CN LAB EXAMINATION REPORT

Aim

To create and configure a suitable network topology involving both LAN and WAN using Cisco Packet Tracer. The setup includes 10-12 computers, switches, and routers, aiming to simulate the transmission of messages from computers in one network to computers in another network, ensuring proper connectivity and communication across different networksegments.

Procedure

1. **Topology**

DesignLAN

Configuration:

1. Designed a network topology with 12 computers connected to 2 switches, ensuring adequate connectivity within the LAN segment.
2. Implemented WAN configuration to connect the two LANs using 2 routers, establishing a broader network structure for communication.

2.Network Setup in Cisco Packet Tracer Add Devices:

1. Placed and connected 10 computers in two separate LAN segments:o **LAN 1**: 5 computers
   o **LAN 2**: 5 computers
2. Added 2 switches to manage connections within each LAN.
3. Introduced 2 routers to facilitate WAN connectivity.

Configure IP Addresses:

1. Assigned unique IP addresses to all computers: o **LAN 1**: 192.168.1.1 to 192.168.1.6 o **LAN 2**: 192.168.2.1 to 192.168.2.6
2. Configured router interfaces with appropriate IP addresses:o
   Router 1 (LAN 1 interface): 192.168.1.254 o **Router 2** (LAN 2 interface): 192.168.2.254 o **WAN link**:
   - Router 1: 10.0.0.1
   - Router 2: 10.0.0.2

3. Set up routing protocols:

- Router 1: Configured with RIP.

oRouter 2: Configured with OSPF. **3.**

Configuration Steps LAN Configuration:

1. Connected computers to the switches using appropriate network cables (copperstraight-through).
2. Configured unique IP addresses on each computer, ensuring they were within thesame subnet.
3. Connected the switches to ensure communication across devices within the LAN.

WAN Configuration:

1. Connected the routers to each other using serial cables to establish the WANconnection.
2. Configured the router interfaces with IP addresses that facilitate communicationacross the WAN.
3. Set up routing:
   - On Router 1:

```
   bash  Copy  code
enable  configure
terminal  router  rip
version   1   network
192.168.1.0   network
10.0.0.0
```

o On Router 2:

```
bash Copy code enable
configureterminal router ospf 1
network 192.168.2.0 0.0.0.255
area 0
network 10.0.0.0 0.0.0.255 area 0
```

4. **Simulatio**

nSend a

Message:

1. Utilized Cisco Packet Tracer's simulation mode to monitor network activity.
2. Configured and sent a message from a computer in LAN 1 (e.g., PC_123) to acomputer in LAN 2 (e.g., PC_127).
3. Captured and verified the message transmission, ensuring successful delivery to thedestination computer.

Result

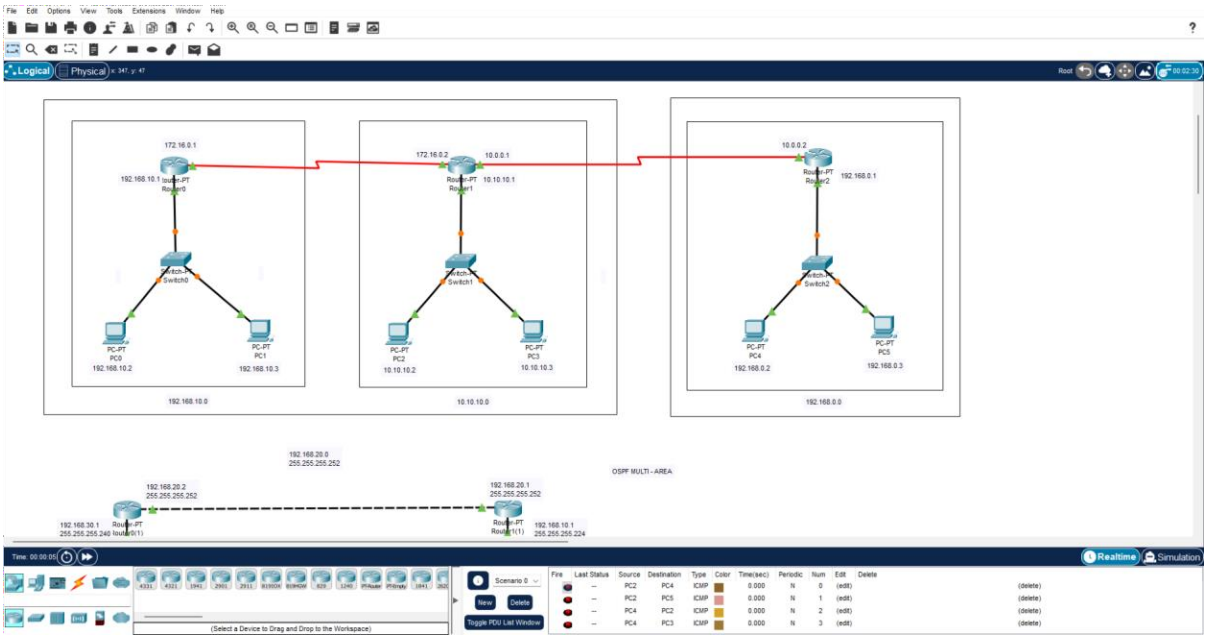
Network Topology and Configuration:

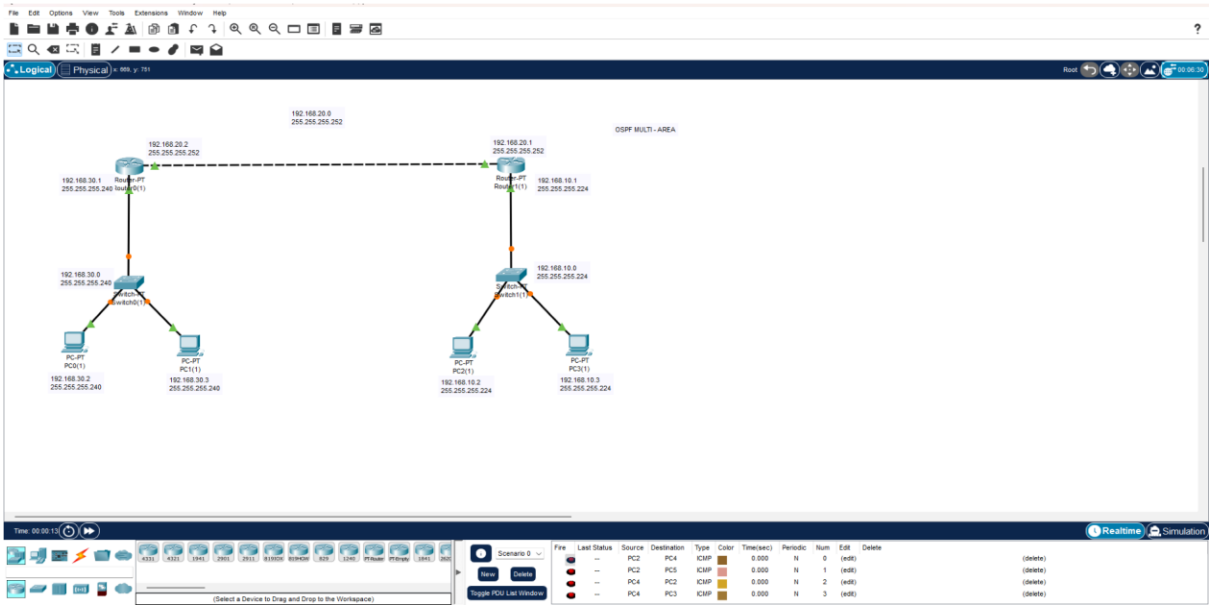
- **LAN Setup**: o **Computers**: 12 computers were successfully placed andconnected. o **Switches**: 2 switches managed LAN connections.
    - o **IP Configuration**: Unique IP addresses were assigned within the samesubnet for all computers.
- **WAN Setup**: o **Routers**: 2 routers were configured to connect the twodistinct LANs.
    - o **Router IP Configuration**: Routers were assigned IP addresses to enableconnectivity. o**Routing Protocols**:
        - RIP was implemented on Router 1.
        - OSPF was configured on Router 2.

Message Transmission:

- A message was successfully sent from a computer in LAN 1 to a computer inLAN 2.
- Simulation mode in Cisco Packet Tracer confirmed that the message was routedcorrectly through the WAN and received at the destination computer.

Screenshots:





Joseph Justus .T
RA2211003050173
CSE C