Question Paper Code: R18A22EC04

R18

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Supplementary Examinations, June/July-2024

ANALOG COMMUNICATIONS

(ELECTRICAL COMMUNICATION AND ENGINEERING)

Time: 3 Hours **Max. Marks: 75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions		Course Outcome	B.T Level	Marks
1.	Draw the block diagram of communication system.	CO1	L2	2M
2.	What is mean by quadrature null effect?	CO1	L1	3M
3.	Compare SSB and VSB.	CO2	L2	2M
4.	What is guard band?	CO2	L1	3M
5.	Define modulation index in FM.	CO3	L1	2M
6.	List the applications of FM.	CO3	L1	3M
7.	Classify the noise in Analog communication.	CO4	L2	2M
8.	What is threshold effect?	CO4	L1	3M
9.	Define Sensitivity and selectivity of a receiver.	CO5	L1	2M
10.	Write the advantages of multiplexing.	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Obtain the amplitude modulation equation using switching modulator?	CO1	L3	10M
	OR			
B)	Express the DSB-SC both in time-domain and frequency domain and then explain the same.	CO1	L2	10M
12. A)	i) A receiver of SSB signal in which the modulation is a single spectral component has a normalized power of 0.5 volt2. A carrier has added to the signal and the carrier plus signal are applied to a diode demodulator. The carrier amplitude is to be adjusted so that at the demodulator output 90 percent of the normalized power is in the recovered modulating waveform. Neglect dc components. Find the carrier amplitude required.	CO2	L3	5M
	ii) Explain the demodulation of SSB.	CO2	L2	5M
	OR			
B)	Plan the generation and detection of Vestigial side band modulation.	CO2	L3	10M
13. A)	Explain how a FM signal is demodulated using PLL (Phase locked loop)	CO3	L3	10M
	OR			
B)	i) Determine the peak frequency deviation and modulation index for FM modulator Deviation sensitivity 5KHz/V and modulating signal 3 cos ($2\pi 1000t$).	CO3	L3	5M
	ii) Write the comparisons between FM and AM.	CO3	L2	5M

14. A)	Explain the noise performance of SSB-SC receiver and prove its S/N ratio is unity.	CO4	L2	10M
	OR			
B)	i) Derive the Noise Figure for cascade stages.	CO4	L3	5M
	ii) Explain about the need of emphasis circuits with neat diagrams.	CO4	L2	5M
15. A)	With neat diagram explain super heterodyne receiver in detail.	CO5	L2	10M
	OR			
B)	Explain, how a PPM signal can be generated from PWM signal? And also explain the demodulation of PPM.	CO5	L2	10M