# Assignment 3

## Module -1: Understanding And Maintenance Of Networks

## 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 :** c) Forwarding data packets between networks

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 Routing data

d) packets between network segments

> **Ans :** c) Converting domain names to IP addresses Routing data

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

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 :** 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** | **Switch** |
| --- | --- |
| Works at Physical Layer (Layer 1) | Works at Data Link Layer (Layer 2) |
| Sends data to all connected devices | Sends data only to the target device |
| Causes network collisions | Reduces collisions |
| Slower data transmission | Faster data transmission |
| Does not use MAC addresses | Uses MAC addresses |
| Less secure | More secure |
| Used in old networks | Used in modern networks |

9.  Describe the process of troubleshooting network connectivity issues.
    **Ans :**
    1.  Check physical connections (cables, lights)
    2.  Verify IP configuration
    3.  Test connectivity using ping
    4.  Check network devices (router/switch)
    5.  Restart devices if needed

## Section 4: Practical Application

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

    **Ans :**
    1. Change default **admin username & password**
    2. Enable **WPA2/WPA3 encryption**
    3. Set a strong Wi-Fi password
    4. Disable WPS
    5. Update router firmware

## Section 5: Essay

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

    **Ans :**
    - Proper documentation saves time and reduces errors.
    - Network documentation is important because it helps in **troubleshooting, maintenance, security, and upgrades**.
    - Network documentation is a written record of how a computer network is designed, configured, and managed. It is very important for the smooth working of any organization's network.

- ❖ Examples of Information That Should Be Documented :
    - Network topology diagrams
    - Hardware and software configurations
    - User accounts and access permissions
    - Backup and recovery procedures