Question Paper Code: R18A22EC04

R18

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Supplementary Examinations, Jan/Feb-2024

ANALOG COMMUNICATIONS

(ELECTRONICS AND COMMUNICATION 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.	Give the formula of modulation index for multi-tone modulation in AM.	CO1	L1	2M
2.	Elaborate is the function of balanced modulator?	CO1	L2	3M
3.	Derive the expression for power required for SSB-SC.	CO2	L2	2M
4.	Give the merit and demerit of SSB phase shift method.	CO2	L1	3M
5.	Draw the block diagram to generate FM from PM.	CO3	L2	2M
6.	Define bandwidth of FM according to Carson's rule.	CO3	L1	3M
7.	What are the purposes of the pre-emphasis /de-emphasis filter?	CO4	L2	2M
8.	Compare DSBSC and SSBSC in terms of SNR	CO4	L2	3M
9.	Compare TRF and super heterodyne receivers.	CO5	L2	2M
10.	Briefly explain TDM system with neat sketch.	CO5	L2	3M

Section B (Essay Questions)

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

11. A)	A radio transmitter radiates 10KW with the carrier unmodulated and 11.25KW when the carrier is modulated by a sinusoidal voltage. Calculate the modulation index.	CO1	L2	10M
	OR			
B)	Develop the Costas loop to demodulate DSB-SC wave.	CO1	L3	10M
12. A)	Deduce the time domain and frequency domain representation of SSB-SC wave.	CO2	L3	10M
	OR			
B)	Explain the coherent detection of SSB. Also discuss about quadrature null effect.	CO2	L2	10M
13. A)	The carrier of a broad cast is 100MHz.The maximum deviation is 75KHz of the highest audio frequency modulating the carrier is limited to 15KHz.What is the approximate Bandwidth?	CO3	L2	10M
	OR			
B)	Explain the demodulation of FM by using balanced frequency discriminator.	CO3	L3	10M
14. A)	What is narrow-band noise? Explain its in phase and quadrature phase components and properties.	CO4	L2	10M
	OR			
B)	Derive the expression for the figure of merit of AM with small noise.	CO4	L3	10M
15. A)	Interpret amplitude limiting. How can it be achieved in FM receivers?	CO5	L3	10M
	OR			
B)	Discuss the generation of PWM using Monostable Multivibrator with neat sketches.	CO5	L2	10M