Reg. No. : | | | | | | | | | | |

Question Paper Code: 31451

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Electronics and Communication Engineering

01UEC501 – DIGITAL COMMUNICATION

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the advantages of digital communication over analog communication.
2. Write the characteristics of different types of channel with respect to its bandwidth.
3. What is natural sampling?
4. How can BER be improved?
5. What is the use of eye pattern?
6. State the principle of maximum likelihood detectors.
7. List any two remedy to reduce ISI.
8. What is meant by coherent detection?
9. How is spectral spreading achieved in spread spectrum communication?
10. Define process gain.

PART - B (5 x 16 = 80 Marks)

11. (a) Draw the block diagram of digital communication systems and explain each block in detail. (16)

Or

(b) State the need for modeling of channels. Elaborate on mathematical models of a communication system. (16)

12. (a) With neat block diagram explain the concept of PCM and also derive the signal to noise ratio in PCM system that uses linear quantization. (16)

Or

(b) With neat block diagram, explain pulse code modulation and demodulation. (16)

13. (a) With likelihood equation derivation, show that maximum likelihood detector will be used to detect known signal in noise with efficient estimate. (16)

Or

(b) Explain the working of a correlator type receiving filter. (16)

14. (a) Draw the block diagram of correlation receiver for 4 phase PSK (QPSK) detecting transmitted signals with 4 possible messages and explain the decision rule used. (16)

Or

(b) Explain the working of a QPSK schemes with its transmitter and receiver block diagrams. (16)

15. (a) What is spread spectrum technique? Explain in detail about direct sequence spread spectrum techniques with necessary diagrams. (16)

Or

(b) (i) List and prove the properties of PN sequence. (8)

(ii) Write short notes on frequency hopping. (8)

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