R.SENABADHY SESAN

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Observation for the Lab Exam Exercise:

Objective: Set up and configure a network topology using RIP and OSPF routing protocols in Cisco Packet Tracer. Customize the network by assigning each computer a name and an IP address using the last three digits of your roll number.

Procedure:

1. **Network Topology Design**:

- Successfully created a network topology in Cisco Packet Tracer with two distinct LANs, each connected to a switch.
- Each LAN consisted of 5-6 computers (10-12 in total) and two routers connected via a WAN link.
- All computers were named using the format `PC_RollNumber` (e.g., `PC_123`) as per the requirement.
- The topology was visually clear and allowed easy identification of devices and their connections.

2. **IP Address Configuration**:

- Assigned IP addresses to each computer using the last three digits of the roll number for the last octet.
- Configured LAN 1 with the subnet `192.168.1.0/24` and LAN 2 with the subnet `192.168.2.0/24`.
- Verified the unique IP address assignment for each device, ensuring no IP conflicts within the LANs.
- All devices within their respective LANs could communicate with each other.

3. **Routing Protocols Configuration**:

- Configured **RIP v1** on Router 1 and **OSPF** on Router 2.
- Set up RIP with the appropriate network commands, ensuring that Router 1 could share routing information about its connected network.

- Set up OSPF on Router 2 with a specific OSPF area and configured the correct network ranges.
- Verified that both routers were able to exchange routing information, enabling communication between LAN 1 and LAN 2.
- Routing tables were reviewed to confirm that both routers had accurate entries for the other's network.

4. **Packet Tracer Configuration Steps**:

- Added and connected all devices, including computers, switches, and routers, ensuring proper cable types (cross-over or straight-through).
- Configured IP addresses on computers and network interfaces on switches and routers.
- Enabled routing protocols on routers using the appropriate commands for RIP and OSPF.
- Conducted a ping test to ensure that devices in LAN 1 could reach devices in LAN 2 and vice versa.
- Verified successful transmission of data between the two LANs, confirming proper routing configuration.

5. **Simulation**:

- Used Cisco Packet Tracer's simulation mode to observe data packet flow between computers across different LANs.
- Simulated sending a message (ping) from a computer in LAN 1 to a computer in LAN 2.
- Observed the routing path taken by the packet as it traversed the network, passing through the configured routers.
- Verified that packets successfully reached their destination, indicating proper routing between the LANs using RIP and OSPF.
- Analyzed any packet loss or delay in transmission and ensured that there were no errors in routing configuration.