

module 3 : Understanding and Maintenance of

Section 1: Multiple Choice

1. What is the primary function of a router in a computer network?
 - Forwarding data packets between networks
2. What is the purpose of DNS (Domain Name System) in a computer network?
 - Converting domain names to IP addresses
3. What type of network topology uses a centralized hub or switch to connect all devices?
 - Star
4. Which network protocol is commonly used for securely accessing and transferring files over a network?
 - FTP

Section 2: True or False

5. True or False: A firewall is a hardware or software-based security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
 - True
6. True or False: DHCP (Dynamic Host Configuration Protocol) assigns static IP addresses to network devices automatically.
 - False
7. True or False: VLANs (Virtual Local Area Networks) enable network segmentation by dividing a single physical network into multiple logical networks.
 - True

Section 3: Short Answer

8. Explain the difference between a hub and a switch in a computer network.
- A hub sends data to all connected devices, causing more network traffic and collisions.
A switch sends data only to the intended device, making the network faster and more efficient.
9. Describe the process of troubleshooting network connectivity issues.
- Check physical connections (cables, ports, power).
 - Verify network settings (IP address, subnet mask, gateway).
 - Test connectivity using tools like ping or tracert.
 - Check network devices (router, switch, firewall).
 - Restart devices if needed and review error messages/logs.

Section 4: Practical Application

10. Demonstrate how to configure a wireless router's security settings to enhance network security.
- 1). Access Router Settings.
 - Connect your device to the router.
 - Open a browser and enter the router IP (commonly 192.168.1.1 or 192.168.0.1).
 - Log in using admin credentials.
 - 2). Change Default Login Credentials
 - Set a strong admin username and password to prevent unauthorized access.
 - 3). Enable Strong Wireless Encryption
 - Go to Wireless Security settings.

- Select WPA3 (or WPA2-PSK if WPA3 is unavailable).
- 4). Change Default SSID
 - Rename the network SSID to something unique.
 - Avoid using personal details.
- 5). Disable WPS (Wi-Fi Protected Setup)
 - Turn off WPS to prevent brute-force attacks.

Section 5: Essay

11. Discuss the importance of network documentation and provide examples of information that should be documented.

Network documentation is a vital part of effective network management. It provides a clear and organized record of how a network is designed, configured, and maintained. Proper documentation helps network administrators understand the structure of the network, quickly identify problems, and ensure smooth day-to-day operations.

One major importance of network documentation is efficient troubleshooting. When network issues occur, documented information such as IP addressing schemes, device configurations, and network diagrams helps administrators locate faults quickly, reducing downtime. It also supports **consistency and accuracy**, ensuring that changes are made correctly without disrupting existing services.

Network documentation is also essential for security and compliance. By keeping records of firewall rules, access controls, and security policies, organizations can better protect their networks and meet regulatory requirements. In addition, documentation helps prevent unauthorized changes and makes audits easier.

Another key benefit is knowledge transfer and continuity. If a network administrator leaves or a new technician joins, proper documentation allows them to understand the network without starting from scratch. This saves time and reduces dependency on specific individuals.

Finally, network documentation supports planning and scalability. It helps organizations plan upgrades, expansions, and migrations by providing a clear picture of current resources and limitations.