



R20 Regulation

Subject code: 3P4DB

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, December 2025

## ANALOG COMMUNICATIONS (ECE)

Maximum Marks: 70

Date: 18.12.2025

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	Define modulation.	2M	1	L1
2	What is the bandwidth required for AM & SSB SC.	2M	1	L1
3	Draw the frequency spectrum of SSB-SC modulated wave.	2M	2	L1
4	List the Applications of VSB.	2M	2	L1
5	Define Carson's rule.	2M	3	L1
6	Write 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	Define image frequency rejection ratio.	2M	5	L1
10	List out the applications of pulse modulation techniques.	2M	5	L1

### Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain The generation method of AM signal using Square Law Modulator and derive its equation.	10M	1	L2
OR				
12	With a neat block diagram and explain the operation of Time division multiplexing.	10M	1	L2
13	Explain the Generate the SSB-SC signal using frequency discriminator method.	10M	2	L2
OR				
14	Draw the block diagram for the modulation of a VSB signal and explain the principle of operation.	10M	2	L2
15	Explain the generation of FM signal with the necessary mathematical equations.	10M	3	L2
OR				

16	a) Explain detection of FM signal using Zero crossing detector. b) Compare FM and AM modulation techniques.	6M 4M	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