Code No: R05320204   **R05**   **Set No. 2**

III B.Tech II Semester Examinations,December 2010
INSTRUMENTATION
Electrical And Electronics Engineering

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the operation of an LVDT accelerometer with a neat sketch.

   (b) An LVDT is used in an accelerometer to measure seismic mass displacements. The LVDT and the signal conditioning outputs are 0.31mV/mm with a ± 20mm core displacement. The spring constant is 240N/m and the core mass is 0.05kg. Find

      i. the relationship between acceleration in m/s^2 and the output voltage.
      ii. natural frequency
      iii. maximum measurable acceleration.   [10+6]

2. Describe 'sampling of data'. How is it different from pulse modulation?   [16]

3. (a) Explain with a neat block diagram of a dual slope digital voltmeter.

   (b) A dual slope integrating type A/D converter has an integrating capacitor of 0.1 microfarad and a resistance of 100 kohms. If the reference voltage is 2v, and the output of an integrator is not to exceed 10v, what is the maximum time the reference voltage can be integrated.   [8+8]

4. (a) Discuss about the mode instruction format of 8251 for synchronous and asynchronous mode of operation.

   (b) Discuss about Overrun error and Framing error with reference to 8251.[10+6]

5. (a) Define and Classify transducers.

   (b) What are the important ouput characteristics of the transducers.   [10+6]

6. (a) Define 'Drift', 'Threshold Value' and 'Dead-band' of a measuring system, with suitable example for each.

   (b) Distinguish between 'Range' and 'Span' of an instrument.   [8+8]

7. Discuss the principles and construction of bimetallic thermometers along with their operation in detail.   [16]

8. (a) Does increasing the writing rate of an oscilloscope by increasing the acceleration potential have an effect on the deflection sensitivity?

   (b) What should be the voltage across two deflection plates separated by 1.5cm to deflect an electron beam 1 degree, if the effective length of the deflection plates is 2cm and the accelerating voltage is 1000volts.   [8+8]

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INSTRUMENTATION
Electrical And Electronics Engineering

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Code No: R05320204 | **R05** | **Set No. 1**

III B.Tech II Semester Examinations,December 2010
INSTRUMENTATION
Electrical And Electronics Engineering

Time: 3 hours
Max Marks: 80

Answer any FIVE Questions
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Code No: R05320204 | R05 | Set No. 3

III B.Tech II Semester Examinations,December 2010
INSTRUMENTATION
Electrical And Electronics Engineering

Time: 3 hours | Max Marks: 80

Answer any FIVE Questions
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