Exam. Code: 0932
Sub. Code: 6936 (9)

1059

B. Engg. (Electronics & Comm. Engg.)

8th Semester

EC-809: Advanced Digital Communication

Time allowed: 3 Hours | Max. Marks: 50

NOTE: Attempt five questions in all, including Q. No. I which is compulsory and selecting atleast two questions from each Unit. Use of scientific calculator is allowed.

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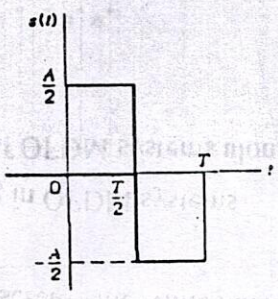
I. (a) Explain and draw 16-QQAM constellation diagram. (2)
(b) Explain the basic principle of multi-dimensional signaling. (2)
(c) What is the mathematical model for linear time variant filter channel? (2)
(d) What do you mean by linear equalization? Give its significance. (2)
(f) Compare PAM, PM and QAM signaling. (2)

Part- A

II. (a) Explain full and partial response CPM modulation techniques along with phase trajectory for binary CPFSK. (5)
(b) Calculate power spectral density of rectangular pulse having amplitude A within 0 to T time duration. (5)

III. (a) Explain correlation receiver of N correlators with MAP decision rule. (5)
(b) Obtain optimal defection for a general vector channel. (5)

IV. Consider signal shown below. (10)



(a) Determine impulse response of filter matched to this signal and sketch it as function of time.

(b) Plot the matched filter output as function of time.

(c) What is the peak value of the output?

Contd.....P/2

Part-B

V. (a) Derive decision rule for optimum demodulation of digital signal in presence of ISI and AWGN noise. (5)

(b) Derive minimum mean squared error for zero-forcing decision feedback equalizer. (5)

VI. (a) What is transversal equalizer. Explain how it can be implemented. (5)

(b) Explain the concept of MLSE in discrete time white noise filter model. (5)

VII. (a) Explain windowing and clipping in OFDM systems. (5)

(b) Explain spectral characteristics of OFDM systems along with its mathematical representation. (5)

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