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B. Tech. (Sem. – 6th)**MEASUREMENT AND INSTRUMENTATION****SUBJECT CODE : AE – 306****Paper ID : [A0721]****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**(10 × 2 = 20)**

- Q1)** a) What do you mean by a normal distribution curve?
 b) What do you mean by speed of response?
 c) Define threshold and resolution.
 d) What are random errors?
 e) How force is measured?
 f) Explain bonded and unbounded strain gauges.
 g) What is a dead weight tester gauge?
 h) What is a bimetallic thermometer?
 i) Define manometer.
 j) What is the use of Rota-meter?

Section – B**(4 × 5 = 20)**

- Q2)** Differentiate between Primary, Secondary and Tertiary types of measurements.
- Q3)** Describe the construction and working of electromagnetic flow meter.
- Q4)** Explain the working principle of capacitive transducer.
- Q5)** How piezoelectric transducer is used for pressure measurement? List their advantages and disadvantages.
- Q6)** What do you mean by calibration? Explain clearly the commonly method of calibrating temperature measuring devices.

Section – C**(2 × 10 = 20)**

- Q7)** The following 10 observations were recorded when measuring temperature: 41.7, 42.0, 41.8, 42.0, 42.1, 41.9, 42.0, 41.9, 42.5 and 41.8°C. Find (a) the mean, (b) standard deviation, (c) the probable error of one reading, (d), the probable error of mean, and (e) range.
- Q8)** Sketch a typical radiation pyrometer. Explain its working and list its notable characteristics.
- Q9)** Write short note on :
- (a) Hot Wire Anemometers
 - (b) Low pressure measurement

