Code No: R203104N **R20** SET - 1

III B. Tech I Semester Supplementary Examinations, July -2023
PRINCIPLES OF COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	What is threshold effect in an envelop detector? Explain	[7M]
	b)	Describe the SSB in frequency domain and then explain how to generate SSB modulated wave using frequency discrimination method. Also, list the advantages of SSB.	[7M]
		(OR)	
2.	a)	Explain the phase discrimination method for generating SSB signal.	[7M]
	b)	Explain about COSTAS loop with a neat block diagram for demodulating DSB-SC wave.	[7M]
		UNIT-II	
3.	a)	Explain the difference between narrow band FM and Wideband FM.	[7M]
	b)	Explain the methods of FM Generation.	[7M]
		(OR)	
4.	a)	What are the principal merits and limitations of FM.	[7M]
	b)	Explain the Generation of Narrowband FM.	[7M]
		UNIT-III	
5.	a)	Distinguish between instantaneous sampling, natural sampling and flat top sampling.	[7M]
	b)	Compare PAM and PPM.	[7M]
		(OR)	
6.	a)	With the help of neat diagram explain the transmission and reception of PCM.	[7M]
	b)	Explain the merits and demerits of PWM.	[7M]
		UNIT-IV	
7.	a)	Explain about the noise performance of an FM receiver.	[7M]
	b)	Explain about pre emphasis and de emphasis in FM systems.	[7M]
		(OR)	
8.	a)	Explain the noise performance of DSB-SC receiver.	[7M]
	b)	Compare the noise performance of FM and AM systems.	[7M]
		UNIT-V	
9.	a)	Explain BPSK system with the help of Transmitter & Receiver.	[7M]
	b)	Derive an expression for spectrum of BPSK system and calculate Bandwidth requirement.	[7M]
		(OR)	

10. a) With relevant expression and block diagrams, explain the operation of M-ary FSK Transmitter and receiver. [7M]

b) Consider (7, 4) linear code whose generator matrix is [7M]

$$G = \left[\begin{array}{cccc:ccc} 1 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 1 & 1 \end{array}\right]$$

i) Find all code vectors of this code, ii) Find the parity check matrix for this code.