PAPER ID-311352

Roll No:

MCA
(SEM III) THEORY EXAMINATION 2023-24
COMPUTER NETWORK

TIME: 3HRS M.MARKS: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**

Qno.	Question	Marks	CO
a.	Identify the five components of a data communication system.	2	1
b.	Discuss the differences between simplex, half-duplex, and full-duplex communication.	2	2
c.	Explain various types of data errors in data communication.	2	4
d.	Define the term piggybacking.	2	2
e.	Differentiate between Datagram approach and Virtual circuit approach.	2	2
f.	Define the function of router?	2	3
g.	What are the characteristics of data communication?	2	1
h.	What are the advantages of using Port numbers?	2	4
i.	Define security goals of Information.	2	3
j.	What is a firewall, and how does it contribute to network security?	2	1

SECTION B

2. **Attempt any *three* of the following:**

a.	With a neat diagram, explain OSI reference model.	10	4
b.	Explain different error detection and correction mechanisms used in data communication.	10	5
c.	Define switching. Briefly explain about Packet Switching, Message Switching and Circuit Switching.	10	4
d.	Explain a congestion control algorithm.	10	5
e.	Write short notes on a) VPN b) NAT	10	4

SECTION C

3. **Attempt any *one* part of the following:**

a.	Explain the various media used for data transmission in computer networks.	10	4
b.	Describe the relative advantages and disadvantages of STAR, MESH, RING and BUS topologies.	10	4

4. **Attempt any *one* part of the following:**

a.	Briefly explain the various media access protocol.	10	4
b.	A bit stream 1010101010 is transmitted using the standard CRC method. The generator polynomial is x^4+x^3+1. What is the actual bit string transmitted?	10	3

5. **Attempt any *one* part of the following:**

a.	Describe fragmentation. How does the network layer handle fragmentation and reassembly of data packets during transmission?	10	2
b.	What is Internet Protocol (IP)? State and describe various classes used for IP addressing.	10	4

6. **Attempt any *one* part of the following:**

a.	Write short notes on a) UDP b) TCP c) SCTP	10	2
b.	Describe the QoS and explain techniques to improve QoS.	10	4

7. **Attempt any *one* part of the following:**

a.	What is significance of cryptography? Compare between public-key and private key cryptography	10	4
b.	Write short notes on i) Domain Name System ii) Hyper Text Transfer Protocol iii) World Wide Web iv)TELNET	10	2