

Total number of printed pages = 4

19/6th Sem/DECE 601

2022

**COMPUTER NETWORKING
AND DATA COMMUNICATION**

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer any *five* questions.

1. (a) What are the different guided transmission media that may be used for data transmission ? Discuss their construction, connectors used, application areas and advantages/disadvantages. 2+9=11
- (b) What do you mean by random access or multiple access? What are the different random access protocols? 4
- (c) Define synchronous and asynchronous communication and give example of each. 5

[Turn over

2. (a) What are the carrier sense protocols ? Explain the concept of 1-persistent, non persistent and p-persistent CSMA. $2+8=10$

(b) Draw the Ethernet frame format. Elaborate the functions of each field. 10

3. (a) What do you mean by a data packet ? Describe the working of CSMA/CD.

$2+7=9$

(b) Encode the following data stream in NRZ-L, HDB3 and B8ZS :

6

(a) 10111111110000

(b) 10000000011111

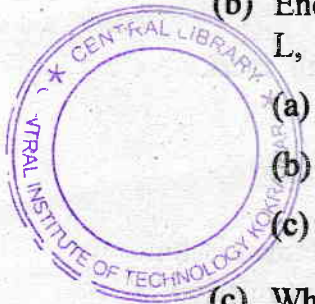
(c) 1111111110001111

(c) What is token ring and how does it work ?
5

4. (a) What is an interface ? Draw pin-out diagrams for RS-232C and RS-449 standards. State their important characteristics. 9

(b) Elaborate the characteristics of various implementations of Fast Ethernet. 5

(c) State the importance of Gateways, Bridges and Hubs in data communication. 6



5. (a) Discuss IPv4 classless and classful addressing schemes. 3+3=6
- (b) Discuss the role of modem in a telephone system. 6
- (c) Draw the digital signals for the bit string 010 101 111 000 011 using each of the Manchester and differential Manchester digital encoding schemes. Assume 'High' as +0.25V and 'Low' as -0.25V. 8
6. (a) Differentiate between : 6
- (i) Baseband signalling and Broadband signalling
- (ii) Point-to-point and Broadcast type of computer networks.
- (b) Draw the mesh topology and discuss its merits / demerits. 5
- (c) Discuss the features of World Wide Web (WWW), HTTP, HTML and URL. 9

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7. Write short notes on : 5×4=20

- (i) TCP/IP protocol suit
- (ii) Network Interface Card (NIC)
- (iii) ATM architecture
- (iv) 10 Base 5
- (v) Slotted ALOHA.

