

CBCS SCHEME



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17CS46

Fourth Semester B.E. Degree Examination, July/August 2022 Data Communication

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is data communication? Explain the fundamental characteristics of data communication. (05 Marks)
- b. Explain the different layers of TCP/IP protocol suite stating the function of each layer. (10 Marks)
- c. Explain in brief five fundamental components of data communication. (05 Marks)

OR

- 2 a. Draw the line code for the sequence 01001110 using polar NRZ-L and NRZ-I schemes. (06 Marks)
- b. What is transmission impairment? Explain the different causes of transmission impairment. (10 Marks)
- c. Calculate the bit rate for a noiseless channel with a bandwidth of 3000 Hz transmitting a signal with two levels. (04 Marks)

Module-2

- 3 a. What is PCM? Discuss the different steps involved in PCM encoder. (10 Marks)
- b. Explain with neat diagram, ASK and FSK modulation technique and specify the bandwidth requirement. (10 Marks)

OR

- 4 a. Explain Frequency Hopping spread spectrum (FHSS) with necessary diagrams. (10 Marks)
- b. With a neat diagram, explain circuit switched networks. (10 Marks)

Module-3

- 5 a. Given data word is 1001 and divisor is 1011, show the generation of codeword at the sender site. (07 Marks)
- b. List the steps undertaken by the sender and receiver for error detection while computing Internet checksum. (05 Marks)
- c. Explain any two Forward error correction techniques in detail. (08 Marks)

OR

- 6 a. Explain the frame format and transaction phases of point to point protocol. (10 Marks)
- b. Explain the different frame types in HDLC. (06 Marks)
- c. Write a note on Byte stuffing. (04 Marks)

Module-4

- 7 a. Explain pure ALOHA protocol. (04 Marks)
- b. Briefly discuss about the different persistence methods. (06 Marks)
- c. Explain Code Division Multiple Access (CDMA) with example. (10 Marks)



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OR

- 8 a. Explain the different fields of standard Ethernet frame format. (10 Marks)
b. What is BLUETOOTH? Briefly discuss about the different architectures of BLUETOOTH. (10 Marks)

Module-5

- 9 a. Explain IPV₄ datagram header format with a neat diagram and give the description of each field. (10 Marks)
b. Briefly discuss the operations of cellular telephony. (10 Marks)

OR

- 10 a. Explain the fields of IPV₆ header format. (10 Marks)
b. List the strategies used for transition from IPV₄ to IPV₆. Explain any one in detail. (05 Marks)
c. Briefly discuss about different categories of satellites. (05 Marks)

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