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

B.Tech III Year I Semester Regular Examinations Feb-2021

DIGITAL COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 60

PART-A

(Answer all the Questions 5 x 2 = 10 Marks)

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|---|---|--|----|
| 1 | a | Define Differential Encoding. | 2M |
| | b | What is Baseband binary data Transmission System? | 2M |
| | c | Define signal constellation diagram. | 2M |
| | d | Define digital modulation techniques and its purpose | 2M |
| | e | Define Hamming Distance | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---|--|----|
| 2 | a | Explain the Process of Quantization through one Example. | 5M |
| | b | Explain the DPCM system with neat diagram. | 5M |

OR

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|---|---|--|----|
| 3 | a | Explain the following line codes for 101001110
(i) Unipolar RZ & NRZ (ii) polar RZ & NRZ (iii) Bipolar RZ & NRZ | 5M |
| | b | Define delta modulation. Discuss the noise effects in Delta Modulation | 5M |

UNIT-II

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| 4 | a | Derive the expression for impulse response of a matched filter. | 5M |
| | b | Describe the baseband M-array PAM Transmission system. | 5M |

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| 5 | a | Discuss in detail about Inter symbol interference and its effects. | 5M |
| | b | Explain duo-binary signaling scheme through one example. | 5M |

UNIT-III

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| 6 | a | Explain the concept of AWGN channel. | 5M |
| | b | Draw the block diagram of the structure and behavior of Matched filter Receiver. | 5M |

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| 7 | a | What is Gram-Schmidt orthogonalization procedure? Explain | 5M |
| | b | With a neat sketch explain the working of correlation receiver. | 5M |

UNIT-IV

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| 8 | a | With the help of a block diagram of explain the operation of ASK transmitter and receiver | 6M |
| | b | Derive the probability of error for a coherent QPSK system | 4M |

OR

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| 9 | a | How will you differentiate binary PSK and M-PSK, explain with block diagrams? | 5M |
| | b | Define DPSK. Determine the encoded and decoded output of a binary data stream 101101100 is to be transmitted using DPSK. | 5M |

UNIT-V

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| 10 | a | Define ARQ system. Write about various types of ARQ systems. | 5M |
| | b | Explain the concept of matrix representation of Linear block codes. | 5M |

OR

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| 11 | a | What is forward error correction system and explain with an example? | 5M |
| | b | Discuss about sequential decoding of convolutional codes | 5M |

END