B.Tech. Degree IV Semester Examination April 2019

CS/IT 406 DATA COMMUNICATION
(2006 Scheme)

Time : 3 Hours   Maximum Marks : 100

PART A
(Answer *ALL* questions)

$(8 \times 5 = 40)$

I.
   (a)   List out the advantages of digital transmission over analog transmission.

   (b)   Define channel capacity. A data is to be transmitted over PSTN using 8 levels per signal elements. If the bandwidth is 3000HZ, deduce maximum data transfer rate.

   (c)   Illustrate Biphase and Bipolar schemes.

   (d)   Explain the need of scrambling techniques with suitable example.

   (e)   Explain the frame format in HDLC.

   (f)   Explain the concept of redundancy in error detection schemes.

   (g)   Write a short note on CDMA.

   (h)   What is DSL? List any three variants of DSL.

PART B

$(4 \times 15 = 60)$

II.
   (a)   Summarize the various transmission impairments.   (10)

   (b)   Explain wireless transmission.   (5)

OR

III.
   (a)   List out the advantages of optical communications.   (5)

   (b)   Compare the characteristics of coaxial cables and twisted pair cables.   (10)

IV.   Illustrate PCM and delta modulation.   (15)

OR

V.
   (a)   Construct a Huffman code tree with probabilities 0.4, 0.19, 0.16, 0.15, 0.1 . Find out the average code size and variance.   (9)

   (b)   Explain LZW coding.   (6)

VI.
   (a)   Explain how error detecting is done using CRC. Implement CRC for the message 11100110 for the generator polynomial 11001.   (9)

   (b)   Explain the significance of Hamming Code in forward error correction.   (6)

OR

VII.   Summarize three categories of ARQ error control mechanisms.   (15)

VIII.   With the help of necessary figures explain DSSS and FHSS.   (15)

OR

IX.   Illustrate Synchronous and Asynchronous Time Division Multiplexing.   (15)

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