Code: 9A13802

1

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

TELEMETRY AND TELECONTROL

(Common to E.Con.E and EIE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) Define telemetry and telecontrol. Explain how telemetry encompasses disciplines of several fields.
(b) Hydraulic systems are replaced by pneumatic systems in air – craft system. Justify and explain the operation of pneumatic motor.

2 (a) Explain any one of channel coding techniques.
(b) Obtain the scrambler code for an input sequence '1010 repeated' and scrambler polynomial $1 + x^{-1} + x^{-3}$.

3 (a) Describe a quadrature amplitude modulation system.
(b) What are the advantages of a differential PCM system?

4 Write short notes on the following:
(a) FDM.
(b) IRIG standard.

5 Explain about satellite telemetry and communications.

6 (a) Draw the block diagram of an optical fiber based communication system and explain the function of each.
(b) Discuss the advantages of PIN photodiode over PN structure in a photo-diode.

7 Explain with a neat sketch about transmitter and receiver circuits of optical telemetry.

8 What is meant by remote regulation? Explain about remote regulation with examples.

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

TELEMETRY AND TELECONTROL

(Common to E.Con.E and EIE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Explain briefly about functional blocks of telemetry system.
(b) Explain briefly about power line carrier communication.

2 Explain about line coding techniques.

3 (a) What makes PLL discriminator so popular in communication applications?
(b) What is a capture range in connection with discriminator and how is it increased in PLL discriminator.

4 What is the advantage of a differential PCM system? Sketch the block diagram of such a system both on the transmitter and receiver sides, and, for modulation and demodulation. Explain its operation.

5 Explain the function of TT & C subsystems of a satellite communication system.

6 What is dispersion? Explain the types of dispersion. How does dispersion affect transmission in a fiber?

7 What are the methods used in detail telecontrol without coding methods? Explain any two of them.

8 (a) Draw the block diagram of remote switching equipment with manual inputs and explain the function of each.
(b) With a neat sketch explain numerical value standard command equipment.

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

TELEMETRY AND TELECONTROL

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Time: 3 hours Max Marks: 70

Answer any FIVE questions
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1 Write short notes on:
(a) Pulse duration system.
(b) Pulse code system.

2 (a) Explain about frequency telemetring system.
(b) Explain about window comparator and its transfer characteristics.

3 Why is frequency multiplication needed in FM transmitter and how is it accomplished. What is the equipment usually used for generating, a carrier frequency? Draw the circuit diagram of such a generator and explain its operation.

4 Explain generation and demodulation of PWM, PPM with a neat sketch.

5 Write briefly about digital transmission system in satellite telemetry.

6 (a) Explain the attenuation in optical fibers with figures.
(b) Differentiate between step – index and graded – index fibers.

7 Define telecontrol. Draw a block diagram of telecontrol installation and explain each functional block.

8 (a) List out the signal apparatus used for telecontrol installation.
(b) Draw a sketch and explain about telecontrol installation working with cycle address interrogation system.

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B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

TELEMETRY AND TELECONTROL

(Common to E.Con.E and EIE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1 (a) Draw a block diagram and explain electrical telemetry system.
(b) Draw the sketch of pneumatic transmitter and explain.

2 In a PCM system, a 7-bit encoder is used. Suppose each level represents a voltage of 1 V, what is the range of encoder? Find out the quantization error on account of PCM if a voltage of 126.80 V involved.

3 How can FM can be obtained via phase modulation. Draw the scheme of a phase modulation circuit.

4 Differentiate and explain pulse amplitude modulation and pulse code modulation.

5 (a) What are the general considerations of satellite telemetry?
(b) Write a short notes on optical fibers for signal transmission.

6 Write a short notes on:
(a) Optical sources.
(b) Optical detectors.

7 List and briefly explain the environmental and interface conditions of telecontrol apparatus.

8 Which type of telecontrol method is used for remote transmission of continuous varying numerical values? Explain rectifier, resistance and dc compensation analog methods for the local control area.

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