



Regulation R18

Subject code: 2P4DC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, February 2024 ANALOG COMMUNICATIONS

(ECE)

Maximum Marks: 70

Date: 21.02.2024

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.
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)

		Marks	CO	Blooms Tx
1	Define modulation index for AM?	2	CO1	L1
2	Give the advantage of COSTAS loop?	2	CO1	L2
3	State the advantages of VSB.	2	CO2	L1
4	Write the expression for SSB and What is Hilbert Transform?	2	CO2	L1
5	What is Angle modulation? Classify different types of Angle modulation?	2	CO3	L2
6	Write the expression for Carson's rule ?	2	CO3	L1
7	Define figure of merit.	2	CO4	L1
8	Define Average noise figure.	2	CO4	L1
9	Define sensitivity and fidelity	2	CO5	L1
10	Draw the PWM and its corresponding PPM signal.	2	CO5	L2

Part-B

Answer All the following questions.

(10M X 5=50Marks)

11.a	With a neat block diagram, explain the operation of Time division multiplexing and Frequency division multiplexing technique.	5	CO1	L2
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.	5	CO1	L3
	OR			
12.a	Explain the principle used in balanced modulator and describe how a DSB-SC signal is generated using balanced modulator?	7	CO1	L2
b.	calculate the % of power saving for DSB-SC signal for the % modulation of 50%?	3	CO1	L3
13.a	Draw block diagram and explain the operation of phase discrimination method.	7	CO2	L4
b	Illustrate Quadrature null effect?	3	CO2	L2
	OR			

14.a	Categorize the methods for generation of SSB-SC signal and explain any one of the method in detail.	6	CO2	L3
b	Explain the applications of various A.M Systems.	4	CO2	L2
15.a	Explain the difference between Narrow band FM and Wide band FM.	5	CO3	L2
b	Generate the FM wave using direct method?	5	CO3	L4
	OR			
16.a	Detect the FM wave by using balanced frequency discrimination method?	7	CO3	L4
b	Calculate the transmission bandwidth of FM waves ?	3	CO3	L3
17	Derive the expression to find the figure of merit of a DSB-SC System.	10	CO4	L4
	OR			
18.a	Define and calculate noise figure, noise equivalent temperature.	3	CO4	L3
b	Derive an expression for the S/N ratio for an FM System.	7	CO4	L4
19.a	Draw the block diagram of FM transmitter and explain each block ?	6	CO5	L4
b.	Discuss the advantages and disadvantages of TRF receivers.	4	CO5	L2
	OR			
20	Explain the generating and demodulation of PWM with wave forms.	10	CO5	L2