) What is gauge factor?
- j) How surface roughness is measured?

**Section - B**

**(4 × 5 = 20)**

**Q2)** What are different sources of error in measurement and measuring instrument? Explain.

**Q3)** Explain first and second order system.

**M-628/1859/**

**P.T.O.**

Q4) Discuss the working of a stroboscope.

Q5) What are piezo-electric transducers? How it works? Explain.

Q6) What is a comparator? Discuss about the mechanical comparators.

### Section - C

(10 × 2 = 20)

Q7) How are the angular measurements made? Describe the instruments for angular measurement correct up to a few seconds.

Q8) Explain the construction and working of Bourdan tube pressure gauge.

Q9) Write short notes on:

- (a) Thermocouples.
- (b) Absorption Dynamometer.

