Code No. 2379 / N

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) II – Semester (New) (Main) Examination, April / May 2013

Subject : Digital Communication

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

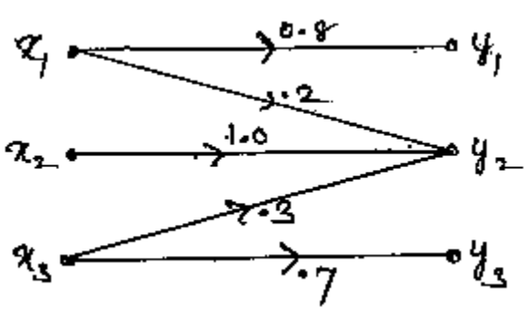
1. Write the laws of compounding. 3
2. What is base band digital transmission? 2
3. Explain the significance of eye pattern in PCM. 2
4. What are the advantages of DM over DPCM? 2
5. Define mutual information and self information. 2
6. Explain in detail about symmetric channel. 3
7. Explain the need for source coding. 2
8. Explain Shanan's theorem and Shanon Hartley theorem. 3
9. Compare a correlation receiver and a matched filter. 3
10. What are the applications of spread spectrum modulation technique? 3

PART – B (50 Marks)

11.a) Explain the working of a PCM system with neat block diagram. 5

b) Calculate the minimum no. of uniform quantization levels required for speech PCM. When the signal to quantization noise ratio is 60 dB and also calculate the system band width required. 5

12.a) Prove that the entropy of a binary DMC is maximum if both the bits are equally likely. 3



b) Find the transferred information for the channel shown above. 7

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13. Explain the computation of the syndrome vector in cyclic coder. How is it useful to identify the error position in the received code vector. 10

14.a) Calculate the probability of error Pe and the impulse response of a matched filter. 6

b) Compare various digital carrier modulation schemes. 4

15.a) Explain with neat block diagram the modulation and demodulation of FSK. 5

b) Calculate Pe for noncoherent P.S.K. 5

16.a) Explain the advantages of frequency hopping. 3

b) Explain in detail the coarse acquisition of a direct sequence spread spectrum signal. 7

17. Write short notes on :
a) Generation of PN sequence
b) M – ary signaling
c) Prediction theory

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