R17 Regulation *Subject code:* 1P4DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Year II Semester Supplementary Examinations, July 2021

Analog Communications
(ECE)

Maximum Marks: 70 Date:22.07.2021 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)

1 Define analog Modulation and also, list different types of analog modulations.
2 Define Modulating Signal, Carrier and Modulated Signals.
3 What is the bandwidth of AM and FM?
4 List Applications of SSB?
5 List the disadvantages of FM over AM.
6 Draw the Phasor diagram of narrow band FM.
7 Explain the properties of Narrow band noise.
8 What is threshold effect in Angle modulation?
9 Define the term fidelity.
10 Distinguish between PAM and PWM.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 How AM is generated using square law modulator? Derive relevant expressions. [10]

OR

12 Explain the generation of double sideband suppressed carrier (DSB-SC) modulation. Write the necessary equations. [10]

13 Explain the Frequency discrimination method for generating SSB signal. [10]

OR

14 With neat diagrams, explain about the VSB modulation system and also explain its applications. [10]

15 Explain the detection of FM wave using balanced frequency discrimination. [10]

OR

16 a) Analyze Sinusoidal FM wave with the help of its spectrum. [5]
b) Explain how FM signal is detected with the help of PLLs. [5]

17 a) Derive the Noise Figure for cascade stages. [5]
b) What is thermal noise? Derive the expression for the thermal noise voltage across a resistor. [5]

OR

18 a) Discuss the noise performance of AM system using envelope detection.[5]
b) Draw the Phasor representation of FM noise. [5]

19 Draw the block diagram of TRF receiver and the function of each block. [10]

OR

20 Draw the circuit of PPM demodulator and explain the operation. [10]