ME - 503

B.E. V Semester

Examination, December 2013

Mechanical Measurement and Control

Time : Three Hours

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 is KHz were recorded as 532, 548, 543, 535, 546, 531, 543 and 536 Calculate :

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

OR

6. a) Discuss various methods used for measuring output of Thermocouples. 7

b) Explain various application's of Thermistors with the help of circuit diagrams. 7

Unit - IV

7. a) Explain different types of strain gauges. 7

b) Analyze of 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 Close loop system? 7

b) What are the advantages of close loop control systems? 7

OR

10. a) Compare open loop control system and close loop control system. 7

b) Discuss Transfer Function of a Linear System. 7

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