Code No: RR221002 | RR | SET-1

B.Tech II Year - II Semester Examinations, April/May-2012
TRANSDUCERS IN INSTRUMENTATION
(ELECTRONICS & INSTRUMENTATION ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Draw the block diagram for the following systems explaining their functioning.
i) General Instrumentation System
ii) Control Instrumentation system
iii) Telemetry system
b) How are transducers classified? Explain giving examples. [10+6]

2.a) Distinguish between the following pairs of terms clearly.
i) Accuray – Precision
ii) Repeatability – Reproducibility
iii) Threshold – Lag
iv) Error – Limiting error.
b) A current of 1A with a probable error of ± 0.1A passes through a rheostat of 1000Ω with a probable error of ± 10 Ω. Determine the power distipated and probable error. [9+7]

3. Explain about I order and II order instruments with examples. Using graphs explain about the response of these instruments for step, ramp and sinosoidal inputs. [16]

4. Explain about loading effect in using potentiometric transducers. Derive the expression for maximum error due to loading effect in the case of a potentiometric transducer with resistance R_p when a voltmeter with resistance R_m is connected across it. [16]

5.a) Explain the prnciple and working of Hot wire Anemometer.
b) What is magnetostrictive effect? Explain the principle and working of a transducer based on this effect. [8+8]

6.a) What are the materials exhibiting piezoelectric effect? How are they classified? Explain about their properties.
b) Explain about variable area type capicitance transducers. [8+8]

7.a) Explain about Laws of thermocouples.
b) Draw the sketch of an optical pyrometer and explain its working principle. [8+8]

8. Write notes on any TWO
a) Infrared LEDs
b) Electrostatic presure transducers
c) RTDs. [8+8]

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Code No: RR221002 | RR | SET-2

B.Tech II Year - II Semester Examinations, April/May-2012
TRANSDUCERS IN INSTRUMENTATION
(ELECTRONICS & INSTRUMENTATION ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1. Explain about I order and II order instruments with examples. Using graphs explain about the response of these instruments for step, ramp and sinosoidal inputs. [16]

2. Explain about loading effect in using potentiometric transducers. Derive the expression for maximum error due to loading effect in the case of a potentiometric transducer with resistance R_p when a voltmeter with resistance R_m is connected across it. [16]

3.a) Explain the prnciple and working of Hot wire Anemometer.
b) What is magnetostrictive effect? Explain the principle and working of a transducer based on this effect. [8+8]

4.a) What are the materials exhibiting piezoelectric effect? How are they classified? Explain about their properties.
b) Explain about variable area type capicitance transducers. [8+8]

5.a) Explain about Laws of thermocouples.
b) Draw the sketch of an optical pyrometer and explain its working principle. [8+8]

6. Write notes on any TWO
a) Infrared LEDs
b) Electrostatic presure transducers
c) RTDs. [8+8]

7.a) Draw the block diagram for the following systems explaining their functioning.
i) General Instrumentation System
ii) Control Instrumentation system
iii) Telemetry system
b) How are transducers classified? Explain giving examples. [10+6]

8.a) Distinguish between the following pairs of terms clearly.
i) Accuray – Precision
ii) Repeatability – Reproducibility
iii) Threshold – Lag
iv) Error – Limiting error.
b) A current of 1A with a probable error of ± 0.1A passes through a rheostat of 1000Ω with a probable error of ± 10 Ω. Determine the power distipated and probable error. [9+7]

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Code No: RR221002 | RR | SET-3

B.Tech II Year - II Semester Examinations, April/May-2012
TRANSDUCERS IN INSTRUMENTATION
(ELECTRONICS & INSTRUMENTATION ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Explain the prnciple and working of Hot wire Anemometer.
b) What is magnetostrictive effect? Explain the principle and working of a transducer based on this effect. [8+8]

2.a) What are the materials exhibiting piezoelectric effect? How are they classified? Explain about their properties.
b) Explain about variable area type capicitance transducers. [8+8]

3.a) Explain about Laws of thermocouples.
b) Draw the sketch of an optical pyrometer and explain its working principle. [8+8]

4. Write notes on any TWO
a) Infrared LEDs
b) Electrostatic presure transducers
c) RTDs. [8+8]

5.a) Draw the block diagram for the following systems explaining their functioning.
i) General Instrumentation System
ii) Control Instrumentation system
iii) Telemetry system
b) How are transducers classified? Explain giving examples. [10+6]

6.a) Distinguish between the following pairs of terms clearly.
i) Accuray – Precision
ii) Repeatability – Reproducibility
iii) Threshold – Lag
iv) Error – Limiting error.
b) A current of 1A with a probable error of ± 0.1A passes through a rheostat of 1000Ω with a probable error of ± 10 Ω. Determine the power distipated and probable error. [9+7]

7. Explain about I order and II order instruments with examples. Using graphs explain about the response of these instruments for step, ramp and sinosoidal inputs. [16]

8. Explain about loading effect in using potentiometric transducers. Derive the expression for maximum error due to loading effect in the case of a potentiometric transducer with resistance R_p when a voltmeter with resistance R_m is connected across it. [16]

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Code No: RR221002 | RR | SET-4

B.Tech II Year - II Semester Examinations, April/May-2012
TRANSDUCERS IN INSTRUMENTATION
(ELECTRONICS & INSTRUMENTATION ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Explain about Laws of thermocouples.
b) Draw the sketch of an optical pyrometer and explain its working principle. [8+8]

2. Write notes on any TWO
a) Infrared LEDs
b) Electrostatic presure transducers
c) RTDs. [8+8]

3.a) Draw the block diagram for the following systems explaining their functioning.
i) General Instrumentation System
ii) Control Instrumentation system
iii) Telemetry system
b) How are transducers classified? Explain giving examples. [10+6]

4.a) Distinguish between the following pairs of terms clearly.
i) Accuray – Precision
ii) Repeatability – Reproducibility
iii) Threshold – Lag
iv) Error – Limiting error.
b) A current of 1A with a probable error of ± 0.1A passes through a rheostat of 1000Ω with a probable error of ± 10 Ω. Determine the power distipated and probable error. [9+7]

5. Explain about I order and II order instruments with examples. Using graphs explain about the response of these instruments for step, ramp and sinosoidal inputs. [16]

6. Explain about loading effect in using potentiometric transducers. Derive the expression for maximum error due to loading effect in the case of a potentiometric transducer with resistance R_p when a voltmeter with resistance R_m is connected across it. [16]

7.a) Explain the prnciple and working of Hot wire Anemometer.
b) What is magnetostrictive effect? Explain the principle and working of a transducer based on this effect. [8+8]

8.a) What are the materials exhibiting piezoelectric effect? How are they classified? Explain about their properties.
b) Explain about variable area type capicitance transducers. [8+8]

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