

Roll No.

Total Pages : 3

8904

BT-5/D07

DIGITAL & DATA COMMUNICATION

Paper-IT-353

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *five* questions, selecting at least *one* question from each Unit.

UNIT-I

1. (a) What is baud rate ? Calculate the maximum possible baud rate of a voice channel having Bandwidth of 3100 Hz. 5
- (b) List the prime advantages of using optical fibre cables. 5
- (c) Which parameters affect the signal quality during data communications ? Explain in detail. 10
2. (a) Define the process of Quantization. What is quantization noise ? How it can be removed ? 8
- (b) How does DPCM differs from PCM ? 5
- (c) What are principal types of Modulation used in communication systems ? On what factors does the bandwidth requirement of a communication system depend ? 7

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UNIT-II

3. (a) What are the various methods of Reverse error correction ? 8
- (b) If the average BER is 1 in 10^6 , what is the probability of having
- (i) Single bit error. 5
- (ii) At least one error is an eight bit byte ? 5
- (c) Generate the code word for ASCII character "K" = 1001011. Assume even parity for hamming code. 7
4. (a) Explain Functional specifications of EIA-232D standard. 10
- (b) Why RS-449 interface is used ? Explain Electrical specifications and characteristics of RS-422A interface. 10

UNIT-III

5. (a) Explain frame format of SDLC. Compare SDLC and HDLC. 10
- (b) Calculate link utilization efficiency if
- (i) Bit rate = 19.2 kbps, frame size = 960 bits, window size = 3, propagation time = 0.06s
- (ii) Bit rate = 19.2 kbps, frame size = 960 bits, window size = 7, propagation time = 0.06s
- What is the minimum window size for 100 percent link utilization ? 10
6. (a) What is TDM ? Compare STDMA and STAT MUX methods of time division multiplexing. 10
- (b) Explain FDM. What methods are used to send FDM channels ? 10

UNIT-IV

7. (a) Draw block diagram giving general structure of satellite communication system. Describe its working. 10
- (b) What do you mean by Spread spectrum multiple access ? Explain various features of CDMA. 10
8. Write short notes on any *three* of the following :
- (a) FHSS.
- (b) PSK.
- (c) Asynchronous transmission.
- (d) V.35. 20
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