**Lab 7 [Basic WAN Configurations and Static Routing]**

**Outline:**

1. Configure a WAN of various LANs.
2. IP Addressing and Networks.
3. Configuring Static Routing.
4. Analyse the working of static routing.

**Tasks:**

1. You are setting up a WAN for four campuses of UET. Each campus has its own local network connected through a router. The branches need to communicate with each other over a WAN link.

**Network Topology Setup**

Connect Router A to Router B, Router B to Router C and Router C to D using a serial link to simulate the WAN connection. Set up each campus network with a router, a switch, and two PCs. Connect each PC to the switch, and the switch to the router in each branch.

**Assign IP Addresses**

Assign IP addresses to each network segment:

Campus A: Use network 203.10.14.0/24

Campus B: Use network 204.10.14.0/24

Campus C: Use network 205.10.14.0/24

Campus D: Use network 206.10.14.0/24

Serial link between routers A and B: Use network 10.10.10.0/8

Serial link between routers B and C: Use network 20.20.20.0/8

Serial link between routers C and D: Use network 30.30.30.0/8

**Configure IP Addresses on Devices**

On each PC, assign IP addresses and set the default gateway (the router’s LAN interface IP). On each router, assign IP addresses to both LAN and serial WAN interfaces.

**Enable Routing on Routers**

Enter each router's configuration mode.

Use no shutdown on each interface to bring it up.

Test connectivity within each local network by pinging between PCs in the same branch.

**Configure Static Routes**

On Router A: Set a static route to the Campus B network via Router B’s serial IP address.

On Router B: Set a static route to the Campus A network via Router A’s serial IP address.

Verify the routes with the show ip route command on each router. Try pinging from a PC in Campus A to a PC in Campus B to confirm the static routing works. Troubleshoot any connectivity issues.

Save the network configuration in Packet Tracer for future reference.

Now Configure a static route for accessing Campus D network from Campus A network. Configuration will be performed on each router on the way from A to D and then back D to A. Test the configurating by pinging from A to D.