Assignment – 4

Question 1: An organization is planning to upgrade its network infrastructure to support a growing number of users and increased data traffic. Outline the steps involved in the network upgrade process, considering scalability and performance.

Question 2: A company wants to enhance its network security. Propose a comprehensive security strategy that includes measures such as firewalls, intrusion detection systems, and encryption. Explain how these measures contribute to network security.

Question 3: You receive complaints about slow network performance in an organization. Describe your approach to troubleshooting the issue. What tools and techniques would you use to identify and resolve the problem?

Question 4: Discuss the importance of monitoring and analysing network traffic for identifying bottlenecks and performance issues. Provide examples of network monitoring tools and their functionalities.

Question 5: Imagine you are tasked with setting up a small business network. What hardware components would you recommend, and how would you configure them to ensure secure and efficient communication among the employees?

Question 6: The small business wants remote access for its employees. Propose a solution for secure remote access, including the necessary protocols and security measures.

Scenario Based Questions

Scenario 7: You are tasked with designing a campus network for a university with multiple buildings, classrooms, and research labs. The network should support student access, faculty collaboration, and research activities.

Questions 7: How would you organize the network to accommodate the different needs of students, faculty, and research activities? Discuss the considerations for implementing a wired network on a large campus. How can Quality of Service (QoS) be utilized to prioritize network traffic for different applications within the educational institution?

Scenario 8: A hotel wants to provide internet access to its guests. Design a network solution that includes a separate guest network to ensure isolation from the hotel's internal network. Considerations should include bandwidth management and user authentication.

Questions 8: What measures would you implement to secure the hotel's internal network from potential threats originating from the guest network? Explain the advantages of implementing a captive portal for guest authentication. How would you ensure fair bandwidth distribution among guest users while maintaining network performance for hotel operations?