**CN LAB EXAMINATION REPORT**

**Aim:**

**To design and configure a network topology that includes both LAN and WAN using Cisco Packet Tracer. The topology involves 10-15 computers, switches, and routers. The objective is to simulate the transmission of a message from one network to another, ensuring proper connectivity and communication across the different segments.**

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**Procedure**

**1. Topology Design:**

**- LAN Configuration:**

**- Create a network topology with at least 10 computers connected to switches. Ensure proper connectivity within the LAN by using appropriate switch connections.**

**- WAN Configuration:**

**- Establish a WAN by connecting the LAN to another network via routers. This configuration allows communication between separate LAN segments, forming a broader network structure.**

**2. Network Setup in Cisco Packet Tracer:**

**- Add Devices:**

**- Place and connect 10-15 computers within the LAN.**

**- Include at least 2 switches to handle the connections between the computers.**

**- Add a minimum of 2 routers to enable WAN connectivity.**

**- Configure IP Addresses:**

**- Assign unique IP addresses to all computers within the LAN, ensuring they are within the same subnet.**

**- Set up IP addresses on router interfaces to facilitate routing between LAN and WAN segments.**

**- Configure static routes or routing protocols as needed to enable seamless communication between different LANs through the WAN.**

**3. Configuration Steps:**

**- LAN Configuration:**

**- Connect the computers to the switches using network cables.**

**- Assign IP addresses to each computer, ensuring that each one is unique within the same subnet.**

**- Interconnect the switches to allow communication between devices within the LAN.**

**- WAN Configuration:**

**- Connect the routers to each other to establish the WAN.**

**- Configure the router interfaces with IP addresses that will allow communication across the WAN.**

**- Set up either static or dynamic routing to ensure the routers can route traffic between the different LAN segments.**

**4. Simulation:**

**- Send a Message:**

**- Use the simulation mode in Cisco Packet Tracer to monitor network activity.**

**- Configure and send a message from a computer in one network (e.g., LAN1) to a computer in another network (e.g., LAN2).**

**- Capture and verify the successful transmission of the message from one network to another.**

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**Result:**

**Network Topology and Configuration:**

**- LAN Setup:**

**- Computers: 12 computers were successfully placed and connected.**

**- Switches: 2 switches were used to manage the LAN connections.**

**- IP Configuration: Unique IP addresses were assigned to all computers, ensuring they were within the same subnet.**

**- WAN Setup:**

**- Routers: 2 routers were configured to connect the two distinct LANs.**

**- Router IP Configuration: IP addresses were assigned to the router interfaces to connect the LANs and enable communication between them.**

**- Routing Protocols: Static routes were implemented to facilitate traffic flow between the LAN segments.**

**Message Transmission:**

**- A message was successfully transmitted from a computer in LAN1 to a computer in LAN2.**

**- The simulation mode in Cisco Packet Tracer confirmed that the message was correctly routed through the WAN and received at the destination computer.**

**- The overall network topology, IP configuration, routing setup, and message transmission were verified to function as expected, demonstrating successful inter-network communication.**.

**Screenshots:**

