CBCS SCHEME

USN | | | | | | | | | | |

18MT822

Eighth Semester B.E. Degree Examination, June/July 2025
Communication System

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. With a neat block diagram, explain communication system. **(06 Marks)**

b. Define : i) Bandwidth ii) Sampling Theorem. **(04 Marks)**

c. Obtain the Fourier transform of $\cos 2\pi f_c t$ and $\sin 2\pi f_c t$ signals. **(10 Marks)**

OR

2 a. With a neat block diagram of Digital Communication system, explain different stages. **(10 Marks)**

b. Define Modulation. Explain the needs of modulation **(06 Marks)**

c. Obtain the Fourier transform of $\exp(j2\pi f_c t)$. **(04 Marks)**

Module-2

3 a. Derive Time and frequency domain equation for Amplitude Modulation and also derive the modulation index and efficiency. **(10 Marks)**

b. Explain the generation of DSBSC wave using Ring Modulator. **(10 Marks)**

OR

4 a. Explain the detection of DSBSC using Costas Receiver. **(10 Marks)**

b. Explain the detection of AM wave using square law detector. **(10 Marks)**

Module-3

5 a. With the help of block diagram, explain the working of FM stereo multiplexing. **(10 Marks)**

b. Explain the operation of balanced frequency discriminator in detail. **(10 Marks)**

OR

6 a. Explain the nonlinear model of PLL with relevant block diagram and derivations. **(10 Marks)**

b. Explain indirect method of generating FM. **(10 Marks)**

Module-4

7 a. With necessary diagram, explain Time Division Multiplexing Scheme. **(10 Marks)**

b. With neat diagram, explain pulse code modulation. **(10 Marks)**

OR

8 a. Along with waveform, explain the line codes for the following sequence (1 1 1 0 0 1 0 1 1 0 0 0) **(10 Marks)**

b. With relevant details, explain Delta modulation transmitter and receiver. **(10 Marks)**

Module-5

9 a. Explain Direct sequence spread spectrum with coherent BPSK. **(10 Marks)**

b. With relevant details, explain the generation of Pseudo Noise Sequence. **(10 Marks)**

OR

10 a. With neat diagram, explain Frequency Hop Spread Spectrum. **(10 Marks)**

b. Explain CDMA and Multipath Suppression. **(10 Marks)**

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