EXPERIMENT 6

STUDENT NAME: TANMAYA KUMAR PANI   **UID:** 22BCS12986

BRANCH: BE-CSE   **SECTION/GROUP:** 613-B

SEMESTER: 5TH   **DATE OF PERFORMANCE:**18/9/24

SUBJECT NAME: COMPUTER NETWORKS   **SUBJECT CODE:** 22CSH-312

1.AIM:

Configure a network using any Routing Protocol such as Distance Vector routing or Link State Routing Protocol using Packet Tracer or NS2.

2. OBJECTIVE: To Understand Routing Mechanism.

3. REQUIREMENTS :

S/W Requirements: Packet Tracer or NS2

H/W Requirements:

•Processor – Any suitable Processor e.g. Celeron

•Main Memory - 128 MB RAM

•Hard Disk – minimum 20 GB IDE Hard Disk

•Removable Drives–1.44 MB Floppy Disk Drive

–52X IDE CD-ROM Drive

•PS/2 HCL Keyboard and Mouse

4. PROCEDURE:

1. Open the CISCO Packet tracer software
2. Drag and drop 5 pcs using End Device Icons on the left corner
3. Select 8 port switch from switch icon list in the left bottom corner
4. Select Routers and Give the IP address for serial ports of router and apply clock rate

5. Add HWIC -2T Peripheral to all routers, type CLI's for all routers

6. Make the connections using Straight through Ethernet cables

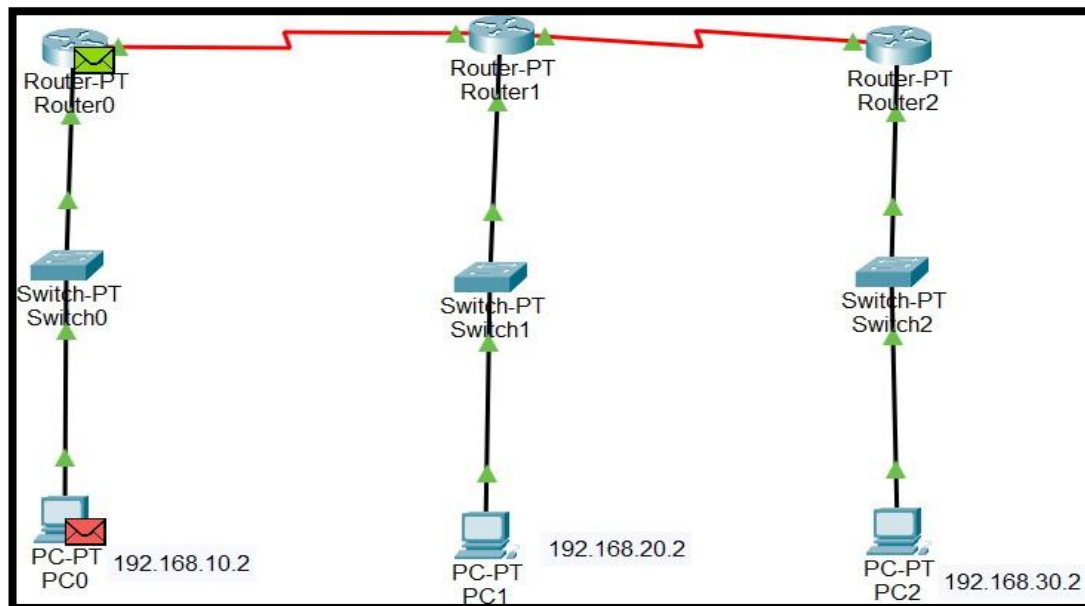7. Ping between PCs and observe the transfer of data packets in real and simulation mode.

8. Assign connections:

PC0: IP Address: 192.168.10.2 Gate way: 192.168.10.1

PC1: IP Address: 192.168.20.2 Gate way: 192.168.20.1

PC2: IP Address: 192.168.30.2 Gate way: 192.168.30.1

5. OUTPUT:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	Router0	Router2	ICMP	▮	0.000	N	0	(edit)	(delete)
●	Successful	PC0	PC2	ICMP	▮	0.000	N	1	(edit)	(delete)
●	Successful	PC0	PC2	ICMP	▮	0.000	N	2	(edit)	(delete)
●	Successful	Router2	PC0	ICMP	▮	0.000	N	3	(edit)	(delete)

Result: Thus, understand the concept and operation of OSPF and obtained the routing table and observe transfer data packets in real and simulation time.

6. LEARNING OUTCOMES:

1. **CLI Commands for Routers:** You will understand how to use Command Line Interface (CLI) commands to configure routers and apply necessary network settings.

2. **Understanding Routing Protocols:** You will gain practical knowledge of routing protocols like Distance Vector and Link State, learning how they enable data to be forwarded between networks.

3. **Hands-on with Network Devices**: You'll become familiar with configuring routers, switches, and PCs, as well as how to assign IP addresses and set up clock rates on router serial ports.

4. **Routing Table Insights:** You'll develop an understanding of how routers build and manage their routing tables, and how these tables determine the best path for data packets to reach their destination.

5. **Packet Transfer Monitoring:** By pinging between PCs and observing packet transfers in real-time and simulation modes, you'll get an insight into how data is transmitted across networks and how to troubleshoot connectivity issues.

EXPERIMENT-7

STUDENT NAME: TANMAYA KUMAR PANI   **UID:** 22BCS12986

BRANCH: BE-CSE   **SECTION/GROUP:** 613-B

SEMESTER: 5TH   **DATE OF PERFORMANCE:**25/9/24

SUBJECT NAME: COMPUTER NETWORKS   **SUBJECT CODE:** 22CSH-312

1. **AIM:** Connect the computers in Local Area Network by setting IP Address, Subnet mask & Default gateway.

2. **OBJECTIVE:**

   The objective of this project is to connect computers in a Local Area Network (LAN) by configuring IP addresses, subnet masks, and default gateways. This will enable communication between devices within the same network.

3. **REQUIREMENTS (HARDWARE/SOFTWARE): Packet Tracer**

4. **PROCEDURE:**

   1. Create network topology by adding a router, a switch, and multiple PCs.

   2. Connect the PCs to the switch and the switch to the router using cables.

   3. Assign IP addresses and subnet masks to the PCs (e.g., 192.168.0.2, 192.168.0.3) with the subnet mask 255.255.255.0.

   4. Assign a static IP (192.168.0.1) and subnet mask (255.255.255.0) to the router's interface.

   5. Configure DHCP on the router to assign IP addresses automatically to other devices on the network.

   6. Enable NAT on the router for Internet access by configuring the public facing interface to connect to the Internet.

   7. Ping between PCs to ensure they can communicate with each other on the LAN.

   8. Simulate Internet access by creating a cloud connection and pinging an external network from the PCs.

5. OUTPUT:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	PC3	PC5	ICMP	■	0.000	N	0	(edit)	(delete)
●	Successful	PC0	PC2	ICMP	■	0.000	N	1	(edit)	(delete)
●	Successful	PC0	PC3	ICMP	■	0.000	N	2	(edit)	(delete)
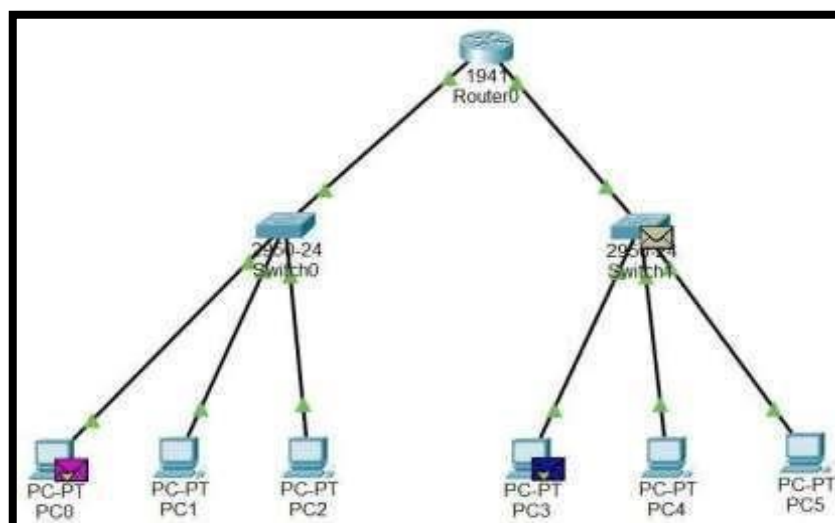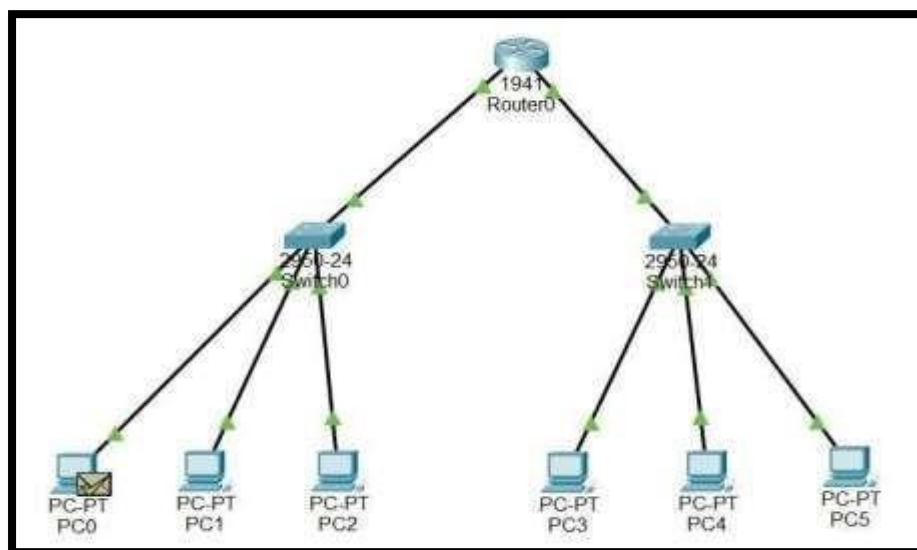
6. LEARNING OUTCOME:

1. Understand how to set up a Local Area Network (LAN) To configure IP addresses and subnet masks in a network.

2. Gain experience in enabling Internet sharing and configuring Network Address Translation (NAT).

3. Verify network connectivity by using the ping command to test communication between devices.