



CBCS SCHEME

15MT82

Eighth Semester B.E. Degree Examination, June/July 2023 Communication System

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With neat block diagram explain the communication system. (08 Marks)
b. What is modulation and explain the different types of modulations. (08 Marks)

OR

- 2 a. Explain the basic signal processing operations in digital communication. (08 Marks)
b. Explain sampling theorem and different types of samplings. (08 Marks)

Module-2

- 3 a. Explain amplitude modulation and derive expression for modulation index and band width. (08 Marks)
b. Explain square law modulator and switching modulator for AM generation. (08 Marks)

OR

- 4 a. Explain balanced modulator and ring modulator to generate DSBSC wave. (08 Marks)
b. Explain coherent detector and Costas loop to demodulate the DSBSC wave. (08 Marks)

Module-3

- 5 a. Derive the expression for frequency modulated wave and modulation index. (08 Marks)
b. Explain the generation of wideband FM using direct and indirect method. (08 Marks)

OR

- 6 a. An FM wave is given by $s(t) = 20 \cos(8\pi \times 10^6 t + 9 \sin(2\pi \times 10^3 t))$ calculate the frequency deviation, bandwidth, power of FM wave. (08 Marks)
b. Explain the Phase Locked Loop in FM demodulation. (08 Marks)

Module-4

- 7 a. With neat diagrams explain pulse amplitude modulation and time division multiplexing. (08 Marks)
b. With neat block diagram explain PCM. (08 Marks)

OR

- 8 a. With neat block diagram explain delta modulation. (08 Marks)
b. Draw the following line coding signaling for the data 101001110.
i) Unipolar RZ and NRZ
ii) Polar RZ and NRZ
iii) Bipolar RZ and NRZ. (08 Marks)

Module-5

- 9 a. Explain the frequency hopped spread spectrum with neat block diagrams. (08 Marks)
b. Explain the direct sequence spread spectrum with neat block diagrams. (08 Marks)

OR

- 10 a. Explain frequency division multiplexing. (08 Marks)
b. Write short notes on T1 carrier system. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8=50, will be treated as malpractice.