Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations December-2021
ANALOG COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain radio frequency spectrum & its application used in communication system with a neat Sketch.	L2	6M
	b	Explain the concept of frequency mixing.	L2	6M

OR

2	a	Draw the neat circuits and equivalent circuits (for different modes) of ring modulator using diodes for generating DSB-SC signal.	L6	6M
	b	Generate DSB-SC signal with the help of ring modulator using diodes, with a neat sketch of waveforms.	L6	6M

UNIT-II

3	a	Expand the expression for FM signal in terms of Bessel functions.	L2	6M
	b	Explain the generation of FM using direct method.	L2	6M

OR

4	a	With the necessary circuit and voltage to frequency characteristics, explain the functionality of balanced slope detector for FM.	L2	6M
	b	Compare slope detector and balanced slope detector.	L4	6M

UNIT-III

5	a	Explain the concept of narrowband noise plus sine wave.	L2	6M
	b	Explain noise equivalent bandwidth.	L2	6M

OR

6	a	Explain the noise performance of DSB-SC scheme with the help of neat block diagram	L2	6M
	b	The noise figure of a receiver is 20dB and it is fed by a low noise amplifier which has gain of 40dB and noise temperature of 800K.Calculate the overall noise temperature of the receiving system and the noise temperature of the receiver.	L4	6M

UNIT-IV

7	a	Explain the transmission bandwidth of PAM signal.	L2	6M
	b	Discuss about synchronization in PAM.	L4	6M

OR

8	a	What sampling rate and sampling interval would be appropriate for a television video channel with a maximum bandwidth of 4 MHz?	L1	6M
	b	Explain the frequency spectrum of Flat Top PAM signal.	L2	6M

UNIT-V

9	a	Explain about sensitivity, selectivity and fidelity.	L2	6M
	b	Draw block diagram of Super-heterodyne AM receiver and explain function of each block.	L5	6M

<div align="center">OR</div>

10	a	Write a short note on channel capacity of a Discrete memory less channel.	L2	6M
	b	A voice grade telephone channel has a bandwidth of 3400Hz.If the signal to noise ratio on the channel is 30dB; determine the capacity of the channel. If the above channel is to be used to transmit 4.8kbps of data determine minimum SNR required on the channel.	L4	6M

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