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Roll No. | | | | | | | | | |

B.E./B.Tech.(Full Time) DEGREE END SEMESTER EXAMINATION , APRIL/MAY 2011

Electronics and Communication Engineering

Sixth Semester

EC382 Digital Communication

(Regulation : 2004)

Time: Three hours Maximum ; 100 Marks

Answer all questions

Part- A (10x2=20 marks)

1. Draw the polar RZ and Manchester coded waves for the binary sequence [1 1 0 1 0 0 1 ....]
2. What is ISI? How can it be mitigated?
3. Draw the constellation diagram of BPSK and BFSK signals.
4. Differentiate coherent and non-coherent detection techniques.
5. Define entropy and specify its unit.
6. Calculate the channel capacity of channel with 2MHz bandwidth which offers SNR of 1023.
7. What is syndrome? Write its importance in error control.
8. Consider a binary codeword [1 0 0 1 0 0 1]. Calculate its Hamming weight.
9. What is jamming?
10. What is PN sequence?

Part-B (5x16=80)

11. a) (i) With neat block diagram, explain the BPSK signal generation and detection. (8)
    (ii) Derive the equation for probability of error of BPSK signaling (8)

12. a) (i) Compare correlator and matched filter. (4)
    (ii) Derive the impulse response of a matched filter used digital signal detection. (12)

    OR

    b) Discuss briefly about the (i) Eye pattern and (ii) Adaptive equalization (8+8)

13. a) Consider a source emits 5 symbols $\{x_i, i=1,2,...,5\}$ with the probability { 0.1, 0.2, 0.5, 0.1, 0.1}. Then,
    (i) Find the codeword of the symbols if they are coded by Shannon-Fano coding (6)

(ii) find the codeword of the symbols if they are coded by Huffman coding (6)

(iii) Compare the redundancy associated with these two coded outputs (4)

OR

b) b) List the any four properties of mutual information and prove them.

14. a) (i) List any two properties of cyclic code and describe them with suitable example. (8)

(ii) If a cyclic code uses $g(D)=1+D+D^3$ as its generator polynomial, calculate the codeword used for the message word [1 0 0 0]. (8)

OR

b) Explain convolutional coder and Viterbi decoding with suitable example

15. a) What is DSSS? Derive its jamming margin.

OR

b) What is PN sequence? Describe its use on difference kind of FHSS techniques.