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ASSIGNMENT

Module 4:- 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

Reason:-a Router's Main Job Is To Send Data From One Network To Another.
It Looks At The Destination Ip Address And Decides The Best Path For The Data.
Without a Router, Your Computer Could Only Talk Inside The Same Network, Not Outside.
That's Why Its Primary Function Is 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

Reason:- Dns Stands For Domain Name System.
Its Job Is To Converter Web-Site Names Into Ip Addresses.
Computers Understand Numbers (Ip), But Humans Remember Names Better.
Dns Works Like a Phone Book Of The Internet.
Without Dns, We Would Have To Type Long Ip Numbers Instead Of Website Names

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

Reason:- In a Star Topology, Every Device Is Linked To a Central Hub Or Switch.
The Hub/Switch Works Like The "Center" Where All Data Passes Through. That's Why It Is Called Star, Because The Shape Looks Like a Star With The Hub In The Middle.
So The Correct Answer Is Star Topology

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

Reason:- Ftp Is Made For Sharing And Transferring Files Between Computers.
Its Secure Versions (Sftp/Ftps) Keep The Files Safe By Using Encryption.
Other Protocols Are For Websites Or Emails, Not For File Transfer.
That's Why The Answer Is 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

Reason:- a Firewall Is a Security System For Networks.
It Can Be Hardware, Software, Or Both.
Its Job Is To Watch Incoming And Outgoing Data.
It Allows Safe Traffic To Pass Through.
It Blocks Unsafe Or Unauthorized Traffic

6. True Or False: Dhcp (Dynamic Host Configuration Protocol) Assigns
Static Ip Addresses To Network Devices Automatically.

Ans:- False

Reason:- Dhcp Gives Dynamic Ip Addresses To Devices Automatically.
Dynamic Means The Ip Can Change Every Time You Connect.
a Static Ip Stays The Same And Must Be Set Manually.

So Dhcp Does Not Give Static Ips Automatically.

7. True Or False: Vlans (Virtual Local Area Networks) Enable Network
Segmentation By Dividing a Single Physical Network Into Multiple Logical
Networks.

Ans:- True

Reason:- Vlan Stands For Virtual Local Area Network.
It Divides One Physical Network Into Many Logical Networks.
This Process Is Called Network Segmentation.
It Makes The Network More Secure And Efficient.

Section 3: Short Answer

8.Explain The Difference Between a Hub And a Switch In a Computer
Network.

Ans:- 1.Hub:-

1. a Hub Is a Basic Device To Connect Computers.
2. It Sends Data To All Devices, Even If Not Needed.
3. This Causes Extra Traffic And Slows The Network.
4. It Works At The Physical Layer (Layer 1).
5. Hubs Are Cheap But Less Efficient.

2.Switch:-

1.A Switch Is a Networking Device That Connects Multiple Computers Or Devices In a Lan.

2.It Works At The Data Link Layer (Layer 2) Of The Osi Model.

3.A Switch Uses Mac Addresses To Send Data Only To The Correct Device, Not To All.

4.This Makes It Faster, More Secure, And Efficient Compared To a Hub.

5.Modern Switches Can Work At 10/100/1000 Mbps (Gigabit Speeds) And Reduce Collisions In The Network.

9. Describe The Process Of Troubleshooting Network Connectivity Issues.

Ans:- 1.Check Cables/Wi-Fi → Is The Cable Plugged In Or Is Wi-Fi Connected

2.Check The Modem/Router Lights → Are They On And Working

3. Restart Devices → Restart Your Computer, Router, Or Modem.

4.Check Ip Address → See If Your Device Got An Ip (Use `Ipconfig` On Windows).

5. Ping Test → Try To Ping The Router (Like `Ping 192.168.1.1`).

6.Check Dns → If Internet Is Not Opening, Try Using Google Dns `8.8.8.8`.

7.Disable Firewall/Antivirus For a Moment → Sometimes They Block Internet.

8. Call Isp → If Still Not Working, Problem May Be With Your Internet Service Provider

Section 4: Practical Application

10. Demonstrate How To Configure A Wireless Router'S Security Settings To Enhance Network Security

Ans:- **Connect Your Computer Or Phone To The Router.**

Open a Web Browser.

Type The Router's Ip Address (e.g., 192.168.1.1).

Login With The Admin Username And Password.

Change The Default Admin Password To a Strong One.

Go To Wireless Settings In The Menu.

Change The Wi-Fi Name (Ssid) To Something Unique.

Set a Strong Wi-Fi Password (Mix Letters, Numbers, Symbols).

Choose Wpa3 Security (Or Wpa2 If Wpa3 Is Not Available).

Avoid Using Wep, It Is Weak And Unsafe.

Turn Off Wps (Wi-Fi Protected Setup) For Better Security.

Enable Mac Address Filtering (Only Allow Your Devices).

Update The Router's Firmware To The Latest Version.

Turn Off Remote Management If Not Needed.

Save The Settings And Restart The Router.

Section 5: Essay

11. Discuss The Importance Of Network Documentation And Provide Examples Of Information That Should Be Documented

Ans:-

----> Importance Of Network Documentation

Network Documentation Means Writing Down All The Important Details Of a Computer Network. It Is Like a Map Of The Network That Helps To Understand How Everything Is Connected And Working.

It Is Very Important Because It Makes The Network Easy To Manage And Repair. If a Problem Happens, Documentation Helps To Fix It Quickly. It Also Saves Time For New Staff, As They Can Easily Understand The Setup. Documentation Also Improves Security, Because All Devices And Settings Are Recorded.

(Examples Of Information That Should Be Documented)

- **Network Diagram – Shows How Devices Are Connected.**
- **Ip Addresses – List Of All Ips, Subnet Masks, And Gateways.**
- **Device Details – Router, Switch Models, Serial Numbers, And Settings.**
- **User Accounts And Permissions – Who Can Access What.**
- **Security Settings – Wi-Fi Passwords, Firewall Rules, And Encryption Type.**
- **Cabling Details – Cable Types, Port Numbers, And Locations.**
- **Troubleshooting Records – Problems Faced Earlier And Their Solutions.**