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18BM61

Sixth Semester B.E. Degree Examination, Feb./Mar.2022 Analog and Digital Communication Systems

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define Amplitude modulation. Derive an expression for AM wave and sketch the Fourier spectrum. (08 Marks)
- b. Explain the generation of AM waves using square law modulator. (06 Marks)
- c. Explain with block diagram COSTAS receiver used for demodulation of DSBSC wave. (06 Marks)

OR

- 2 a. With a neat block diagram, explain phase discrimination method of generating SSB modulated wave. (08 Marks)
- b. Explain the generation of DSBSC waves using Ring modulator. (06 Marks)
- c. Explain with block diagram the operation of frequency decision multiplexing. (06 Marks)

Module-2

- 3 a. Explain narrow band frequency modulation and sketch its Fourier spectrum. (10 Marks)
- b. Explain the generation of frequency modulated wave using Indirect method. (06 Marks)
- c. Specify with relevant expression the relationship between phase modulation and frequency modulation waves. (04 Marks)

OR

- 4 a. Derive an expression for representing wide band frequency modulation and its Fourier spectrum. (10 Marks)
- b. Explain the generation of frequency modulated wave using direct method. (06 Marks)
- c. Short note on Pre emphasis and De-emphasis in FM system. (04 Marks)

Module-3

- 5 a. Define pulse amplitude modulation. With block diagram, explain the generation of PAM. (10 Marks)
- b. Explain with block diagram, pulse code modulation. (10 Marks)

OR

- 6 a. Explain with block diagram and expressions delta modulator. (10 Marks)
- b. Explain with block diagram Time division multiplexing. (10 Marks)

Module-4

- 7 a. Explain the generation and detection of BPSK signals with detailed block diagram. (10 Marks)
- b. Explain the generation and detection of QPSK. (10 Marks)

OR

- 8 a. Explain non coherent detection of BFSK signals. (10 Marks)
- b. Explain the generation and detection of Differential Phase Shift Keying (DPSK). (10 Marks)

Module-5

- 9 a. Explain WPAN and its network architecture. (10 Marks)
- b. Explain the layered architecture of Bluetooth. (10 Marks)

OR

- 10 a. Describe WPAN components and requirements of WPAN devices with various WPAN technologies and give its applications. (10 Marks)
- b. Explain Zigbee components and Zigbee Topology models with Zigbee stack architecture. (10 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.