Regulation R17 *Subject code: 1P4DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech II Year II Semester Supplementary Examinations, 2021
ANALOG COMMUNICATIONS
(ECE)

Maximum Marks: 70 Date : 28-07-2022 Duration: 3 hour

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Explain the need for modulation.
2 Calculate the percentage saving in power if only one side band transmission is used over the DSB-SC system at (i) 100% modulation (ii) 50% modulation.
3 Define modulation index.
4 What are the bandwidths of AM, DSBSC and SSBSC?
5 What is Carson's rule?
6 Write the disadvantages of FM systems.
7 Classify the sources of Noise.
8 Define Shot noise.
9 What are image frequencies?
10 What is the need for AGC circuit?

Part-B

Answer All the following questions. (10M X 5=50Marks)

11.a Explain switching modulator. [5]
b. A standard AM transmission, sinusoidally modulated to depth of 40%, produces side band frequencies of 6.824 and 6.854 MHz. The amplitude of each sideband frequency is 50v.Determine the amplitude and frequency of the carrier? [5]

OR

12. Explain the generation of AM signals using square law modulator. [10]

13 Explain the generation of SSBSC signal using phase discrimination method. [10]

OR

14 Evaluate the expression for VSB along with need of VSB modulation. [10]

15. Discuss the effect of modulation index on the band width of FM. Explain the generation of WBFM from NBFM with neat sketch. [10]

OR

16. Generate the narrow band and wide band FM With a neat block diagram. [10]

17 Draw the block diagram of FM demodulator and explain the effect of noise in detail and compare the performance of AM and FM in the presence of noise. [10]

OR

18 Justify that the pre-emphasis and de-emphasis in FM is used to reduce the noise, with a neat block diagram. [10]

19 Explain the generation and demodulation of PWM. [10]

OR

20 Explain Superheterodyne receiver and mention the advantages of Superheterodyne receiver over TRF receiver. [10]