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

Question Paper Code: 35401

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. Bring out any two merits and demerits of digital 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 inter symbol interference?
6. Compute the matched filter output over *(0, T)* to the pulse waveform
   $S(t) = e^{-t}$ for $0 \leq t \leq T$
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) Explain in detail about non-uniform quantization technique. (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) Describe the principle of signal reception using a correlator type receiver. (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) Explain the operation of direct-sequence spread spectrum and its processing gain. (16)