2053
B.E. (Electronics and Communication Engineering)
Eighth Semester
EC-809: Advanced Digital Communication

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

    (a) What is deterministic signal?   (1)

    (b) Draw constellation diagram for 16-QAM?   (1)

    (c) What is raised cosine spectrum?   (1)

    (d) What is linear modulation?   (1)

    (e) What is Nyquist criterion?   (2)

    (f) What is Power Spectral Density?   (2)

    (g) What are multi carrier systems?   (2)

UNIT - I

II. (a) How communication channels are represented? Give mathematical models for communication channels.

    (b) What is CPFSK modulation? Explain its modulation & demodulation process.

                                                  (2x5)

III. (a) Give performance analysis for wireline and radio communication systems.

    (b) How do we calculate PSD of digitally modulated signals with memory?   (2x5)

IV. What is an optimum receiver? Explain Matched filter and correlation filter implementation for optimum receivers.   (10)

UNIT - II

V. a) What are band-limited channels? Give their characteristics & explain signal design for band-limited channels.

    b) What is Inter Symbol Interference? Explain optimum receiver for channels with ISI and AWGN.   (2x5)

VI.   (a) Give a detailed comparison between single carrier with multi carrier modulation.

(b) What is Equalizer? Explain MLSE for discrete time white noise filter model.

(2x5)

VII. What is Orthogonal Frequency Division Multiplexing? Explain in detail modulation and demodulation process of OFDM system. Give advantages & applications of OFDM. (10)

x-x-x