CBCS SCHEME

17CS46

USN

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 notseless 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)**

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 IPV_4 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 IPV_4 to IPV_6. Explain any one in detail. **(05 Marks)**
    c. Briefly discuss about different categories of satellites. **(05 Marks)**

* * * * *