

**Assignment : - 1**

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**Module 3 :- Understanding and Maintenance of**

**Section 1: Multiple Choice**

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

**a) Assigning IP addresses to devices**

**b) Providing wireless connectivity to devices**

**c) Forwarding data packets between networks**

**d) Managing user authentication and access control**

**Ans**:- All of the above

**Note:-** Because all options are primary function of a Router support.

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

**a) Encrypting data transmissions for security**

**b) Assigning IP addresses to devices dynamically**

**c) Converting domain names to IP addresses**

**d) Routing data packets between network segments**

**Ans:-** c) Converting domain names to IP addresses

Note:- Because A system only accepts IP addresses

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

**a) Star b) Bus**

**c) Ring d) Mesh**

**Ans:-** a) Star

**Note** :- Because star topology can connect several devices from one hub or switch.

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

**a) HTTP b) FTP**

**c) SMTP d) POP3**

**Ans:-** a) FTP

**Note:-**FTP is Secure because this all file accessing and transferring to securely

**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.**

**Ans:-** True

**6. True or False: DHCP (Dynamic Host Configuration Protocol) assigns static IP addresses to network devices automatically.**

**Ans:-** False

**Note :-** The statement is false because DHCP is designed to assign dynamic IP addresses automatically, not static ones, which are configured manually and remain fixed.

**7. True or False: VLANs (Virtual Local Area Networks) enable network segmentation by dividing a single physical network into multiple logical**

**Ans:-** True

**Section 3: Short Answer**

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

**Ans:-** A hub and a switch are both network devices, but they differ in functionality:

Hub:

1.Broadcastsdata to all connected devices.

2.Operates at Layer 1 (Physical Layer) of the OSI model.

3. Less efficient, leading to potential network congestion.

Switch:

1.Forwards data only to the specific device intended using MAC addresses.

2.Operates at Layer 2 (Data Link Layer) of the OSI model.

3.More efficient, reducing unnecessary traffic and collisions.

In essence, switches offer better performance and traffic management than hubs.

**9. Describe the process of troubleshooting network connectivity issues.**

**Ans:-** Troubleshooting Network Connectivity Issues

1. Identify the Problem: (e.g., inability to access the internet, slow performance).

2. Check Physical Connections

3. Check IP Configuration.

4. Examine Network Devices:.

5. Test with Another Device:

6. Review Firewall and Security Settings

7. Restart Devices:

8. Consult Documentation or Support:

9. Document Findings: Keep a record of the problem, steps taken, and solutions applied for future reference.

**Section 4: Practical Application**

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

**Ans:-** 1. Access Router Admin Interface: Enter the router's IP address in a browser and log in with admin credentials.

2. Change Admin Password: Update the default admin password to a strong, unique one.

3. Update Firmware: Check for and install the latest firmware updates.

4. Enable WPA2/WPA3 Security

5. Create a Strong Wi-Fi Password

6. Disable SSID Broadcasting:.

7. Enable MAC Address Filtering

8. Disable Remote Management

9. Enable Firewall: Ensure the router's firewall is activated.

10. Monitor Connected Devices: Regularly check the list of connected devices for unauthorized access.

**Section 5: Essay**

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

**Ans**:- Network documentation is crucial for effective network management, troubleshooting, maintenance, and security. It aids in onboarding new staff and ensures quick recovery from failures.

1. Network Diagrams: Visual layouts of network architecture.

2. Device Inventory: List of all network devices with details (IP addresses, MAC addresses).

3. Configuration Files: Current settings for network devices.

4. IP Addressing Scheme\*: Allocation of IP addresses and subnets.

5. Network Policies: Access controls and security measures.

6. Incident Response Procedures: Steps for managing network incidents.

7. Change Logs: Records of all changes made to the network.

Comprehensive documentation enhances efficiency and reduces risks in network operations.