# ASSIGNMENT

# Understanding and Maintenance of Network

## 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

d) Routing data packets between network segments

**ANS: c) Converting domain names to 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**

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 (FILE TRANSFER PROTOCOL)**

## 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: TRUE**

7.VLAN (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 connects multiple computers in a network.
- It broadcasts data to all connected devices

- This causes more network traffic and less security.
- Works at the Physical Layer (Layer 1) of the OSI model.

Switch:

- A switch is a more advanced device that connects computers in a network efficiently.
- It sends data only to the specific device that needs it.
- This reduces network congestion and improves security and performance.
- Works at the Data Link Layer (Layer 2) of the OSI model.

9. Describe the process of troubleshooting network connectivity issues.

**ANS:** Check Physical Connections:

- Make sure cables are properly plugged in.
- Check if the network devices (like router or switch) have power and indicator lights are on.
    - Verify Network Settings:
- Check the IP address, subnet mask, and gateway settings on the computer.
- Ensure the device is connected to the correct network (Wi-Fi or LAN).
    - Ping Test:
- Use the ping command to check connectivity.
- Example: ping 8.8.8.8 (tests internet) or ping gateway IP (tests local connection).
    - Check for IP Conflicts:

- Make sure no two devices have the same IP address.
    - Restart Devices:
- Restart the computer, router, or modem to refresh connections.
    - Check Network Hardware:
- Test cables, network adapters, and ports for faults.
    - Check Firewall or Security Settings:
- Sometimes firewalls or antivirus software block network access.
    - Network Troubleshooter (Optional):
- In Windows, use Network Troubleshooter to automatically detect and fix issues.