SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

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B.Tech. || ECE || 4th Sem

Digital Communication Systems

Subject Code: BTEC-401A (RG/RP)

Paper ID: M/18

Time allowed: 3 Hrs (2015 batch onwards) Max Marks: 60

Important Instructions:

- **All questions are compulsory**

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

(a) What is Sampling theorem?
(b) Describe A-Law & μ-Law Companding
(c) What is line coding?
(d) Describe Alternate mark inversion
(e) What is aliasing and how it is reduced?
(f) Differentiate between Entropy & Information rate.
(g) What do you mean by bit & word interleaving?
(h) Describe intersymbol interference.
(i) Explain Eye Patterns.
(j) Distinguish between uniform and non uniform quantization.

PART B (5×8marks)

Q. 2. Explain Huffman Coding. Calculate the entropy using Huffman Coding for eight messages with probabilities 1/2, 1/8,1/8,1/16,1/16,1/16,1/32,1/32. CO1

OR

Explain Shannon Fano Coding. Calculate entropy and code efficiency with probabilities 0.30,0.25,0.20,0.12,0.08 and 0.05 CO1

Q.3. Discuss Delta modulation in detail with suitable diagram. CO2

OR

Draw and explain the working of pulse code modulation. What are its advantages and disadvantages? CO2

Q. 4. Describe High Density Bipolar signaling and B8ZS line code by drawing waveforms. CO3

OR

Draw and explain the data formats for the bit stream 1100110 using (i) Polar NRZ (ii) Unipolar RZ (iii) AMI (iv) Manchester CO3

Q. 5. Draw and explain block diagram of QPSK System

OR

Describe Generation & coherent detection of binary FSK

Q. 6. Describe Generation & coherent detection of binary ASK

OR

Compare MSK and GMSK Systems.