**Name :- Dave Ujjawal**

# ASSIGNMENT

# Module 5:- Network Fundamentals and Building 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**

**Reason:- The Main Job Of a Router Is → Send Data From One Network To Another (Like From Your Home Network To The Internet)**

**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**

**Reason:- Every Device Needs An Ip To Work On a Network. Setting Ips Manually Is Hard.Dhcp Auto-Gives Ips To Devices.This Saves Time And Avoids Mistakes.**

**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**

**Reason:- • A Switch Looks At Mac Addresses.It Works At Layer 2 Of The Osi Model.It Sends Data To The Right Device Only**

**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**

**Reason:- In a Bus Topology, All Devices Share One Main Cable (Backbone).Data Travels Along This Single Line.If The Backbone Fails, The Whole Network Stops.**

# 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**

**Reason:- A Vlan Is Used To Logically Split a Physical Network.Each Vlan Acts Like An Independent Network.It Creates Its Own Broadcast Domain.This Improves Security And Reduces Traffic.**

**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**

**Reason:- •   Tcp Is Not Connectionless, It Is Connection-Oriented.It Makes a Proper Connection Before Sending Data.This Ensures Data Is Reliable, Ordered, And Error-Checked. Udp Is The One That Is Connectionless, Not Tcp.**

**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**

**Reason:-** • **A Firewall Can Be Hardware Or Software.It Monitors Network Traffic (In And Out).It Blocks Or Allows Traffic Using Security Rules.This Helps Protect The Network From Threats**

# 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:- 1.Get a Wireless Router/Modem From Your Isp Or Shop.**

**2.Place The Router In a Central Location For Better Coverage.**

**3.Connect The Router To The Internet Line (Modem/Isp Cable).**

**4.Plug In The Power Adapter And Turn It On.**

**5. Connect a Computer/Laptop With Lan Cable To The Router For Setup.**

**6.Open a Web Browser And Type The Router's Ip (e.g., 192.168.1.1).**

**7.Log In With The Default Username And Password.**

**8. Set a New Admin Username And Password For Security.**

**9.Choose a Wi-Fi Name (Ssid) For The Network.**

**10.Enable Wpa2/Wpa3 Security For Strong Protection.**

**11. Set a Strong Wi-Fi Password.**

**12. Turn On Dhcp So Devices Get Ip Addresses Automatically.**

13.Save Settings And Restart The Router.

14. Connect Devices (Laptop, Phone, Printer) To The Wi-Fi Using The Password.

15.Finally, Test Internet Access And Update Router Firmware If Needed.

# Section 4: Practical Application

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

**Ans:- Steps To Configure Router With Dhcp For Internet**

**1.Connect The Router**

**Plug In The Router And Connect It To The Modem (Internet Source) Using The Wan/Internet Port.**

**2.Login To Router Settings**

**Open a Browser → Type The Router's Ip (e.g., 192.168.1.1) → Enter Username & Password.**

**3.Go To Internet/Wan Setup**

**Look For "Internet Settings" Or "Wan Setup" In The Router Menu.**

**4.Select Connection Type**

**Choose Dhcp (Automatic Ip) Or Dynamic Ip As The Internet Connection Type.**

**5.Save Settings**

**The Router Will Request An Ip Address Automatically From The Internet Provider.**

**6.Enable Dhcp Server (For Lan)**

In Router Settings, Make Sure Dhcp Server Is On, So It Can Give Ip Addresses To Your Pcs, Laptops, And Mobiles.

**7.Connect Devices**

Connect Computers/Phones To The Router (Via Wi-Fi Or Lan Cable).

**8.Check Ip Address**

On Your Device, Check Ip Settings → It Should Automatically Get An Ip From The Router.

**9.Test Internet**

Open a Website Or Do a Speed Test To Confirm Internet Is Working

# Section 5: Essay

**10. Discuss The Importance Of Network Documentation In The Context Of**
**Building And Managing Networks.**

**Ans:- 1.Network Documentation Means Writing Down All Network Details.**

**2. It Shows Which Devices Are Connected In The Network.**

**3.Records Ip Addresses Of Computers, Routers, And Printers.**

**4.Works Like a Map To Understand The Whole Network.**

**5.Helps To Design And Build a New Network Properly.**

6.Makes It Easy To Find And Fix Problems.

7.Saves Time Because Information Is Already Written.

8.Reduces Mistakes While Setting Up Or Repairing.

9.Helps When New Devices Or Users Are Added.

10.Keeps Security Details Like Passwords And Firewall Rules Safe.

11.Stops Wrong Or Unauthorized Changes.

12.Helps Team Members Share The Same Knowledge.

13.New Staff Can Quickly Learn The Network From Records.

14.Useful When The Company Is Checked For Security Or Rules.

15.If One Person Leaves, Others Can Still Manage The Network.

16.Provides Backup Information If Something Fails.

17.Makes Daily Work Of Managing The Network Easier.

18.Keeps Everything Neat And Organized.

19.Reduces Chances Of Long Downtime (Network Going Off).

20.Overall, It Keeps The Network Safe, Fast, And Easy To Manage