R18 Regulation *Subject code: 2P4DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Supplementary Examinations, July 2024

ANALOG COMMUNICATIONS

(ECE)

Maximum Marks: 70 Date:23.07.2024 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	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 FM.	3	L1
6	What are the applications of PLL?	3	L1
7	Define figure of merit?	4	L1
8	Define Average noise figure.	4	L1
9	Define Intermediate frequency	5	L1
10	What are the advantages of PPM over PWM?	5	L1
	Part-B		
Answer All the following questions. (5X10M=50Marks)			
11	a) With a neat block diagram, explain the operation of Time division multiplexing and Frequency division multiplexing technique. [5M] b) Determine the power content of each of the side bands and of the carrier of an AM signal that has a percentage modulation of 85% and contains 1200 watt of total power. [5M]	1	L2
	OR		
12	a) Explain the principle used in balanced modulator and describe how a DSB-SC signal is generated using balanced modulator? [5M] b) Find the efficiency of the conventional AM and also calculate the % of power saving for DSB-SC signal for the % modulation of 50%? [5M]	1	L2
13	a) Generate the SSB-SC signal by suppressing the LSB? [5M] b) Calculate the % of power saving in SSB-SC w.r.t to DSB-SC? [5M]	2	L2
	OR		
14	Explain the principle of V.S.B Transmission. Compare VSB over SSB in all aspects? [10M]	2	L2

15	a) Explain the difference between Narrow band FM and Wide band FM. [5M] b) Generate the FM wave using direct method? [5M]	3	L2
	OR		
16	a)Detect the FM wave by using balanced frequency discrimination method? [5M] b) Calculate the transmission bandwidth of FM waves? [5M]	3	L2
17	Derive the figure of merit of SSB system. [10M]	4	L2
	OR		
18	Explain the operation of Pre emphasis and Deemphasis in FM system. [10M]	4	L2
19	Explain the basic characteristics of Receivers in detail. [10M]	5	L2
	OR		
20	a)Explain the generating and demodulation of PWM. [5M] b) A super heterodyne receiver having R.F amplifier is tuned to 555kHz .The local oscillator is adjusted to 1010kHz. Then calculate the I.F and image frequency. [5M]	5	L2