

Code No:NR/RR211003

NR/RR

Set No. 2

II B.Tech I Semester Examinations, November 2010
INSTRUMENTATION COMPONENTS
Common to Electronics And Control Engineering, Electronics And
Instrumentation Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Differentiate between a potentiometer and a rheostat.
 (b) What is the difference between voltage and current transducers.
 (c) Mention two uses of each of current and voltage transducers. [6+6+4]
2. (a) Discuss the spectral transmittance characteristics of an absorption filter.
 (b) What are the parameters to be observed in the design of grating.
 (c) Give two types of mounting of grating and explain the importance of mount in the grating. [6+4+6]
3. (a) Draw and explain the functional diagram of 723 general purpose voltage regulator.
 (b) Explain the current limiting feature of 723 regulator. [10+6]
4. (a) Explain the differences between avalanche breakdown and zener breakdown.
 (b) Explain the constructional differences between zener diode with ordinary junction diode and compare their characteristics both in forward and reverse biased conditions.
 (c) Design a simply zener voltage regulator to supply approximately 5V from 12V sources. Calculate the minimum value of load resistance that may be connected across the output terminals. [4+8+4]
5. (a) Sketch the block diagram of a servo system using two phase motor and derive its transfer function. [4+4]
 (b) What will be the response of the system for step input. [8]
6. (a) Is LED a part of an optoisolatory? If so how?
 (b) Generally the p material is emitter in normal diodes but in LED n material made as emitter. Why?
 (c) How is the spectral response of a LED determined and on what factor does it depend? [4+6+6]
7. (a) What is the importance of safety precautions in control system.
 (b) List some methods of implementing safety measures in control system.
 (c) Describe how valves can be used to avoid failures in control system. [4+6+6]

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8. (a) What is the coupling mechanism with operation of a clutch in an automotive?
(b) In what way, chain and belt drives are different?
(c) Enumerate the applications of friction drives. [6+6+4]

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Set No. 4

II B.Tech I Semester Examinations, November 2010

INSTRUMENTATION COMPONENTS

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1. (a) Discuss the spectral transmittance characteristics of an absorption filter.
(b) What are the parameters to be observed in the design of grating.
(c) Give two types of mounting of grating and explain the importance of mount in the grating. [6+4+6]
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(c) Describe how valves can be used to avoid failures in control system. [4+6+6]
5. (a) Draw and explain the functional diagram of 723 general purpose voltage regulator.
(b) Explain the current limiting feature of 723 regulator. [10+6]
6. (a) Is LED a part of an optoisolator? If so how?
(b) Generally the p material is emitter in normal diodes but in LED n material made as emitter. Why?
(c) How is the spectral response of a LED determined and on what factor does it depend? [4+6+6]
7. (a) Differentiate between a potentiometer and a rheostat.
(b) What is the difference between voltage and current transducers.
(c) Mention two uses of each of current and voltage transducers. [6+6+4]
8. (a) Explain the differences between avalanche breakdown and zener breakdown.
(b) Explain the constructional differences between zener diode with ordinary junction diode and compare their characteristics both in forward and reverse biased conditions.

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- (c) Design a simply zener voltage regulator to supply approximately 5V from 12V sources. Calculate the minimum value of load resistance that may be connected across the output terminals. [4+8+4]

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Set No. 1

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(b) Explain the constructional differences between zener diode with ordinary junction diode and compare their characteristics both in forward and reverse biased conditions.
(c) Design a simply zener voltage regulator to supply approximately 5V from 12V sources. Calculate the minimum value of load resistance that may be connected across the output terminals. [4+8+4]
8. (a) Is LED a part of an optoisolator? If so how?

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- (b) Generally the p material is emitter in normal diodes but in LED n material made as emitter. Why?
- (c) How is the spectral response of a LED determined and on what factor does it depend? [4+6+6]

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(b) In what way, chain and belt drives are different?
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2. (a) Is LED a part of an optoisolator? If so how?
(b) Generally the p material is emitter in normal diodes but in LED n material made as emitter. Why?
(c) How is the spectral response of a LED determined and on what factor does it depend? [4+6+6]
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(b) What will be the response of the system for step input. [8]
8. (a) Explain the differences between avalanche breakdown and zener breakdown.
(b) Explain the constructional differences between zener diode with ordinary junction diode and compare their characteristics both in forward and reverse biased conditions.

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- (c) Design a simply zener voltage regulator to supply approximately 5V from 12V sources. Calculate the minimum value of load resistance that may be connected across the output terminals. [4+8+4]

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