Assignment-3

Module 3: 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
    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

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

7. True or False: 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:

COMPARISON	HUB	SWITCH
Work:	→Sends data to all devices.	→ Sends data only to the right device.
Smartness:	→ Not smart, doesn't know devices.	→ Smart, knows where each device is.
Speed & Collisions:	→ It is slow and can mess up the flow of network data .	→ Fast, keeps network smooth.
Price:	→ Low price	→ Costly but better.
Use Today:	→ Almost not used now.	→Used in almost every network.

9. Describe the process of troubleshooting network connectivity issues.

Ans: This steps is process of troubleshooting network connectivity issue:

1. Check cables and devices:
    a. See if internet cable or Wi-Fi router is connected.
    b. Router and modem must be ON.
2. Restart devices:
    a. Turn off computer/phone.
    b. Restart router or modem.
    c. Turn device back on.
3. Check Wi-Fi / settings:
    a. Wi-Fi must be ON.
    b. Connect to right Wi-Fi.
    c. Airplane mode must be OFF.
4. Test with another device:
    a. Try internet on another phone or PC.
    b. If it works there, problem is in your first device.
5. Use Network Troubleshooter (Windows):
    a. Go to: Settings → Network & Internet → Troubleshoot.
    b. It will try to fix problem.
6. Check internet / ISP:
    a. Open browser and try website.
    b. If "No internet," router or ISP has issue.
7. Update device:
    a. Update drivers or software.
8. Call Internet Provider:
    a. If nothing works, contact ISP for help.

Section 4: Practical Application:-

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

Ans: This is a configure a wireless router's security setting to enhance network security:

1. **Login to the Router:**
    a. Connect your laptop/phone to the Wi-Fi.
    b. Open a web browser (like Chrome).
    c. Type the router's IP address (usually 192.168.0.1 or 192.168.1.1).
    d. Enter username & password (written on the back of the router).
    e. And open lock
2. **Change the Default Password:**
    a. Go to Admin Settings.
    b. Change the default login password to your own strong one.

    → This keeps unknown people out of the router's settings.
3. **Set a Strong Wi-Fi Password:**
    a. Open Wireless / Wi-Fi Settings.
    b. Choose WPA2 or WPA3 security mode (never keep it on WEP or Open).
    c. Create a password with letters, numbers, and symbols.

    →This makes your Wi-Fi safe from neighbors or hackers.
4. **Change the Network Name:**
    a. Rename your Wi-Fi network.
    →Use for easy identify your network.

5. **Turn Off WPS:**
    a. Find the WPS (Wi-Fi Protected Setup) option and disable it.
    →WPS is like a weak lock that hackers can break easily.
6. **Enable Network Firewall:**
    a. In Security settings, turn on the router's Firewall.
    →This blocks unwanted traffic and protects your devices.
7. **Keep Router Updated:**
    a. Check for Firmware Update in the settings.
    →Updates fix security holes, just like repairing a broken lock.

<u>Then Result</u>: After doing these steps, your Wi-Fi is now like a house with a strong lock, CCTV, and alarm system. Only people with the correct password can enter.

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Section 5: Essay :-

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

Ans: The importance of network documentation and provide examples of information that should be documented :

1. **Introduction:**
    a. A computer network is like the "nervous system" of a company.
    b. To manage it well, we must keep **records** (documentation).
    c. Network documentation means **writing down all details** about the network.

2. **Why is Network Documentation Important?**

a) Easy to Understand the Network

- Helps people know how the network is built.
- Even new staff can understand the setup quickly.

b) Helps in Problem Solving

- If something goes wrong (like internet not working), documentation guides the technician.
- Saves time in fixing the issue.

c) Future Changes Become Easy

- When we want to expand the network, we can see old records and make safe changes.

d) Saves Money and Effort

- No need to guess or redo the work again.
- Proper records avoid mistakes.

e) Useful for Training New Employees

- New IT staff can learn faster using the documents.

3. What Information Should Be Documented?

a) Network Devices:

→Details of routers, switches, firewalls, servers, etc.

→Example: Device name, model, IP address.

b) Network Diagram:

→A simple picture showing how all devices are connected.

c) IP Addressing:

→List of all IP addresses given to computers, printers, cameras, etc.

d) User Information

→Who uses which computer or which part of the network.

e) Configuration Settings

→Important settings of routers, switches, and Wi-Fi.

→Helps to restore quickly if something fails.

f) Security Information

→Password policies, firewall rules, antivirus used.

g) Vendor/Support Details

→Contact numbers of companies or people who provide network devices or support.

4. Conclusion:

→Network documentation is like a map and guidebook for the network.

→It makes managing, fixing, and growing the network simple, safe, and cheaper.

→Without documentation, networks become confusing and risky.