# Code No: R18A0407 MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, April 2023

Analog	Communication

(ECE)										
Roll No										

# Time: 3 hours

**Note:** This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

#### \*\*\* SECTION-I

- 1 (a) Derive the expression for AM Wave and draw the Time domain [10M] representation of AM wave and discuss the three cases of modulation.
  - (b) The carrier wave is represented by equation  $c(t) = 10 \sin \omega_c t$ . Draw the [4M] waveform for AM wave if (i)  $\mu = 1$  and (ii)  $\mu = 0.75$ .

#### OR

- 2 (a) Define modulation. Classify various modulation schemes and compare [10M] them.
  - (b) A broadcast transmitter radiates 20kW when the modulation percentage is [4M] 75. Calculate carrier power and power of each sideband.

# **SECTION-II**

	SECTION I	
3	(a). Explain the generation of SSB SC wave by using Frequency discrimination	[8M]
	method with the help of neat diagram and suitable sketches.	
	(b) Differentiate the coherent and non-coherent demodulation process.	[6M]
	OR	
4	(a) Discuss the Vestigial side band modulation (vestige of LSB) with its	[ <b>7</b> M]
	Spectral Characteristics?	
	(b) Compare the different AM systems.	[7M]
	SECTION-III	
5	(a). Draw the block diagram of FM transmitter and explain each block in detail.	[8M]
	(b). A 10 MHz carrier is frequency modulated with a sinusoidal signal at 500Hz,	[6M]
	the maximum frequency deviation being 50 KHz. Find the bandwidth required by	
	using Carson's rule.	
	OR	
6	(a). Explain the generation of FM wave by using Indirect method with neat block	[10M]
	diagram.	
	(b) Write short notes on PreEmphasis and DeEmphasis.	[4M]
	SECTION-IV	_
7	(a) Prove that the noise figure in DSB SC wave is unity.	[ <b>8</b> M]

(b) Discuss various noise sources in a communication system [6M]

# OR

8 Define Figure Of Merit (FOM) and Prove that Figure of merit of Frequency [14M] Modulation is  $1.5\beta^2$  by considering white Gaussian noise with noise power spectral density as N<sub>0</sub>/2.

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# **R18**

Max. Marks: 70

9	<u>SECTION-V</u> Draw the block diagram of TRF receiver and explain each block in detail	[14M]
10	OR (a) With neat sketches explain the Radio receiver characteristics (b) Write short notes on PAM, PWM and PPM ***	[8M] [6M]