

- (c) Define Thermistors used in measurement. 2
(d) What is capacitive transducers ? 2
(e) How does electronic amplification work in measurement ? 2
(f) Define gauge factor. 2
(g) What do you understand by Mecleod gauge ? 2
(h) What is flow visualisation technique ? 2
(i) How do you measure torque in a shaft ? 2
(j) State Routh criteria of stability. 2

Roll No.

Total Pages : 04

July-22-00338

B. Tech. EXAMINATION, 2022

Semester VI (CBCS)

MEASUREMENT AND CONTROL

ME-602

Time : 3 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Section A, B, C and D. Q. No. 9 is compulsory.

Section A

1. (a) What is general measurement process ? 4
(b) Explain the functional elements of measurement system. 6

2. (a) What is error in measurement ? Classify the error and discuss each one. 4
- (b) Explain the following terms with respect to the measuring system : 6
- (i) Span and Range
- (ii) Drift and threshold.

Section B

3. (a) Explain variable-resistance transducer elements. 4
- (b) What is Piezo-electric transducer ? Write its application. 6
4. (a) Explain electrical resistance strain gauges. Write its main applications. 4
- (b) What do you understand by temperature compensation strain gauges ? Write application of strain gauges for bending and torsional loads. 6

Section C

5. (a) Discuss various elastic diaphragms as primary pressure transducer. 4

- (b) Explain constructional and operational details of Electrical Resistance Pressure Gauges. 6

6. (a) How thermo-couples are used in measuring the temperature ? Explain common forms of thermocouple construction. 4
- (b) How is Pyrometry concept useful in designing the temperature gauges ? Write about radiation pyrometer. 6

Section D

7. (a) Discuss about Elementary Vibrometers and Vibration Detectors. 4
- (b) How are hydraulic and pneumatic load cells utilised for force measurement ? 6
8. (a) Define Open and closed loop system of control system. 4
- (b) Explain Servomechanism process control and regulator with neat sketches. 6

(Compulsory Question)

9. (a) Define Calibration. 2
- (b) What do you understand by one kilogram ? 2