



**B.Tech IV Semester Supplementary Examinations, December 2024**

**ANALOG COMMUNICATIONS**  
**(Electronics & Communication Engineering)**

**Maximum Marks: 70**

Date: 05.12.2024

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	Define modulation index for AM.		1	L1
2	Give the advantage of COSTAS loop?		1	L1
3	Draw the frequency spectrum of VSB modulated wave and state the advantages?		2	L1
4	Classify the methods for SSB-SC generation.		2	L1
5	Define modulation index of FM.		3	L1
6	Define angle modulation		3	L1
7	Classify the sources of Noise?		4	L1
8	Compare WBFM and NBFM.		4	L1
9	What is image frequency?		5	L1
10	What is the need for AGC circuit?		5	L1

**Part-B**

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	Argue on the coherent detection of DSB-SC modulated wave and explain the process.	[10M]	1	L2
OR				
12	Explain the generation of AM signals using square law modulator. [10M]		1	L2
13	List out the various methods used to generate SSB-SC and explain any one method with neat sketches.	[10M]	2	L2
OR				
14	Evaluate the expression for VSB along with need of VSB modulation. [10M]		2	L2
15	A. With necessary equations, explain the generation of N.B.F.M using narrow band PM generator. [5M] B. Define the terms frequency sensitivity and frequency deviation? [5M]		3	L2
OR				

16	Generate the narrow band and wide band FM with a neat block diagram. [10M]	3	L2
17	Calculate the figure of merit of FM. [10M]	4	L2
OR			
18	Justify that the pre-emphasis and de-emphasis in FM is used to reduce the noise, With a neat block diagram. [10M]	4	L2
19	Explain the basic characteristics of Receivers in detail. [10M]	5	L2
OR			
20	For a broadcast super heterodyne AM receiver having no RF amplifier, the loaded Quality factor Q of the antenna coupling circuit is 100. Now if the intermediate frequency is 455 KHz. then, determine the following: (i) the image frequency and its rejection ratio at an incoming frequency of 1000 KHz. (ii) the image frequency and its rejection ratio at an incoming frequency of 25 MHz. [10M]	5	L2