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Question Paper Code : 97047

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Third Semester

Computer Science and Engineering

CS 6304 — ANALOG AND DIGITAL COMMUNICATION

(Common to Information Technology)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for modulation?
2. An amplifier operating over the frequency range from 18 to 20 MHz has a 10 kilo ohm input resistor. What is the rms noise voltage at the input to this amplifier if the ambient temperature is 27° C?
3. For an 8-PSK system, operating with an information bit rate of 24 kbps, determine bandwidth efficiency.
4. What is the difference between standard FSK and MSK? What is the advantage of MSK?
5. Determine the odd and even parity bits for the ASCII character R whose hex code is 52.
6. What are the two primary methods used for error correction?
7. Define entropy.
8. What are linear block codes?
9. Why are hexagons employed to model coverage areas of mobile communication?
10. What is handoff?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe about internal noise. (8)
(ii) In modulation by several sine waves simultaneously, in AM, the bandwidth required is twice the highest modulating frequency. Prove this concept using appropriate expressions. (8)

Or

- (b) (i) Calculate the percentage power saving when the carrier and one of the sidebands are suppressed in an AM wave modulated to a depth of (1) 100 percent and (2) 50 percent. (4)
(ii) Describe Frequency modulation and Phase modulation and their inter-relationship. (12)

12. (a) With relevant expressions and figures, describe QPSK Transmitter, QPSK Receiver and Bandwidth Considerations of QPSK.

Or

- (b) Compare and contrast the various Digital Communication systems.

13. (a) (i) Discuss in detail about the Standards Organizations for Data Communication. (8)
(ii) Explain the concept of Data Communication Circuits using a basic block diagram. (8)

Or

- (b) Discuss in detail the concepts of PCM.

14. (a) (i) Find out the Huffman code for a discrete memoryless source with probability statistics {0.1, 0.1, 0.2, 0.2, 0.4}. (8)
(ii) Describe the concept of channel capacity. (8)

Or

- (b) Write short notes on :
(i) Linear block codes
(ii) Viterbi decoding algorithm.

15. (a) Discuss in detail about Cellular Concept and Frequency Reuse.

Or

- (b) Describe the concepts of Satellite Communication.