

PROGRAM -5:

Aim: To understand the modes of operation in a Router and explore basic Router and Switch commands for configuring and managing network devices.

Theoretical Description:

A Router operates in various modes, each allowing different levels of configuration and command execution. The most common modes in a router are:

1. User EXEC Mode: This is the initial mode when accessing the router, which has limited functionality, mainly for viewing basic information.
 - Prompt: Router>
2. Privileged EXEC Mode: Provides access to all the show commands, debugging, and basic device management commands. You can also enter global configuration mode from here.
 - Prompt: Router#
 - Command to enter: enable
3. Global Configuration Mode: Used to make system-wide configurations. You can configure interfaces, routing protocols, and other features.
 - Prompt: Router(config)#
 - Command to enter: configure terminal
4. Interface Configuration Mode: Used to configure the individual interfaces (ports) of the router.
 - Prompt: Router(config-if)#
 - Command to enter: interface [type/number] (e.g., interface GigabitEthernet0/0)

Switches also have a similar hierarchy of command modes and allow management through VLANs, port configurations, etc.

Algorithm:

1. Access the Router or Switch:
 - a. Open a terminal or console session to the Router/Switch.
2. Switch to Privileged EXEC Mode:

- a. Enter the enable command to switch from user mode to privileged EXEC mode.
3. Enter Global Configuration Mode:
 - a. Use the configure terminal command to enter global configuration mode.
4. Configure Interfaces (For Routers):
 - a. Use interface commands to configure IP addresses, enable/disable interfaces, etc.
 - b. Example: interface GigabitEthernet0/0
5. View Status and Information:
 - a. Use commands like show ip interface brief, show running-config, etc., to view current configurations.
6. Basic Switch Commands:
 - a. Set the hostname, password, and manage VLANs.

Output:

1. Router Hostname Configuration:

```
MyRouter(config)# hostname MyRouter  
  
MyRouter#
```

2. Interface IP Configuration:

```
MyRouter(config-if)# ip address 192.168.1.1 255.255.255.0  
  
MyRouter(config-if)# no shutdown
```

3. Switch VLAN Configuration:

```
MySwitch# show vlan brief
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VLAN Name	Status	Ports
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10 Sales active Fa0/1

4. Interface Status on Router:

MyRouter# show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.1.1	YES	manual	up	up

Conclusion: In this experiment, we explored the different modes of a router and basic switch commands. We configured a router's hostname, IP address, and interfaces, and also set up VLANs on a switch.