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18MT822

Eighth Semester B.E. Degree Examination, July/August 2022
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. Write a note on different channels used in communication. (10 Marks)
     c. Define : i) B.W   ii) Sampling theorem. (04 Marks)

OR

2   a. Define Modulation. Explain the need for modulation. (06 Marks)
     b. Find the Fourier transform spectrum for i) $m(t) \cos 2\pi f_c t$ ii) $\sin 2\pi f_c t$ (10 Marks)
     c. Give difference between Analog and digital communication system. (04 Marks)

Module-2

3   a. Derive time and frequency domain equation for amplitude modulation and also derive modulation index and efficiency. (10 Marks)
     b. Explain square modulator to generate amplitude modulation signal. (10 Marks)

OR

4   a. Explain the generation of DSBSC using ring modulator. (08 Marks)
     b. Explain detection of DSBSC using i) Envelope detector ii) Costas Receiver. (12 Marks)

Module-3

5   a. Derive time domain and frequency domain equation for NBFM. (10 Marks)
     b. Explain the generation of FM using indirect method. (10 Marks)

OR

6   a. Explain in detail the detection of FM signal using PLL. (12 Marks)
     b. Write a note on non-linear effect in FM system. (08 Marks)

Module-4

7   a. Write a note a PCM transmitter, Receiver and Regulative repeaters. (10 Marks)
     b. Derive $[SNR]_Q = 4.8 + 6N$. (10 Marks)

OR

8   a. Write a note on TDM [Time Division Multiplexing]. (08 Marks)
     b. Write a note on : i) Robust quantization   ii) Line codes [RZ and NRZ unipolar and polar]. (12 Marks)

Module-5

9   a. Write a note on frequency hop spread spectrum. (10 Marks)
     b. Write a note on FDM, TDM. (10 Marks)

OR

10   a. Write a note on DSSS. (10 Marks)
     b. Write a note on : i) Pseudo noise sequences ii) TI carrier system. (10 Marks)

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