Assignment 3rd

Subject: Data Communication and Networking

Date of Submission:01-05-2024

1. Discuss the importance of layering in network design. Why is it necessary to separate the network into different layers?
2. Explain the differences between connection-oriented and connectionless services in the network layer.
3. Discuss the challenges associated with designing a scalable network architecture.
4. Compare and contrast distance-vector and link-state routing algorithms.
5. Explain how the Dijkstra's algorithm works in the context of routing.
6. Describe the main differences between IPv4 and IPv6.
7. Explain the reasons for transitioning from IPv4 to IPv6.
8. Explain the concept of Address Resolution Protocol (ARP) and how it maps IP addresses to MAC addresses.
9. Discuss the role of Reverse Address Resolution Protocol (RARP) in network communication.
10. Compare and contrast ARP and RARP.
11. Define congestion control and explain why it is essential in network communication.
12. Explain the mechanisms used in TCP to handle congestion control.
13. Describe the concept of unicast, multicast, and broadcast routing protocols.
14. Discuss the advantages and disadvantages of using multicast routing protocols.
15. Explain how a broadcast routing protocol operates in a network environment.
16. Define Quality of Service (QoS) and explain its importance in network communication.
17. Discuss the different mechanisms used to achieve QoS in a network.
18. Explain the challenges associated with implementing QoS in IP networks.
19. Describe the concept of internetworking and explain its significance in modern networking.
20. Discuss the role of routers and switches in internetworking.