R18 Regulation

Subject code: 2P5DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech V Semester Regular/Supplementary Examinations, December 2021
DIGITAL COMMUNICATION
(Electronics and Communication Engineering)

Maximum Marks: 70 *Date:07.01.2022* Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 What is the significance of sampling theorem in digital data transmission?
2 Write the difference between baseband signal and band pass signal.
3 Draw the ASK wave form for the input data 11001010 with standard sine wave as carrier signal.
4 What is PLL? How it works in a circuit?
5 What is Entropy? Write the expression to calculate entropy.
6 Compare shanon-fano with Huffman coding.
7 Give the significance of generator matrix.
8 What is syndrome? How it helps to spot error?
9 Write the applications of DSSS.
10 What is PN sequence? Give the application of it in spread spectrum.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 Explain quantization error and derive an expression for maximum SNR in PCM system that uses linear quantization. (10M)

OR

12 Describe adaptive delta modulation with neat sketch and explain how the drawbacks of DM has overcome with Adaptive DM. (10M)

13 Describe the generation and detection of binary PSK signals. (10M)

OR

14 Brief the detection of FSK signal using Phase locked loop method. (10M)

15 Using Huffman code, encode the following symbol, S={0.3,0.2,0.25,0.12,0.05,0.08}, calculate (i) Average codeword length (ii) entropy of the source (iii) code efficiency (iv) redundancy (10M)

OR

16 Explain Mutual information and its properties in detail. (10M)

17 Describe the cyclic code with linear and cyclic properties, also represent the cyclic property in polynomial notation with an example. (10M)

OR

18 For any linear (6,3) block code take any generator matrix and find all the possible code vectors. (10M)

19 Describe the Model of Direct Sequence Spread Spectrum Digital Communication System with neat diagram. (10M)

OR

20 Analyze the operation of CDMA with neat diagram and expressions. (10M)