ME EXTC | Sem II | CBCS | FH 2019

Time: 3 Hours

23/05/2019

Maximum Marks 80

N.B: 1) Question number 1 is compulsory.
2) Solve any three from remaining.

Q1 Solve any **Five** 20

(a) Explain various parameters associated with Eye Pattern.
(b) Distinguish between relevant and irrelevant noise.
(c) Explain the concept of excess bandwidth and roll of factor.
(d) Explain frequency offset, Phase jitter and Impulse Noise.
(e) What is the significance of signal matrix in receiver in colored WGN?
(f) What is Convergence of receiver? Explain.

Q2 (a) Draw the duobinary encoder with precoder. The four level sequence 0013120332010 is the input. Construct a table showing precoded sequence, transmitted amplitude levels, received signals and decoded sequence. 10

(b) State and prove Nyquist criteria that gives the necessary and sufficient condition for the spectrum X(f) of pulse X(t) that yields zero ISI 10

Q3 (a) Design and implement Matched filter receivers with proper diagram. 10

(b) What are the problems associated with colored Gaussian noise? Derive and explain optimum waveform receiver in colored Gaussian noise with K-L Expansion Approach. 10

Q4 (a) Explain the Mean Square Error criteria for Equalizer. 10

(b) Explain LMS Algorithm for Adaptive Equalizer. 10

Q5 (a) Explain Non-Coherent Receiver in Random Phase Channels 10

(b) Explain time-variant nature of the channel in Doppler-shift domain. 10

Q6 Write short note on any **Three** 20

(a) Baye's detection of received signal
(b) Small scale fading
(c) Average mutual information and Entropy
(d) Time Dispersion Parameters, coherence bandwidth and Doppler spread coherence time parameter.
