SRM Institute of Science and Technology
College of Engineering and Technology

DEPARTMENT OF ECE

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

Academic Year: 2024-2025 (Even)

21ECC302T Analog and Digital Communication

Assignment Questions

Year & Sem: III & VI **Max. Marks: 30**

Course Articulation Matrix :

	21ECC302T/ Analog and Digital Communication	PROGRAM OUTCOME (PO)												PROGRAM SPECIFIC OUTCOMES		
S.NO	COURSE OUTCOME	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Explain the Various Analog Modulation Techniques	3	-	-	-	-	-	-	-	-	-	-	2	2	-	-
2	Analyze the Noise performance of Radio transmitters and Receivers	3	3	-	-	-	-	-	-	-	-	-	2	-	3	-
3	Demonstrate the modulation and	3	2	-	-	-	-	-	-	-	-	-	-	-	-	3
4	detection of Received Digital Signal	3	-	-	-	3	-	-	-	-	-	-	-	-	-	2
5	Apply the suitable passband Techniques for real time application	3	-	3	-	-	-	-	-	-	-	-	-	3	-	-

Q. No	Questions	Marks	BL	CO	PO
1.	A continuous signal is bandlimited to 5 kHz. The signal is quantized into 8 levels of a PCM system with the probabilities 0.25, 0.2, 0.2, 0.1, 0.1, 0.05, 0.05, and 0.05. Calculate the entropy and the rate of information.	**5**	**2**	5	**3**
2.	Consider a source that emits five different symbols {A, B, C, D, E} with the following probabilities {0.4, 0.15, 0.15, 0.15, 0.15} Perform Shannon-Fano coding for these symbols and determine: a. The Shannon-Fano code for each symbol. b. The average code length. c. The efficiency of the code.	**10**	**3**	5	**3**
3.	An event has six possible outcomes with the probabilities: $p_1 = 1/2$, $p_2 = 1/4$, $p_3 = 1/8$, $p_4 = 1/16$, $p_5 = 1/32$, $p_6 = 1/32$ Find the entropy of the system. Also, find the rate of information if there are 16 outcomes per second.	**5**	**2**	5	**3**
4.	A source emits five different symbols {A, B, C, D, E} with the following probabilities{0.30, 0.25, 0.20, 0.15, 0.10} Perform Huffman coding for these symbols and determine: a. The Huffman code for each symbol. b. The average code length. c. The efficiency of the code.	**10**	**3**	5	**3**