R18 Regulation *Subject code:2P4DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, June 2026

ANALOG COMMUNICATIONS
(ECE)

Maximum Marks: 70 Date: 12.06.2026 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	BTL
1	What is the formula for calculating efficiency of an AM wave?	2M	1	L1
2	What is the band width of DSB SC signal?	2M	1	L1
3	Write the expression for SSB.	2M	2	L1
4	Draw the frequency spectrum of VSB modulated wave and state the advantages.	2M	2	L1
5	Define & Write the expression for Carson's rule.	2M	3	L1
6	Define the terms carrier swing, highest frequency attained in FM.	2M	3	L1
7	List out various noise sources.	2M	4	L1
8	Write SNR expressions for AM	2M	4	L1
9	Compare sensitivity and fidelity of tuned RF receiver and super heterodyne receiver.	2M	5	L1
10	Draw the PWM and its corresponding PPM signal.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
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. b) Calculate the total power (P_T) required for DSB-SC.	6M 4M	1	L2
13	With a neat block diagram explain how a SSB-SC wave is generated using Phase Discriminator method with only USB is transmitted and by rejecting the LSB.	10M	2	L2
	OR			
14	Draw the block diagram for the generation and demodulation of a VSB signal and explain the principle of operation.	10M	2	L2
15	Discuss the effect of modulation index on the band width of FM. Explain the generation of NBFM with neat sketch.	10M	3	L2

	OR			
16	Detect the FM wave by using balanced frequency discrimination method?	10M	3	L2
17	Explain how Pre-emphasis and De-emphasis networks improve the noise performance of the FM receiver.	10M	4	L2
	OR			
18	Calculate signal to noise ratio for FM receiver. Find its figure of merit.	10M	4	L2
19	Draw the block diagram of a TRF receiver and explain its operation with advantages and disadvantages.	10M	5	L2
	OR			
20	Explain the generation and demodulation of "Pulse Position Modulation" with neat diagrams.	10M	5	L2