

ME - 503

B.E. V Semester

Examination, December 2013

Mechanical Measurement and Control

Time : Three Hours

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Max. Marks : 70

- Note:** i) Attempt *Five* questions.
ii) All questions carry equal marks.

Unit - I

1. a) Compare deflection and null type instrument. 7
b) Explain: 7
i) Static Error ii) Accuracy and Precision
iii) Hysteresis iv) Linearly.

OR

2. a) Distinguish between direct and indirect methods of instruments. Give examples. 7
b) Explain the term Precision Error and BIAS Error. 7

Unit - II

3. a) Compare Gross Error and Systematic Error. 7
b) What is Regression Analysis? 7

OR

4. a) Define following terms 7
i) Normal distribution. ii) Variance
b) A circuit was tuned for Resonance by eight different students and the values of Resonant frequency in KHz were recorded as 532, 548, 543, 535, 546, 531, 543 and 536. Calculate :

[2]

- i) The Arithmetic Mean ii) Deviations from mean
iii) Average Deviation iv) Standard Deviation
v) The Variance. 7

Unit - III

5. a) How will you classify temperature measuring devices? 7
b) Explain constructional details of RTD, with a neat sketch. 7

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OR

6. a) Discuss various methods used for measuring output of Thermocouples. 7
b) Explain various applications of Thermistors with the help of circuit diagrams. 7

Unit - IV

7. a) Explain different types of strain gauges. 7
b) Analyze the measurement of Torque of Rotating Shaft. 7

OR

8. a) What are Mechanical Strain gauges? 7
b) Define and derive gauge factor of strain gauge. 7

Unit - V

9. a) What is Block Diagram of a Closed loop system? 7
b) What are the advantages of closed loop control systems? 7

OR

10. a) Compare open loop control system and closed loop control system. 7
b) Discuss Transfer Function of a Linear System. 7
