

(29)

B.E / B.Tech Degree Examinations , May 2012
III SEMESTER INFORMATION TECHNOLOGY R -2008
EC 9212 Communication Techniques

Time : 3 Hours

Answer all Questions
PART-A

Max.marks 100
(2x10=20marks)

1. Define modulation index and give its significance.
2. State Sampling Theorem.
3. Consider a discrete memoryless source with source alphabet $F=\{s_0, s_1, s_2\}$ and with probabilities : $p(s_0) = p(s_1) = 1/4$; $p(s_2)=1/2$. Find the Entropy of the source.
4. What is Multiplexing. Mention any two types of Multiplexing.
5. Give the effect of Intersymbol Interference in digital waveform transmission.
6. What is meant by Quantization. Name the types of Quantization used.
7. What are the factors that affect the spectrum of an output pulse.
8. Classify the synchronization techniques in digital communication system.
9. What are the advantages of cyclic codes and list their properties.
10. Specify the disadvantage in FDMA systems.

PART-B

(5x16=80marks)

11. (i) Explain in detail the function of Quadrature Phase shift modulator with waveforms and modulator states. (12)
- (ii) What is M-ary encoding and list its advantages. (4)
12. (a) (i) What are the advantages of SSB over DSB. (4)
- (ii) Draw the spectrum of VSB used in Television video transmission. (6)
- (iii) Draw and briefly explain the function of each block in a Super heterodyne receiver. (6)

(OR)

12. (b) (i) Describe Frequency and Phase modulation. (10)
- (ii) Draw the Power Spectral Density distribution for a binary random waveform of rectangular pulses of amplitudes $\pm A$. (6)
13. (a) (i) Draw the block diagram of a PCM system and explain the function of each block. (10)
- (ii) Draw and explain the Companding curves for a PCM. (6)

(OR)

13. b) Explain in detail the principle of Frequency Division Multiplexing with neat diagrams.

14. (a) (i) What is source coding. Explain the algorithm of Huffman coding. (8)
(ii) State and explain Shannons theorems. (8)

(OR)

14. (b) (i) With an example define Minimum Hamming distance and Hamming weight in convolutional coding. (10)
(ii) What is eye pattern and explain how it determines the performance of the system. (6)

15. (a) (i) What are the characteristics of Frequency hopping techniques. (4)
(ii) With the aid of block diagrams explain the transmitter and receiver system of Frequency Hop Spread M-ary FSK. (12)

(OR)

15. (b) (i) What are the advantages of CDMA over TDMA. (6)
(ii) What is meant by Multi path fading in Mobile Communication. (6)
(iii) Write short notes on Jammer. (4)
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