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

Question Paper Code: 35401

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. Define channel. What are the types of channel.
2. Bring out any two merits and demerits of digital communication.
3. State sampling theorem.
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 are coherent and non-coherent receivers?
9. Mention any two properties of maximum-length sequences.
10. What is anti jam?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the geometric representation of signals. (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 pulse code modulation and demodulation. (16)

Or

(b) Explain in detail about non-uniform quantization technique. (16)

13. (a) Derive and Explain the Nyquist first criterion to minimize ISI. (16)

Or

(b) Describe the principle of signal reception using a correlator type receiver. (16)

14. (a) Describe with diagrams the generation and detection of coherent binary FSK. Explain the probability of error for this scheme. (16)

Or

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

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

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

Or

(b) Explain the operation of direct-sequence spread spectrum and its processing gain. (16)