

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

B.Tech II Year II Semester Regular & Supplementary Examinations June-2024
DIGITAL COMMUNICATIONS

(Electronics & Communications Engineering)

Time: 3 Hours

Max. Marks: 60

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

UNIT-I

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|---|---|-----|----|----|
| 1 | a Explain fundamental limitations of Communication Systems. | CO1 | L1 | 6M |
| | b Compare Analog and Digital Communication. | CO1 | L2 | 6M |

OR

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|---|--|-----|----|----|
| 2 | a Derive the quantization noise in PCM. | CO5 | L3 | 6M |
| | b What are the advantages & disadvantages of DPCM? | CO1 | L1 | 6M |

UNIT-II

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|---|---|-----|----|----|
| 3 | a Derive the expression for impulse response of a matched filter. | CO6 | L3 | 6M |
| | b What are the remedies to reduce ISI. | CO5 | L1 | 6M |

OR

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|---|---|-----|----|----|
| 4 | a Describe Eye pattern and construct the diagram. | CO2 | L2 | 6M |
| | b Explain in detail about modified duo binary signaling scheme? | CO4 | L2 | 6M |

UNIT-III

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|---|--|-----|----|-----|
| 5 | Explain the concept of geometrical representation of signals | CO4 | L2 | 12M |
|---|--|-----|----|-----|

OR

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|---|--|-----|----|----|
| 6 | a Draw the block diagram of a most basic form of digital communication System. | CO1 | L1 | 6M |
| | b Illustrate optimum receiver for AWGN channel? | CO5 | L2 | 6M |

UNIT-IV

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|---|---|-----|----|----|
| 7 | a Explain pass band transmission with band pass transmission. | CO2 | L2 | 6M |
| | b Derive an expression for probability of error in BFSK. | CO5 | L3 | 6M |

OR

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|---|---|-----|----|-----|
| 8 | Draw the block diagram of QPSK transmitter & receiver and explain each block in detail. | CO4 | L1 | 12M |
|---|---|-----|----|-----|

UNIT-V

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|---|---|-----|----|----|
| 9 | a Explain the concept of matrix representation of Linear block codes. | CO4 | L2 | 6M |
| | b Describe the Error detection and correction codes. | CO4 | L2 | 6M |

OR

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|----|--|-----|----|----|
| 10 | a Explain the Convolutional Encoding and Decoding methods. | CO3 | L2 | 6M |
| | b The Generator matrix(G) for a (7, 4) block code is given below | CO3 | L3 | 6M |

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

Determine the Parity check matrix (G).

*** END ***

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