IH Used Paper BTECH-13-10-20

Code No: 135AK **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, October - 2020
DIGITAL COMMUNICATIONS
(Common to ECE, ETM)

Time: 2 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1. State sampling theorem and explain ideal sampling process with necessary expressions and diagrams. [15]

2. Explain the process of quantization and obtain an expression for signal to quantization ratio in the case of uniform quantizer. [15]

3.a) What are the advantages of Lempel – Ziv encoding algorithm over Huffman coding.
b) Explain in detail about Shannon-Fano coding scheme. [8+7]

4. Construct the Huffman code with minimum code variance for the following probabilities and also determine the code variance and code efficiency: [15]
{0.25, 0.25. 0.125, 0.125, 0.125, 0.0625, 0.0625}

5. Explain in detail about the GRAM Schmidt orthogonalisation procedure. [15]

6. Obtain the orthonormal basis function for the set of waveforms using GSOP. [15]

7. Discuss about coherent detection of QPSK and derive its power spectral density. [15]

8. What is a Pseudo noise sequence? How it is generated? What are the properties of Pseudo noise sequence. [15]

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