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008402

May 2023

B.Tech. (ECE) 4th SEMESTER

Analog and Digital Communication (EC401)

Time: 3 Hours Max. Marks :75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART –A

1. (a) Define frequency domain representation of signals. (1.5)

(b) What is meant by Angle Modulation? (1.5)

(c) Define probability and random process. (1.5)

(d) What is meant by Noise in Frequency modulation systems? (1.5)

(e) Define Digital Multiplexers. (1.5)

(f) What is meant by Baseband Pulse Transmission? (1.5)

(g) What is meant by Optimum detection of signals in noise? (1.5)

(h) Define Digital Modulation tradeoffs. (1.5)

(i) What do you understand by Probability of Error evaluations? (1.5)

(j) Discuss carrier recovery for Digital modulation. (1.5)

PART–B

2. (a) Differentiate DSB, SSB and VSB modulations. (10)

(b) Compare FM and PM. (5)

3. (a) Briefly explain noise in amplitude modulation systems. (5)

(b) Compare Pre-emphasis and De-emphasis. Also explain threshold effect in angle modulation. (10)

4. Define TDM. Also, make comparisons among PAM, DM, PCM and DPCM. (15)

5. (a) Briefly explain the concept of Inter symbol Interference and Nyquist criterion. (5)

(b) Differentiate Phase Shift Keying, Frequency Shift Keying and MSK. (10)

6. (a) Explain in detail maximum likelihood sequence detection (Viterbi receiver). (10)

(b) Discuss the concept of Synchronization for Digital modulation. (5)

7. Enlist salient features of Equalization Techniques and explain Optimum demodulation of digital signals over band-limited channels. (15)