Code No.: EC402PC	R20	H.T.No.			8	R					

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) -June- 2025
ANALOG AND DIGITAL COMMUNICATIONS
(ECE)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1.	a)	A transmitter radiates 9 kW without modulation and 10.125 kW after modulation. Determine depth of modulation.	[2M]
	b)	What is the percentage of power saving of SSB-SC with respect to DSB-SC?	[2M]
	c)	Explain how FM can be generated from PM.	[2M]
	d)	What is carson's rule?	[2M]
	e)	List out the disadvantages of TRF receiver.	[2M]
	f)	What is meant by image frequency?	[2M]
	g)	What is companding?	[2M]
	h)	Compare the performance of pulse modulation schemes in analog communication.	[2M]
	i)	Define ASK.	[2M]
	j)	Distinguish between DM and ADM.	[2M]

PART-B **(50 Marks)**

2.		Draw the switching Modulator and explain the process of generation of AM waves.	[10M]
		OR	
3.		Derive the expression for DSB- SC signal? Explain the detection of DSB-SC signal using coherent demodulator?	[10M]
4.		Discuss the effect of modulation index on the band width of FM. Explain the generation of WBFM from NBFM with neat sketch.	[10M]
		OR	
5.		Differentiate narrow band FM and wide band FM.	[10M]
6.	a)	What are the characteristics of receiver and explain.	[5M]
	b)	Explain the differences between AM and FM receivers.	[5M]
		OR	
7.		With neat sketch explain the principle of operation of Super heterodyne receiver.	[10M]
8.		Draw the PCM system block diagram and explain its operation.	[10M]
		OR	
9.	a)	Explain the block diagram of PWM generation and detection.	[5M]
	b)	Compare Time Division Multiplexing and Frequency Division Multiplexing.	[5M]
10.		Draw and explain the operation of Non-coherent and coherent FSK modulator.	[10M]
		OR	
11.		Discuss in detail the BPSK transmitter and Receiver and also obtain the minimum double sided Nyquist bandwidth.	[10M]

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