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Reg. No. :

Question Paper Code : 90471

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third/ Fourth/ Sixth Semester

Electrical and Electronics Engineering

EC 8395 – COMMUNICATION ENGINEERING

Common to : Computer Science and Engineering/ Electronics and Instrumentation Engineering/ Instrumentation and Control Engineering

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is the need for amplification before and after the demodulation of AM signals?

2.   Write two advantages of FM over AM.

3.   What is the difference between TDM and FDM?

4.   State sampling theorem.

5.   Define Binary Phase Shift Keying.

6.   Compare the bandwidth of QPSK and BPSK signals.

7.   State shannon Hartley theorem.

8.   Define information entropy.

9.   Define multiple access in the filed of communication system.

10. Write about the concept of FDMA.

PART B — (5 × 13 = 65 marks)

11. (a) With a neat block diagram explain the working of a AM receiver that provides stable selectivity and usage of low frequency components.

Or

(b) With a suitable block diagram explain the working of a lattice type of AM modulator that generates only the sidebands in the modulated output.

12. (a) Derive the expression for signal to quantisation noise ratio for a PCM system that uses linear quantisation.

Or

(b) A delta modulation system is designed to operate at five times the Nyquist rate for a signal with 3kHz bandwidth. Determine the maximum amplitude of a 2kHz input sinusoidal signal for which the delta modulator does not have slope overload. The quantising step size is 250 mv. Derive the formula that you apply.

13. (a) With a block diagram and suitable waveforms, explain an offset QPSK transmitter.

Or

(b) With a circuit diagram explain the functioning of a bridged-T delay equaliser.

14. (a) Explain in detail about salient features of Huffman coding with relevant applications.

Or

(b) Explain the method of generating of cyclic codes with an example.

15. (a) Explain the principles of TDMA with an application of the same.

Or

(b) With a block diagram explain the principle of CDMA technique.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the procedure to generate PN sequence using LFSR, of length 16. Assume appropriate initial conditions and tappings. Check the properties of the same.

Or

(b) Derive the expression for double side band full carrier AM wave and with necessary diagrams and compare its performance with AMDSBSC and VSB modulation techniques.

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