



Regulation R18

Subject code:2P5DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, February 2024
DIGITAL COMMUNICATIONS
(ECE)

Maximum Marks: 70

Date: 22.02.2024 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)

Table with 5 columns: Question No., Question, Marks, CO, BTL. Contains 10 questions related to digital communications.

Part-B

Answer All the following questions.

(5X10M=50Marks)

Table with 5 columns: Question No., Question, Marks, CO, L. Contains 5 questions, including a complex question with a probability table and Huffman coding.

	every symbol if the probability distribution is as follows: $X_1 = 0.3$ , $X_2 = 0.25$ , $X_3 = 0.2$ , $X_4 = 0.12$ , $X_5 = 0.08$ , $X_6 = 0.05$ . Calculate entropy of the source, average length of the code, efficiency and redundancy of the code			
17	<p>The generator matrix for a (6, 3) block code is given by</p> $G = \begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{bmatrix}$ <p>a) Find the code vectors.  b) Find the parity check matrix.  c) Find the Minimum Distance of the Code Vector.</p>	10	CO4	L3
	OR			
18	<p>The parity check matrix of a particular (6, 3) linear block code is</p> $H = \begin{bmatrix} 1 & 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$ <p>a) Find generator matrix.  b) List all the code vectors.  c) Minimum distance of the code vector.  d) How many errors can be detected and how many errors corrected</p>	10	CO4	L3
19	a) Define spread spectrum modulation.	5	CO5	L2
	b) Explain the advantages and applications of spread spectrum modulation	5	CO5	L2
	OR			
20	Explain about PN [ Pseudo-Noise] sequence generation?	10	CO5	L2