

Code No: R17A0409 MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Supplementary Examinations, April 2023



Roll No										

Time: 3 hoursMax. Marks: 70Note: This question paper Consists of 5 Sections. Answer FIVE Questions, Choosing ONE
Question from each SECTION and each Question carries 14 marks.
***SECTION-I1AFind the modulation index and draw the envelope of an amplitude modulated
wave with full carrier for a sinusoidal wave input of 2Vp p. 1KHz as[7M]

		wave with full carrier for a sinusoidal wave input of 2Vp-p, 1KHz as message signal and $3\cos(2\pi 1000t)$ as carrier signal is applied to AM modulator.	
	B	Explain DSB-SC generation using Ring modulator. OR	[7M]
2	A	Explain how AM is generated using switching modulator. Derive the relevant expression.	[7M]
	В	Explain AM Transmitter with neat block diagram. <u>SECTION-II</u>	[7M]
3	A	Explain Phase discrimination method for generating AM SSB Modulated waves,	[10M]
	В	List Applications of different AM Systems. OR	[4M]
4	A	Explain Envelope detection of a VSB Wave plus carrier.	[7M]
	В	What is Hilbert Transform? List the properties of Hilbert Transform/ SECTION-III	[7M]
5	A	Explain FM Transmitter with neat block diagram	[7M]
	В	What is the significance of pre-emphasis and de-emphasis circuits used in FM?	[7M]
		OR	
6	A	Derive the equation for wide band FM wave and draw its spectrum Compute the band width requirement of a wide band FM - transmitter having a frequency deviation of 75 KHZ and an audio band width of 15 KHz	[7M]
	B	Describe the operation of balanced slope detector used for FM demodulation. <u>SECTION-IV</u>	[7M]
7	\boldsymbol{A}	Prove that the figure of merit of DSB - SC receiver is unity.	[7M]
	B	Explain Threshold effect in FM	[7M]
8	A	Explain Noise in Angle Modulation System	[7 M]
U	B	Explain White Noise, Narrowband Noise in Communication System	[7M]
		SECTION-V	
9	A	Briefly explain the functions of each of the blocks in the super heterodyne receiver.	[10M]

	B	List and discuss the factors influencing the choice of the intermediate frequency for a radio receiver	[4M]
10	A	OR What is pulse Amplitude modulation? How is it Demodulated?	[7M]
	B	Explain how PWM is converted into PPM system.	[7M]