

Computer Networks

1. Remembering:

- Recall the key concepts of computer networks, including network architecture, protocol layers, OSI model, and TCP/IP model.

2. Understanding:

- Explain the processes of error detection and correction in data transmission.
- Describe the functions of data link control protocols such as HDLC in point-to-point communication.
- Differentiate between ALOHA and TDMA in the context of multiple access control in networks.

3. Applying:

- Apply the principles of network layer services and packet switching to analyze and troubleshoot network performance issues.
- Implement Internet Protocol (IP) addressing and routing algorithms in a network configuration.
- Configure IPv6 addressing schemes for improved network scalability and efficiency.

4. Analyzing:

- Analyze the impact of different transport layer protocols on segment delivery and data reliability.
- Evaluate the performance of application layer protocols like DNS in resolving domain names to IP addresses.
- Assess the quality of service (QoS) mechanisms in ensuring efficient data transfer and network resource management.

5. Evaluating:

- Critically assess the security implications of various network protocols and mechanisms for protecting data transmission.
- Evaluate routing algorithm efficiencies in different network topologies and environments.
- Judge the effectiveness of network protocols in meeting user requirements and performance metrics.

6. Creating:

- Design a network architecture that integrates various protocols and layers to optimize data transfer and communication.
- Develop a comprehensive plan for implementing QoS strategies to prioritize network traffic and ensure service quality.
- Propose innovative solutions for improving network reliability, scalability, and performance based on emerging technologies and standards.