

Exam Number: _____

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Subject Name: Computer Network		Subject Code: CE505-N
Date: 17/04/2025 (Thursday)	Time: 12:30 PM to 03:30 PM	Total marks: 70

Instructions:

1. Answer each section in separate Answer sheet.
2. All questions are compulsory.
3. Indicate clearly, the options you attempt along with its respective question number.
4. Use the last page of main supplementary for rough work.

Section-I

- Q.1 (A) Write a short note on a OSI reference model (5)
- Q.1 (B) Describe different types of network topologies and their advantages and disadvantages. (5)
- Q.1 (C) Explain the different types of transmission media and their advantages and disadvantages. (5)

OR

- Q.1 (C) What is multiplexing? Describe its types with suitable examples. (5)
- Q.2 (A) Define data communication and explain its essential components with examples. (5)
- Q.2 (B) Explain the design issues of the Data Link Layer and their significance in network communication. (5)

OR

- Q.2 (A) Explain the Sliding Window Protocol and how it helps in efficient data transmission. (5)
- Q.2 (B) Compare pure ALOHA and slotted ALOHA protocol. (5)
- Q.3 (A) Define multicast, broadcast, and anycast routing. Explain their differences with real-world examples. (5)
- Q.3 (B) Explain Distributed Queue Dual Bus with Example. (5)

OR

- Q.3 (A) Write a short note on ISDN. (5)
- Q.3 (B) Explain Leaky bucket algorithm. (5)

Section-II

- Q.4 (A)** Explain IPv4 datagram format and importance of each field. (5)
- Q.4 (B)** What is the difference between error detection and correction? Explain any one error correction technique with suitable example. (5)
- Q.4 (C)** Explain connection oriented and connectionless services. Also differentiate both. (5)

OR

- Q.4 (C)** Discuss the role of interconnecting devices (routers, switches, and gateways) in the network layer. How do they contribute to efficient data communication? (5)
- Q.5 (A)** Explain the different types of computer networks. (5)
- Q.5 (B)** What is Quality of Service (QoS) in networking? (5)

OR

- Q.5 (A)** Discuss the IEEE 802.2 LLC sub layer and its role in data link layer communication. How does it differ from the MAC sub layer? (5)
- Q.5 (B)** Draw and explain Ethernet 802.3 Frame structure. (5)
- Q.6 (A)** Describe the flooding routing algorithm. What are its advantages and disadvantages, and in what scenarios is it used? (5)
- Q.6 (B)** Compare TCP and UDP. (5)

OR

- Q.6 (A)** What is congestion control in the transport layer? Explain any one congestion control used in TCP. (5)
- Q.6 (B)** What is a Content Delivery Network (CDN), and how does it improve the performance of web applications? (5)