

Anna university APR/MAY 2011 question paper

Semester: V

Year : 3rd Yr

Department : B.E Electronic Communication Engineering

Regulation : 2008

Subject Code : EC2301

Subject Name : Digital Communication

PART A (10\*2 = 20 Marks)

1. Give an example each for time limited and time unlimited signals.
2. Give an advantage and a disadvantage of digital communication.
3. State sampling theorem.
4. What is quantization error?
5. Define hamming distance.
6. What is mean by transparency with respect to line codes?
7. What is a matched filter?
8. Give two applications for eye pattern.
9. Draw the PSK waveform for 011011.
10. What is a non-coherent detection system?

PART B (5\*16 = 80 Marks)

11(a) Explain how PWM and PPM signals are generated.

or

11(b)(i) Classify channels. Explain the mathematical model of any two communication channels. (6)

(ii) Explain Binary symmetric channel and Gaussian channel with their mathematical models. (Marks 10)

12(a)(i) Explain a non-uniform quantization process.

(ii) Write notes on temporal waveform coding.

or

12(b)(i) Explain a spectral waveform encoding process.

(ii) Compare various speech encoding methods.

(13)(a)(i) Assume a (2,1) convolutional coder with constraint length 6. Draw the tree diagram, state diagram and trellis diagram for the assumed coder.

(ii) Find the (7,4) linear systematic block code word corresponding to 1101. Assume a suitable generator matrix.

or

13(b) Draw the power spectra of polar codes and on-off codes. Discuss their characteristics.

14(a) Derive the expression for bit error probability due to a matched filter.

or

(b) Discuss on signal design for ISI elimination.

15(a) Derive the bit error probability due to coherent ASK, PSK and FSK systems. Compare the performance of these systems.

or

15(b)(i) Discuss QPSK signalling

(b)(ii) Derive the bit error probability due to QPSK receiver. Compare the performance of QPSK receiver with that of PSK receiver.