ASSIGNMENT

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 DHCP (Dynamic Host Configuration Protocol) in a computer network?

a) Assigning static IP addresses to devices

b) Resolving domain names to IP addresses

c) Managing network traffic and congestion

d) Dynamically assigning IP addresses to devices

ANS: d) Dynamically assigning IP addresses to devices

3. Which network device operates at Layer 2 (Data Link Layer) of the OSI model and forwards data packets based on MAC addresses?

a) Router

b) Switch

c) Hub

d) Repeater

ANS: b) Switch

4. Which network topology connects all devices in a linear fashion, with each device connected to a central cable or backbone?

 a) Star

b) Bus

c) Ring

d) Mesh

ANS: b) Bus

Section 2: True or False

5. A VLAN (Virtual Local Area Network) allows network administrators to logically segment a single physical network into multiple virtual networks, each with its own broadcast domain.

ANS: TRUE

6. TCP (Transmission Control Protocol) is a connectionless protocol that provides reliable, ordered, and error-checked delivery of data packets over a network.

ANS: FALSE

7. 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

Section 3: Short Answer

8. Describe the steps involved in setting up a wireless network for a small office or home office (SOHO) environment

ANS: Steps to set up a wireless network (SOHO) Small office home office:

1. **Connect the router to the modem using an Ethernet cable.**

2. **Power on the modem and router.**

3. **Access the router settings through a browser (using the default IP like 192.168.1.1).**

4. **Configure Wi-Fi settings (set SSID/WiFi name and choose WPA2/WPA3 security).**

5. **Set a strong Wi-Fi password to secure the network.**

6. **Configure DHCP to automatically assign IP addresses.**

7. **Position the router in a central location for better coverage.**

8. **Connect devices (laptops, phones, etc.) using the Wi-Fi name and password.**

Section 4: Practical

9. Demonstrate how to configure a router for Internet access using DHCP (Dynamic Host Configuration Protocol).

ANS: Steps to configure a router using DHCP:

1. **Connect the router to the modem using an Ethernet cable (Internet port).**

2. **Power on both the modem and the router.**

3. **Open a browser and log in to the router using its default IP (e.g., 192.168.1.1).**

4. **Go to Internet/WAN settings.**

5. **Select DHCP or Automatic IP as the connection type (router will receive IP automatically from ISP).**

6. **Save the settings and restart the router.**

7. **Connect devices using Wi-Fi or LAN and test Internet access.**

Section 5: Essay

10. Discuss the importance of network documentation in the context of building and managing networks.

ANS: Importance of Network Documentation:

Network documentation is important because it helps administrators understand, manage, and troubleshoot the network easily. It provides clear information about all network devices, configurations, IP addresses, and connections. Good documentation saves time during maintenance, reduces errors, helps in quick problem-solving, and is useful when upgrading or expanding the network.

Examples of what should be documented:

- **Network diagrams**
- **Device IP addresses and MAC addresses**
- **Router, switch, and firewall configurations**
- **VLAN details**
- **Cable layout and port numbers**
- **User access permissions**
- **Wi-Fi SSIDs and passwords**