Assignment - 3

Module 3 : Understanding and Maintenance of Networks

Section 1: Multiple Choice

1. What is the primary function of a router in a computer network?

Ans : (c) Forwarding data packets between networks

2. What is the purpose of DNS (Domain Name System) in a computer network?

Ans : (c) Converting domain names to IP addresses

3. What type of network topology uses a centralized hub or switch to connect all devices?

Ans : (a) Star

4. Which network protocol is commonly used for securely accessing and transfering files over a network?

Ans : (b) FTP

Section 2: True or False

5. A firewall is a hardware or software-based security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Ans : True

6. DHCP (Dynamic Host Configuration Protocol) assigns static IP addresses to network devices automatically.

Ans : False

7. VLANs (Virtual Local Area Networks) enable network segmentation by dividing a single physical network into multiple logical networks.

Ans : True

Section 3: Short Answer

8. Explain the difference between a hub and a switch in a computer network.

Ans :

Hub : A hub is a basic networking device that operates at Layer 1 (Physical Layer).

- No intelligence or filtering

- Shared bandwidth among devices

- More network collisions

- Slower performance

Switch : A switch is a more advanced device that operates at Layer 2 (Data Link Layer).

· Intelligent data forwarding

· Dedicated bandwidth per port

· Fewer collisions

· Faster performance

9. Describe the process of troubleshooting network connectivity issues.

Ans :

• Check physical connections (cables, ports, power).

• Check IP configuration (IP address, subnet mask, gateway).

• Test connectivity using ping.

• Check firewall and security settings.

• Disable/enable network adapter.

• Verify full network connectivity.

Section 4: Practical Application

10. Demonstrate how to configure a wireless router's security settings to enhance network security.

Ans :

• Connect a computer to the router.

• Open a web browser and enter the router's IP address.

• Log in using the administrator username and password.

• Go to Wi-Fi Settings.

• Change the default SSID (network name).

• Set the security mode to WPA3

- Enable the router's firewall.

- Save the settings and restart the router.

- Reconnect devices.

Section 5: Essay

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

Ans :

- Speeds up troubleshooting

- Improves network management

- Enhances security

- Supports disaster recovery

- Assists in upgrades and expansion

Example : IP Addressing Scheme :

          IP address ranges

          Subnet masks

          Default gateways

          VLAN information

        User and Access Information :

          Administrator accounts

          Permission levels

Password management policie

Security Policies :

Firewall settings

VPN configurations

Backup procedures