BTS-III(S)-11.20-0688 Reg. No. | | | | | | | | |

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B.Tech. Degree III Semester Supplementary Examination November 2020

CS 15-1306 DATA AND COMPUTER COMMUNICATION

(2015 Scheme)

Time: 3 Hours Maximum Marks: 60

PART A

(Answer *ALL* questions)

(10 × 2 = 20)

I. (a) Distinguish between half duplex, full duplex and simplex transmission. Give examples.

(b) What are the key factors that affect channel capacity?

(c) Analyze the advantages of spreading.

(d) What is DSL?

(e) Explain any digital data to analog signal encoding in which each signaling element consists of more than one bit.

(f) Compare single bit error and burst error.

(g) Distinguish between convolutional coding and block coding.

(h) Check the significance of huffman tree in data communication.

(i) List the benefits of spread spectrum.

(j) In IEEE 802.11, which is an access point?

PART B

(4 × 10 = 40)

II. (a) Explain the different transmission impairments that affect data communications. (3)

(b) Assume a machine A wants to send a message in binary format 0110110110 to a machine B. How to convert the above message in following signal forms (7)

(i) UNIPOLAR
(ii) NRZ
(iii) Manchester Encoding
(iv) Differential Manchester Encoding

OR

III. (a) Analyze the significance of sampling and quantization in analog communication. (3)

(b) Assume a machine A wants to send a message in binary format 11101011 to a machine B. How to convert the above message into block coding signal format? (7)

IV. (a) What are the uses of multiplexing and spreading? Which is the multiplexing technique used in digital communication? Justify. (6)

(b) Compare different wireless transmission media. (4)

OR

V. (a) Compare different types of twisted pair cables with diagrams. (3)

(b) Analyze the role of spread spectrum technology in data communication with its types. (7)

(P.T.O.)

VI. (a) Given the data word using polynomial $x^6 + x^3 + x^2 + x + 1$ and the divisor $x + 1$ (7)

(i) Show the generation of the codeword at the sender site (using binary division).

(ii) Show the checking of the codeword at the receiver site (assume no error).

(b) What is hamming distance? (3)

OR

VII. (a) A file contains a document with some characters. If the file content is CDCECEECEBCET, how to compress the above with LZW encoding? (5)

(b) Distinguish Go Back N ARQ and Selective repeat ARQ (5)

VIII. (a) Explain IEEE 802.11 protocol stack. (7)

(b) Differentiate passive hub and active hub. (3)

OR

IX. (a) Explain Bluetooth technology. (7)

(b) Compare different forms of Ethernet. (3)

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