

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]

Dec.-23-0495

ME-602 (Measurement and Control)

B.Tech. 6th (CBCS)

Time : 3 Hours

Max. 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. One question each from unit I, II, III, IV. Question no. 9 is compulsory.

UNIT - I

1. (a) Explain basic and functional elements of a measurement system. (4)
(b) What are the primary and secondary standard in measurement? (6)
2. (a) Explain the meaning of static calibration. (4)
(b) Define static and dynamic errors in the measuring instruments. (6)

UNIT - II

3. (a) What is Electro-Mechanical sensor? (4)
(b) Demonstrate the working of Piezo electric transducers. (6)
4. (a) Explain resistances strain gauges and write the expression for gauge factor. (4)
(b) Using a suitable diagram demonstrate the strain gauge bridge circuit and derive the expression for it. (6)

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UNIT - III

5. (a) Define dead weight gauge tester with suitable neat sketches. (4)
(b) Explain the working of Mecleod gauge using suitable diagram. (6)
6. (a) Define desirable properties for the liquid used in glass thermometer. (4)
(b) Explain the working of metallic resistance thermometer using suitable neat sketches. (6)

UNIT - IV

7. (a) Define the Vibrations measuring device using suitable diagram. (4)
(b) Explain axially elastic loaded member and cantilever type elastic member for the measurement of force and explain suitable expression. (6)
8. (a) What is close loop system and demonstrate the representation of speed control system? (4)
(b) Explain Tome domain and frequency domain analysis and Nyquist plot for stability study in control system. (6)

UNIT - V (Compulsory)

9. (a) What is Range and span?
(b) What do you mean by Speed of response?
(c) What are the different sources of errors?

[P.T.O.]

- (d) What are sensors?
- (e) What is accelerometer?
- (f) What are bonded and unbonded gauges?
- (g) How diaphragm can be used for pressure measurement?
- (h) What is thermocouple?
- (i) What is load cell?
- (j) What are the different elements of the control system?

(10×2=20)

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