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BT-5/DX

DIGITAL AND DATA COMMUNICATION (2005-06)

Paper : IT-353

Time : Three Hours] [Maximum Marks : 100

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

UNIT–I

1. (a) Compare all digital encoding schemes. 8

   (b) Encode 100000000000100 using B8ZS & HDB3 encoding scheme. Assume polarity of first 1 is positive & no. of 1's since last substitution to be even. 6

   (c) Explain different modes of Data transmission. 6

2. (a) Explain Sampling theorem. What is quantization process & why is it required ? 10

   (b) Calculate bit rate for a given baud rate and type of modulation (i) 2000 baud, FSK, (ii) 2000 baud, ASK, (iii) 2000 baud, BPSK, (iv) 2000 baud, 16 QAM. 10

UNIT–II

3. (a) What is interfacing ? Explain RS- 232-C serial interface. 10

   (b) What is CRC ? Why is it used and what are its advantages ? 10

4. (a) Determine CRC code for message polynomial : $x^7 + x^6 + x^0$ and generator polynomial : $x^5 + x^4 + x^1 + x^0$. Also check whether received signal 1100100101011 is correct or have any error. 8

   (b) Distinguish between forward error and backward error correction by retransmission. 6

   (c) Differentiate between Series and Parallel transmission. 6

UNIT–III

5. (a) What is multiplexing? Explain characteristic & carrier system of synchronous TDM. What are its drawbacks ? 12

   (b) Explain different Multiple access protocols. 8

6. (a) Differentiate between:

   (i) Flow control & Error control.

   (ii) Bit-stuffing & Byte-stuffing. 10

   (b) Name and explain requirement for effective communications over a data link. 10

UNIT–IV

7. (a) What is CDMA ? How is it used for transmission and reception of data via satellite ? 12

   (b) Explain DAMA. 8

8. (a) Explain techniques

   (i) FH-SS.

   (ii) DS-SS. 10

   (b) Explain satellite communication system using appropriate diagram & discuss its advantages over other medium of transmission. 10