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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech II Year II Semester Regular Examinations October-2022

DIGITAL COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Draw the block diagram of digital communication system. Explain each block. L2 6M
b What are the advantages & disadvantages of PCM? L1 6M

OR

- 2 a Explain the DM (delta modulation system) with suitable diagrams. L2 6M
b Explain Slope overload Distortion & Granular Noise. L2 6M

UNIT-II

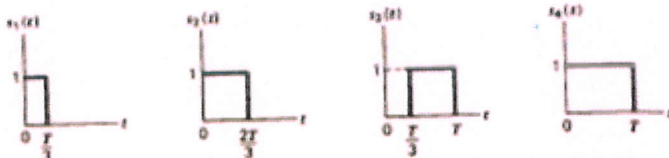
- 3 a Explain the matched filter. L2 6M
b Derive the properties of matched filter. L3 6M

OR

- 4 a What are the effects of ISI? L1 6M
b Describe Eye pattern and construct the diagram. L2 6M

UNIT-III

- 5 Consider the signals $s_1(t)$, $s_2(t)$, $s_3(t)$, $s_4(t)$, shown in fig. Find the orthogonal basis function using Gram Schmidt orthogonalization procedure. L3 12M



OR

- 6 a Draw the block diagram of a most basic form of digital communication system. L1 6M
b Illustrate optimum receiver for AWGN channel. L2 6M

UNIT-IV

- 7 a Draw the block diagram of ASK transmitter and receiver and explain the operation. L2 6M
b Derive an expression for probability of error of coherent binary ASK. L1 6M

OR

- 8 Draw the block diagram of QPSK transmitter & receiver and explain each block in detail. L1 12M

UNIT-V

- 9 A generator matrix for a (6, 3) block code is given below. List all the code vectors. L3 12M
Find out minimum distance & weight of the code.

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

OR

- 10 a What is forward error correction system and explain in detail? L1 6M
b Describe the matrix representation of linear block codes. L2 6M

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