



B.Tech IV Semester Supplementary Examinations, July 2024

Analog Communications
(ECE)

Maximum Marks: 70

Date:20.07.2024 Duration: 3 hours

- Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		CO	Bloom Tx
1	What is the formula for calculating efficiency of an AM wave?	1	L1
2	What is the bandwidth required for AM & SSB SC.	1	L1
3	What are the methods for SSB generation?	2	L1
4	What is Hilbert Transform?	2	L1
5	Define & Write the expression for Carson's rule?	3	L1
6	Define modulation index and frequency deviation in FM.	3	L1
7	Discuss threshold effect.	4	L1
8	Explain about thermal noise.	4	L1
9	Define Image frequency.	5	L1
10	What is the need for Amplitude Limiting?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	Define amplitude modulation with neat sketch & explain the need for modulation in detail? [10M]	1	L2
OR			
12	a) Explain the detection of DSB-SC wave using coherent detector? [6M] b) Calculate the total power (P_T) required for DSB-SC? [4M]	1	L2
13	Generate the SSB-SC signal using frequency discriminator method? [10M]	2	L2
OR			
14	a) Draw the block diagram for the modulation of a VSB signal and explain the principle of operation. [6M] b) The o/p current of 60% modulation Am generator is 1.5A to what value will this current rise if the generator is modulated additionally by another audio wave: Whose modulation index is 0.7 ?What will be the percentage power saving if the carrier and one of the side bands are now suppressed?[4M]	2	L2

15	Explain about the FM transmitter using Armstrong method. [10M]	3	L2
OR			
16	a) Explain how PLL can be used as a FM Demodulator. [7M] b) what is the modulation index of an FM signal having a carrier swing of 100 kHz when the modulating signal has a frequency of 8 kHz ? [3M]	3	L2
17	Derive expression for figure of merit of an DSB-SC receiver using Coherent detection. [10M]	4	L2
OR			
18	Explain about various noise sources in Analog communications? [10M]	4	L2
19	Draw the block diagram of a super heterodyne receiver and explain its operation? [10M]	5	L2
OR			
20	Explain the generation and detection method of "Pulse Amplitude Modulation" with neat diagrams? [10M]	5	L2