

ASSIGNMENT-05

MCQ'S:

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

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

ANS: b) Switch

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

ANS: b) Bus

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

ANSWER IN SHORT:

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 for a SOHO (Small Office/Home Office):

1. Choose the right internet connection

- Get a broadband connection from an ISP (Fiber/DSL/Cable).
- 2. Select a wireless router
 - Choose a router that supports modern standards (Wi-Fi 5 or Wi-Fi 6).
- 3. Connect the hardware
 - Connect the modem to the router using an Ethernet cable.
 - Power on the modem and router.
- 4. Access router settings
 - Open a web browser and enter the router IP (usually 192.168.1.1 or 192.168.0.1).
 - Login using the default username and password.
- 5. Change default login credentials
 - Set a new admin username and password to secure the router.
- 6. Configure Wi-Fi network
 - Set a Network Name (SSID).
 - Choose WPA2 or WPA3 security.
 - Create a strong Wi-Fi password.
- 7. Enable DHCP
 - Ensure DHCP is ON so devices get IP addresses automatically.
- 8. Set up firewall and security
 - Enable the router firewall.
 - Disable WPS if not needed.
- 9. Position the router properly
 - Place it centrally and away from walls/metal objects for better coverage.
- 10. Connect devices and test
 - Connect laptops, phones, printers, etc.
 - Check internet speed and coverage.

This completes the wireless network setup for a SOHO environment.

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

ANS: Steps to configure a router for Internet access using DHCP

1. Connect the router
 - Connect the ISP modem to the router's WAN/Internet port using an Ethernet cable.
 - Power ON modem → wait → then power ON router.
2. Connect a computer to the router
 - Use Wi-Fi or LAN cable to connect your PC/Laptop to the router.
3. Open router configuration page
 - Open browser and type router IP (commonly 192.168.1.1 or 192.168.0.1).
 - Login using default username/password (written on router label).
4. Select Internet/WAN settings
 - Go to Network / Internet / WAN Settings section.
 - For Connection Type, select Dynamic IP (DHCP).
5. Save and apply settings
 - Click Save / Apply.
 - Router will request an IP address automatically from ISP.
6. Enable DHCP for local network (LAN)
 - Go to LAN Settings → DHCP Server.
 - Turn DHCP Server ON.
 - Set IP range (example):
 - Start: 192.168.1.100
 - End: 192.168.1.200
7. Configure DNS (optional)
 - Use Auto DNS or set Google DNS:
 - 8.8.8.8
 - 8.8.4.4
8. Restart the router
 - Reboot router to apply all settings.
9. Test the connection
 - Connect devices to Wi-Fi.
 - Open a website to confirm Internet access.

This demonstrates router configuration for Internet access using DHCP.

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

ANS: Importance of Network Documentation

Network documentation means keeping written/visual records of how a network is designed, configured, and managed.

1. Easy Troubleshooting

- Helps quickly find faults and fix issues.
- Technicians can see device settings, IP addresses, and connections.
- Reduces downtime.

2. Better Network Management

- Shows how devices are connected (network diagrams).
- Helps in monitoring performance and planning upgrades.

3. Improves Security

- Records firewall rules, passwords policies, and access controls.
- Helps detect unauthorized changes or security risks.

4. Saves Time and Cost

- New technicians can understand the network easily.
- No need to start from scratch when problems occur.

5. Helps in Network Expansion

- Useful when adding new devices or upgrading infrastructure.
- Ensures compatibility and proper planning.

6. Disaster Recovery

- Important for backup and recovery after failures.
- Helps rebuild the network quickly after crashes or cyberattacks.

7. Standardization and Compliance

- Ensures network follows company policies and standards.
- Useful for audits and legal requirements.

Conclusion:

Network documentation acts like a blueprint of the network, making management, security, troubleshooting, and future expansion much easier.

