



CSE 1004

NETWORK AND COMMUNICATION

THEORY DIGITAL ASSIGNMENT

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SLOT – D2+TD2

SUBMITTED TO – DR. JAISANKAR N

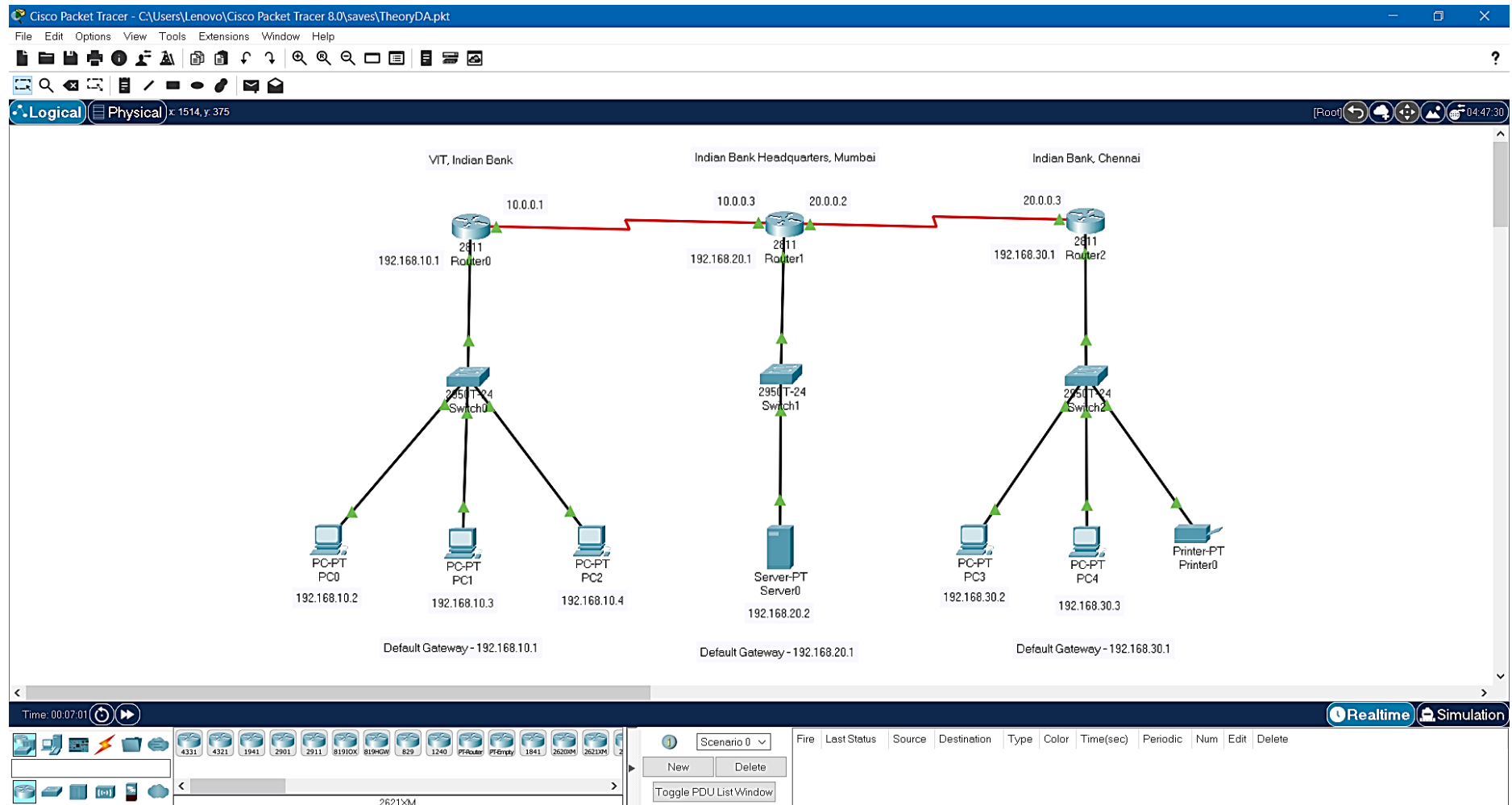
Implement any of networking concepts using cisco packet tracer or wireshark.

QUESTION 1:

Using Cisco Packet Tracer, design a network as stated:

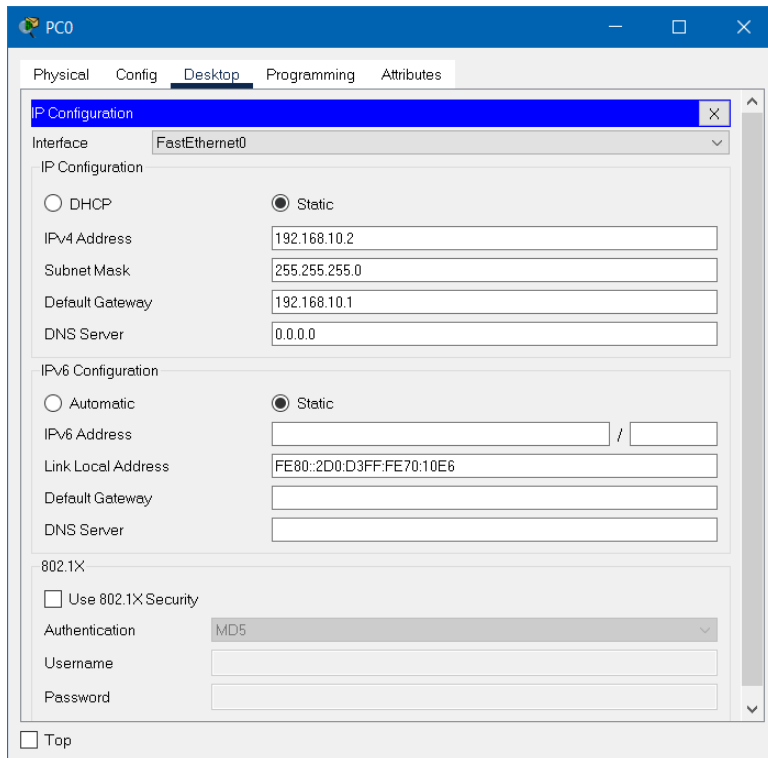
Suppose, you are the network admin of VIT, Indian Bank. The headquarters of Indian bank is located in Mumbai. There is another branch located in Chennai. Both the VIT branch and the Chennai branch has to be connected to the headquarters. Create a network between these three branches. Assume, VIT Indian Bank has three PCs. The headquarters has one server. At Chennai branch it has 2 PCs and a printer. Communication between Chennai branch and VIT branch is through the headquarters in Mumbai

1) Screen shot of the designed network



2) IP address configuration with default gateway for all PCs.

PC0:

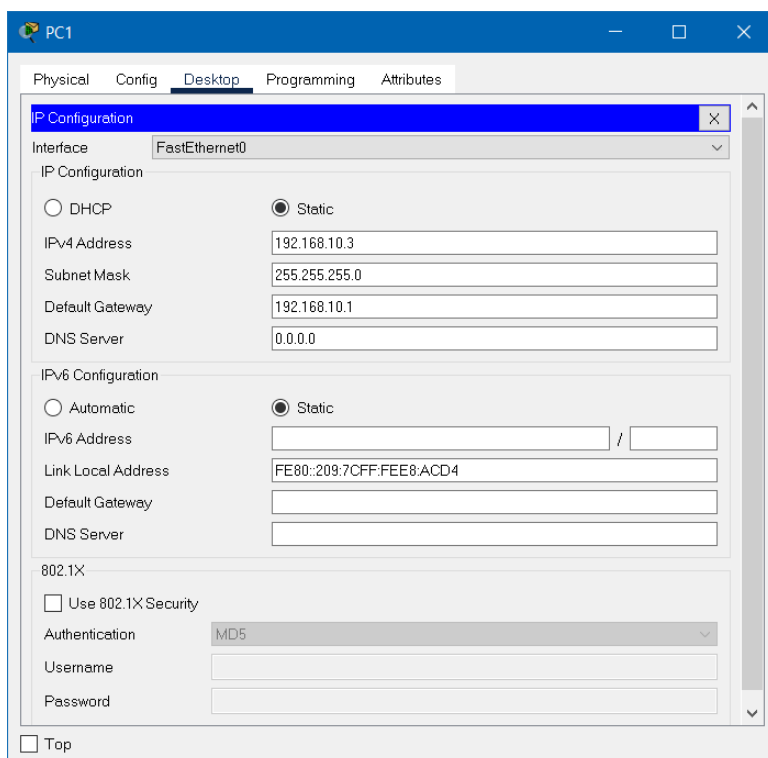


The screenshot shows the configuration window for PC0. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'IP Configuration' section has two sub-sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are: IPv4 Address: 192.168.10.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.10.1, and DNS Server: 0.0.0.0. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::2D0:D3FF:FE70:10E6, Default Gateway: (empty), and DNS Server: (empty). The '802.1X' section is collapsed. At the bottom, there is a 'Top' button.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::2D0:D3FF:FE70:10E6
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

☐ Top

PC1:

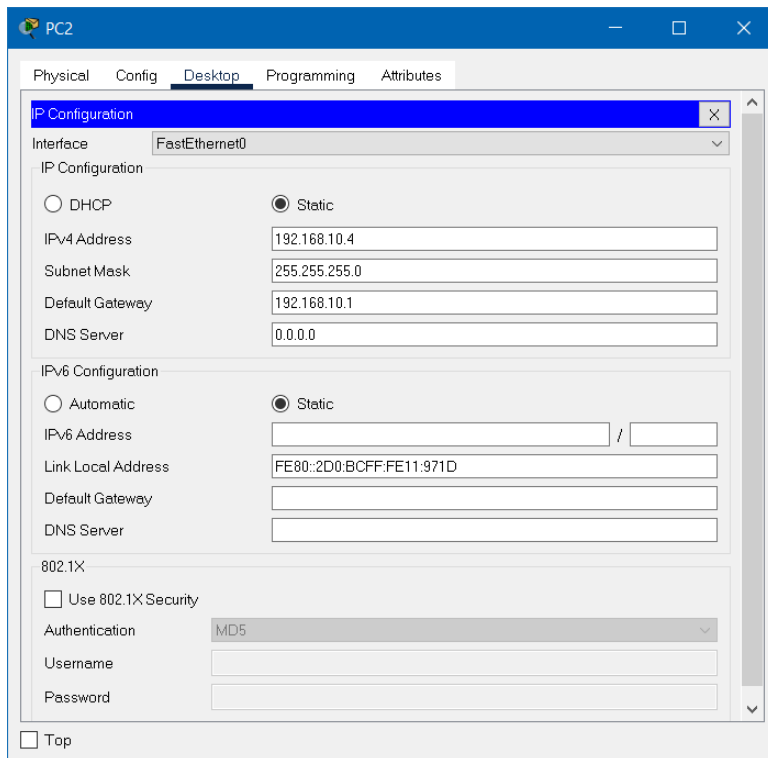


The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'IP Configuration' section has two sub-sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are: IPv4 Address: 192.168.10.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.10.1, and DNS Server: 0.0.0.0. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The fields are: IPv6 Address: (empty), Link Local Address: FE80::209:7CFF:FEE8:ACD4, Default Gateway: (empty), and DNS Server: (empty). The '802.1X' section is collapsed. At the bottom, there is a 'Top' button.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	/
Link Local Address	FE80::209:7CFF:FEE8:ACD4
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

☐ Top

PC2:



The screenshot shows the configuration window for PC2. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with the following values:

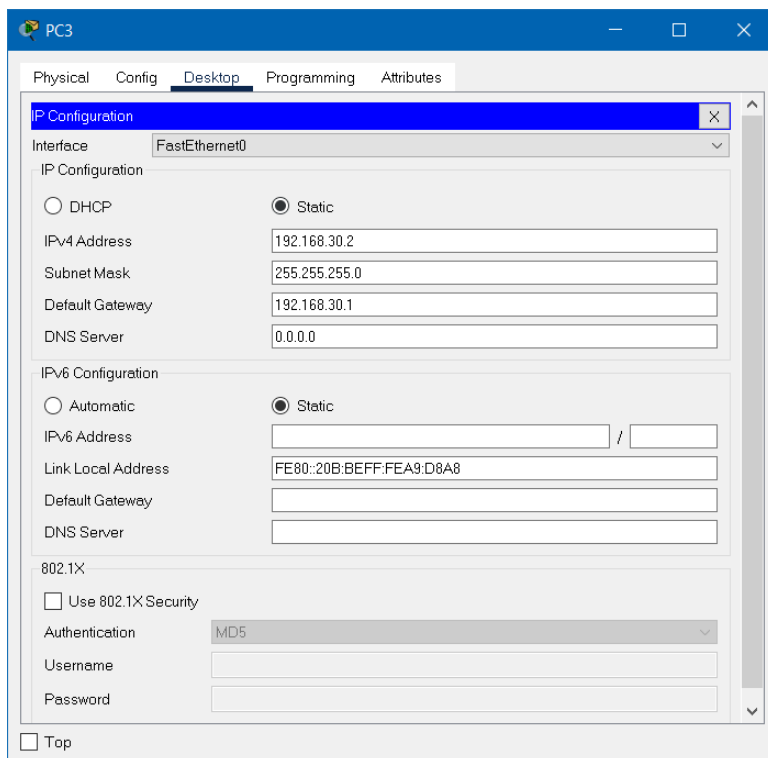
Field	Value
IPv4 Address	192.168.10.4
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0

The 'IPv6 Configuration' section is also expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IPv6 Configuration'. The fields are filled with the following values:

Field	Value
IPv6 Address	
Link Local Address	FE80::2D0:BCFF:FE11:971D
Default Gateway	
DNS Server	

The '802.1X' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Use 802.1X Security' checkbox is unchecked. The 'Authentication' dropdown is set to 'MD5'. The 'Username' and 'Password' fields are empty.

PC3:



The screenshot shows the configuration window for PC3. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with the following values:

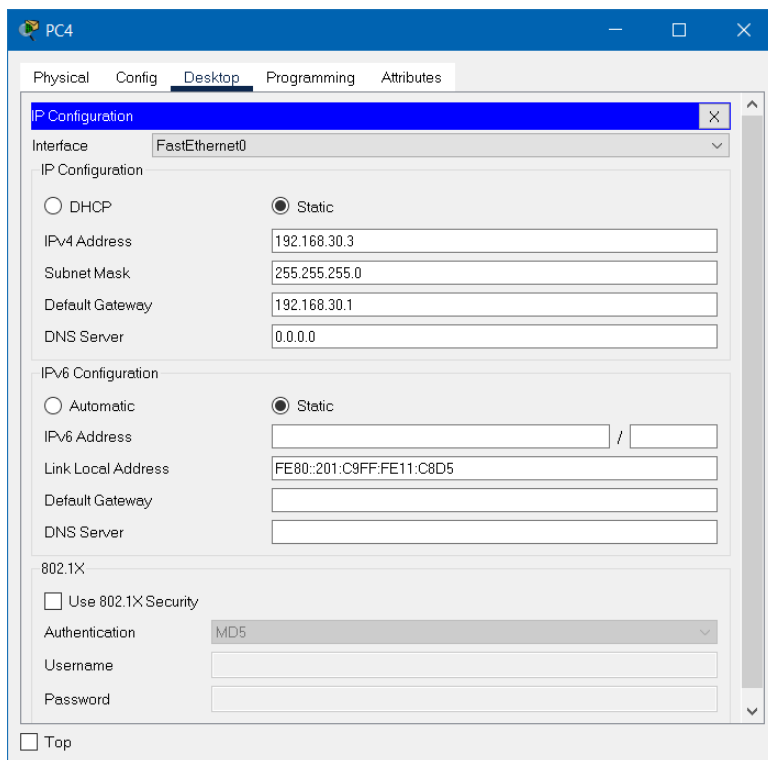
Field	Value
IPv4 Address	192.168.30.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.30.1
DNS Server	0.0.0.0

The 'IPv6 Configuration' section is also expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IPv6 Configuration'. The fields are filled with the following values:

Field	Value
IPv6 Address	
Link Local Address	FE80::20B:BEFF:FEA9:D8A8
Default Gateway	
DNS Server	

The '802.1X' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Use 802.1X Security' checkbox is unchecked. The 'Authentication' dropdown is set to 'MD5'. The 'Username' and 'Password' fields are empty.

PC4:

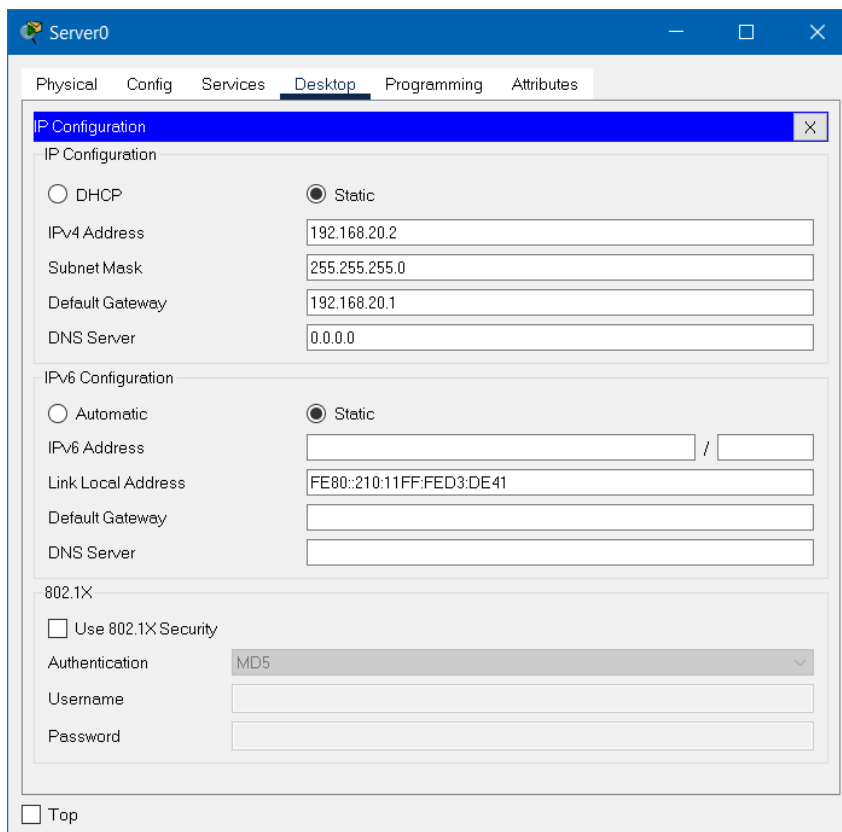


The screenshot shows the 'PC4' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The 'IPv4 Address' is set to '192.168.30.3', 'Subnet Mask' to '255.255.255.0', 'Default Gateway' to '192.168.30.1', and 'DNS Server' to '0.0.0.0'. The 'IPv6 Configuration' section is also expanded, showing 'Static' selected, with 'IPv6 Address' as an empty field, 'Link Local Address' as 'FE80::201:C9FF:FE11:C8D5', and 'Default Gateway' and 'DNS Server' as empty fields. The '802.1X' section is expanded, showing 'Use 802.1X Security' as an unchecked checkbox, 'Authentication' as 'MD5', and 'Username' and 'Password' as empty fields. A 'Top' button is at the bottom left.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.30.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.30.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::201:C9FF:FE11:C8D5
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

☐ Top

FOR Server0:



The screenshot shows the 'Server0' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The 'IPv4 Address' is set to '192.168.20.2', 'Subnet Mask' to '255.255.255.0', 'Default Gateway' to '192.168.20.1', and 'DNS Server' to '0.0.0.0'. The 'IPv6 Configuration' section is also expanded, showing 'Static' selected, with 'IPv6 Address' as an empty field, 'Link Local Address' as 'FE80::210:11FF:FED3:DE41', and 'Default Gateway' and 'DNS Server' as empty fields. The '802.1X' section is expanded, showing 'Use 802.1X Security' as an unchecked checkbox, 'Authentication' as 'MD5', and 'Username' and 'Password' as empty fields. A 'Top' button is at the bottom left.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.20.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.20.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::210:11FF:FED3:DE41
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

☐ Top

3) IP Configuration of Routers.

Router0:

The screenshot shows the Router0 configuration window with the 'Config' tab selected. The left sidebar lists various configuration categories: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, and INTERFACE. Under the INTERFACE category, 'FastEthernet0/0' is selected. The main panel displays the configuration for 'FastEthernet0/0'. The 'Port Status' is set to 'On'. The 'Bandwidth' is set to '100 Mbps'. The 'Duplex' is set to 'Full Duplex'. The 'MAC Address' is '000A.F3D4.838E'. The 'IP Configuration' section shows 'IPv4 Address' as '192.168.10.1' and 'Subnet Mask' as '255.255.255.0'. The 'Tx Ring Limit' is set to '10'. Below the configuration panel, there is a section for 'Equivalent IOS Commands' showing the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

The screenshot shows the Router0 configuration window with the 'Config' tab selected. The left sidebar lists various configuration categories: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, and INTERFACE. Under the INTERFACE category, 'Serial0/0/0' is selected. The main panel displays the configuration for 'Serial0/0/0'. The 'Port Status' is set to 'On'. The 'Duplex' is set to 'Full Duplex'. The 'Clock Rate' is set to '64000'. The 'IP Configuration' section shows 'IPv4 Address' as '10.0.0.1' and 'Subnet Mask' as '255.0.0.0'. The 'Tx Ring Limit' is set to '10'. Below the configuration panel, there is a section for 'Equivalent IOS Commands' showing the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

Router1:

The screenshot shows the Router1 configuration window with the 'Config' tab selected. The left sidebar shows the configuration tree with 'FastEthernet0/0' selected under the 'INTERFACE' section. The main area displays the configuration for 'FastEthernet0/0'. The 'Port Status' is 'On'. 'Bandwidth' is set to '100 Mbps'. 'Duplex' is set to 'Full Duplex'. 'MAC Address' is '0090.2107.B68C'. The 'IP Configuration' section shows 'IPv4 Address' as '192.168.20.1' and 'Subnet Mask' as '255.255.255.0'. The 'Tx Ring Limit' is set to '10'. Below the configuration, the 'Equivalent IOS Commands' section shows the following commands:

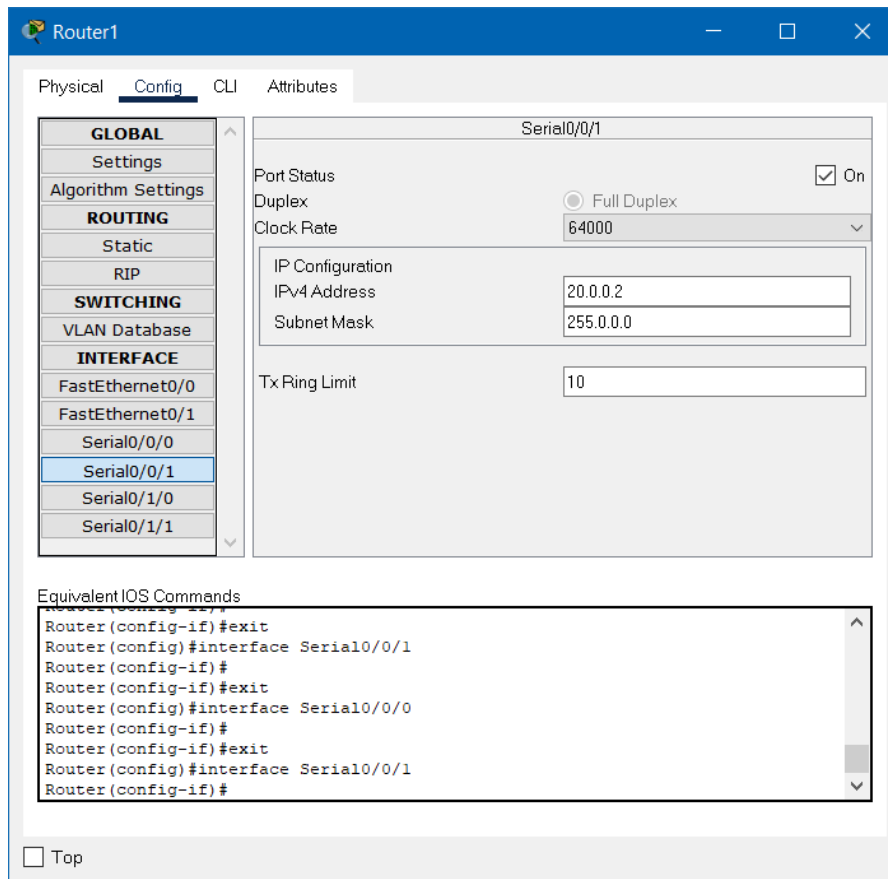
```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

The screenshot shows the Router1 configuration window with the 'Config' tab selected. The left sidebar shows the configuration tree with 'Serial0/0/0' selected under the 'INTERFACE' section. The main area displays the configuration for 'Serial0/0/0'. The 'Port Status' is 'On'. 'Duplex' is set to 'Full Duplex'. 'Clock Rate' is set to '64000'. The 'IP Configuration' section shows 'IPv4 Address' as '10.0.0.3' and 'Subnet Mask' as '255.0.0.0'. The 'Tx Ring Limit' is set to '10'. Below the configuration, the 'Equivalent IOS Commands' section shows the following commands:

```
Router(config)#interface Serial0/0/0
Router(config-if)#clock rate 64000
This command applies only to DCE interfaces
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.



Router2:

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status ☒ On

Bandwidth

100 Mbps

10 Mbps

Auto

Duplex

Half Duplex

Full Duplex

Auto

MAC Address 0002.1781.EAC3

IP Configuration

IPv4 Address 192.168.30.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#

☐ Top

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

Serial0/0/0

Port Status ☒ On

Duplex

Full Duplex

Clock Rate 64000

IP Configuration

IPv4 Address 20.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

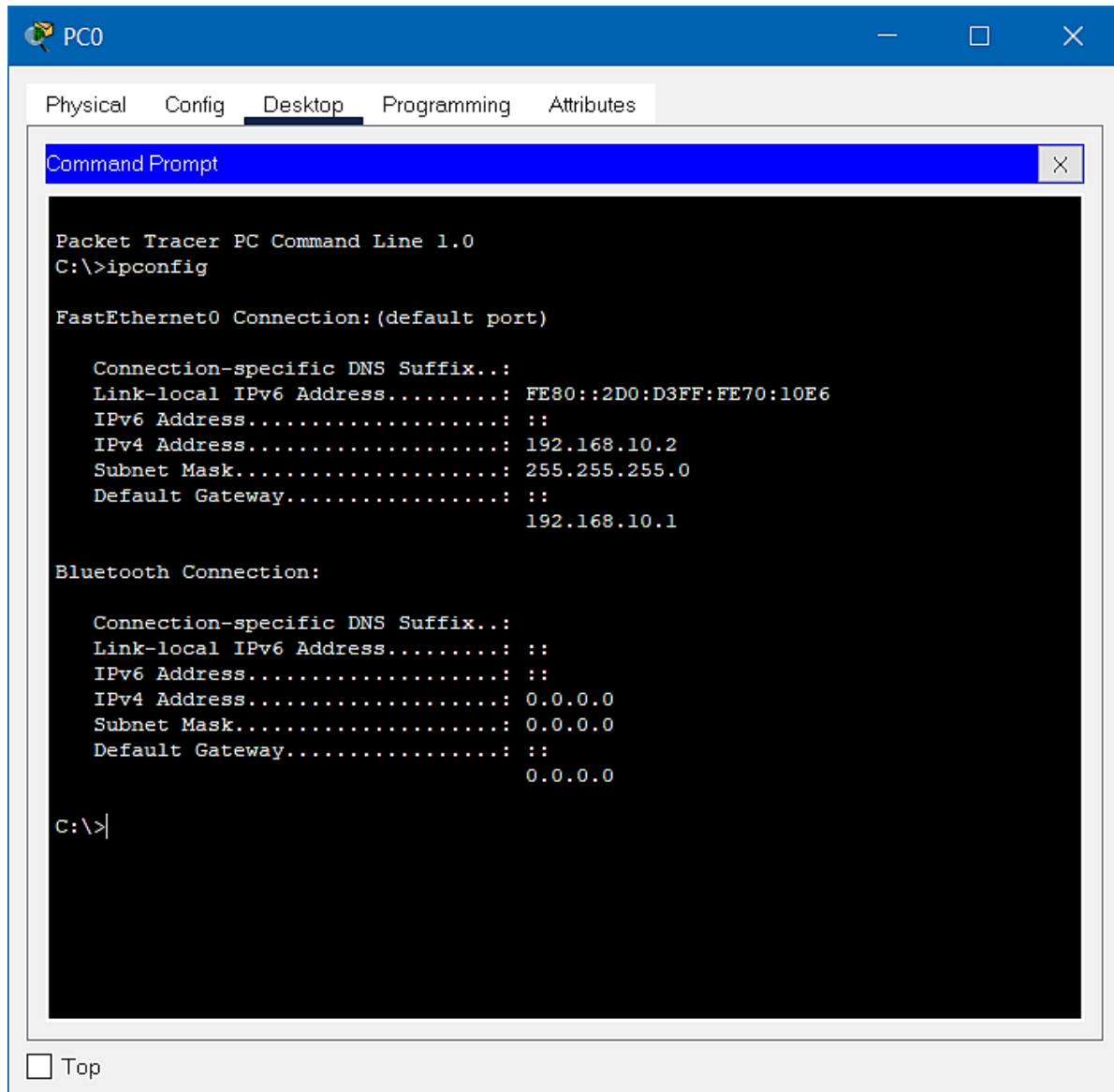
Equivalent IOS Commands

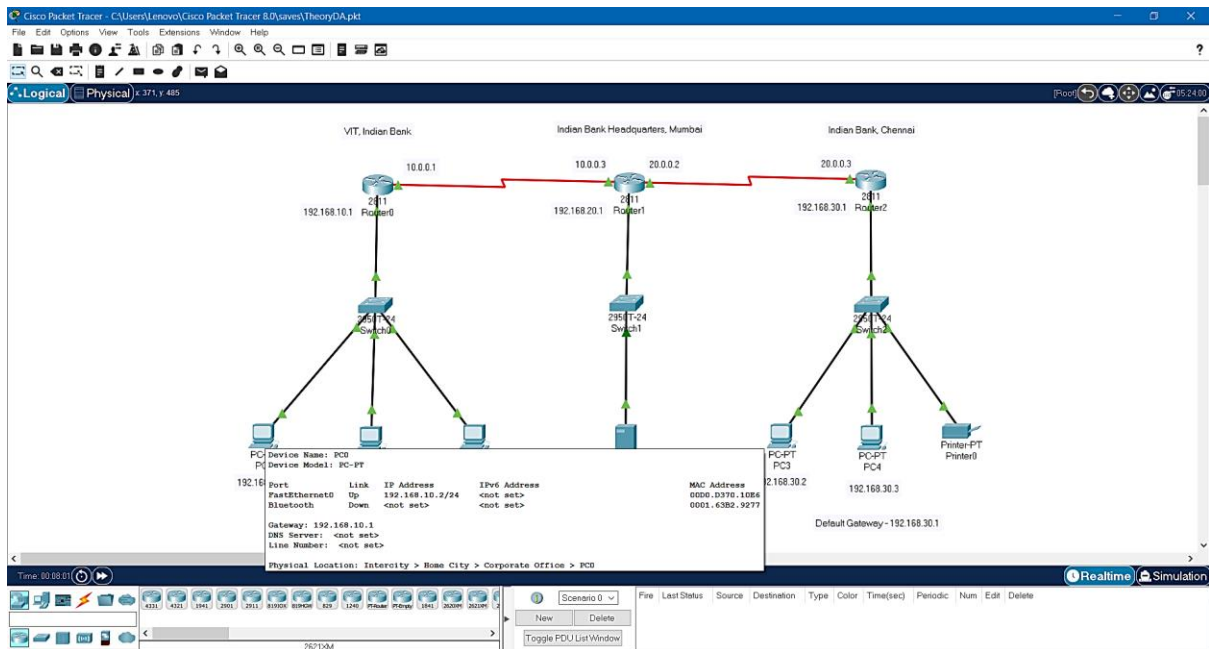
Router(config)#interface Serial0/0/0
Router(config-if)#clock rate 64000
This command applies only to DCE interfaces
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#

☐ Top

4) Collect the IPV4 information of PCs using ipconfig.

PC0 in VIT, Indian Bank:





PC3 in Indian Bank, Chennai:

PC3

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20B:BEFF:FEA9:D8A8
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.30.2
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                192.168.30.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>
C:\>
```

☐ Top

5) Display the routing tables for the routers.

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\TheoryDA.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1471, y 303 [Root] 06:54:30

VT, Indian Bank Indian Bank Headquarters, Mumbai Indian Bank, Chennai

10.0.0.1 10.0.0.3 20.0.0.2 20.0.0.3

192.168.10.1 192.168.20.1 192.168.30.1

Router0 Router1 Router2

Routing Table for Router0

Type	Network	Port	Next Hop IP	Metric
C	10.0.0.0/8	Serial0/0/0	—	0/0
L	10.0.0.1/32	Serial0/0/0	—	0/0
R	20.0.0.0/8	Serial0/0/0	10.0.0.3	120/1
C	192.168.10.0/24	FastEthernet0/0	—	0/0
L	192.168.10.1/32	FastEthernet0/0	—	0/0
R	192.168.20.0/24	Serial0/0/0	10.0.0.3	120/1
R	192.168.30.0/24	Serial0/0/0	10.0.0.3	120/2

PC-PT PC0 192.168.10.2 PC-PT PC1 192.168.10.3 PC-PT PC2 192.168.10.4

Default Gateway - 192.168.10.1

Routing Table for Router1

Type	Network	Port	Next Hop IP	Metric
C	10.0.0.0/8	Serial0/0/0	—	0/0
L	10.0.0.3/32	Serial0/0/0	—	0/0
C	20.0.0.0/8	Serial0/0/1	—	0/0
L	20.0.0.2/32	Serial0/0/1	—	0/0
R	192.168.10.0/24	Serial0/0/0	10.0.0.1	120/1
C	192.168.20.0/24	FastEthernet0/0	—	0/0
L	192.168.20.1/32	FastEthernet0/0	—	0/0
R	192.168.30.0/24	Serial0/0/1	20.0.0.3	120/1

Server0 192.168.20.2

Default Gateway - 192.168.20.1

Routing Table for Router2

Type	Network	Port	Next Hop IP	Metric
R	10.0.0.0/8	Serial0/0/0	20.0.0.2	120/1
C	20.0.0.0/8	Serial0/0/0	—	0/0
L	20.0.0.3/32	Serial0/0/0	—	0/0
R	192.168.10.0/24	Serial0/0/0	20.0.0.2	120/2
R	192.168.20.0/24	Serial0/0/0	20.0.0.2	120/1
C	192.168.30.0/24	FastEthernet0/0	—	0/0
L	192.168.30.1/32	FastEthernet0/0	—	0/0

PC-PT PC3 192.168.30.2 PC-PT PC4 192.168.30.3 Printer0

Default Gateway - 192.168.30.1

Time: 00:10:34

Realtime Simulation

Scenario 0

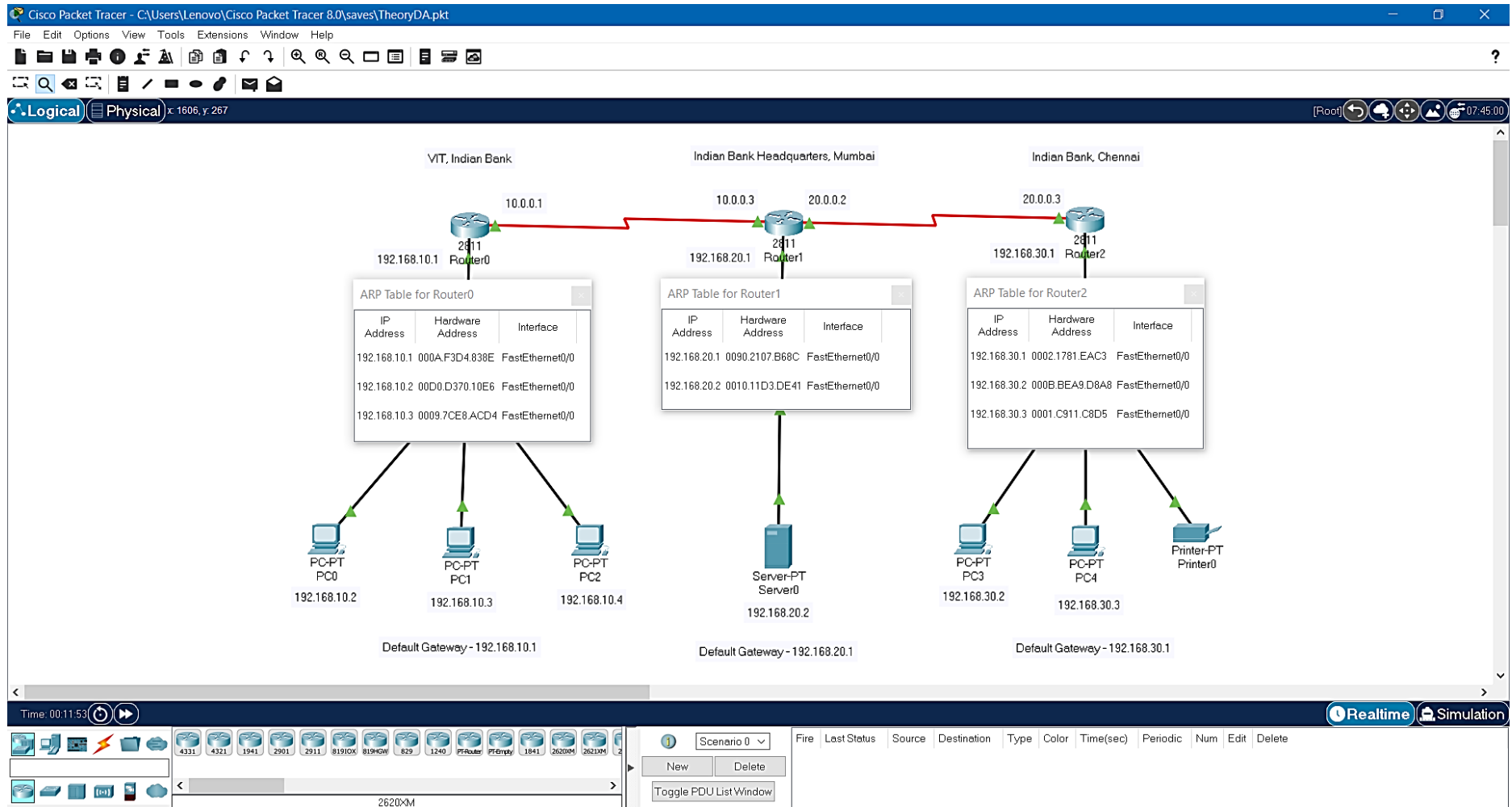
New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

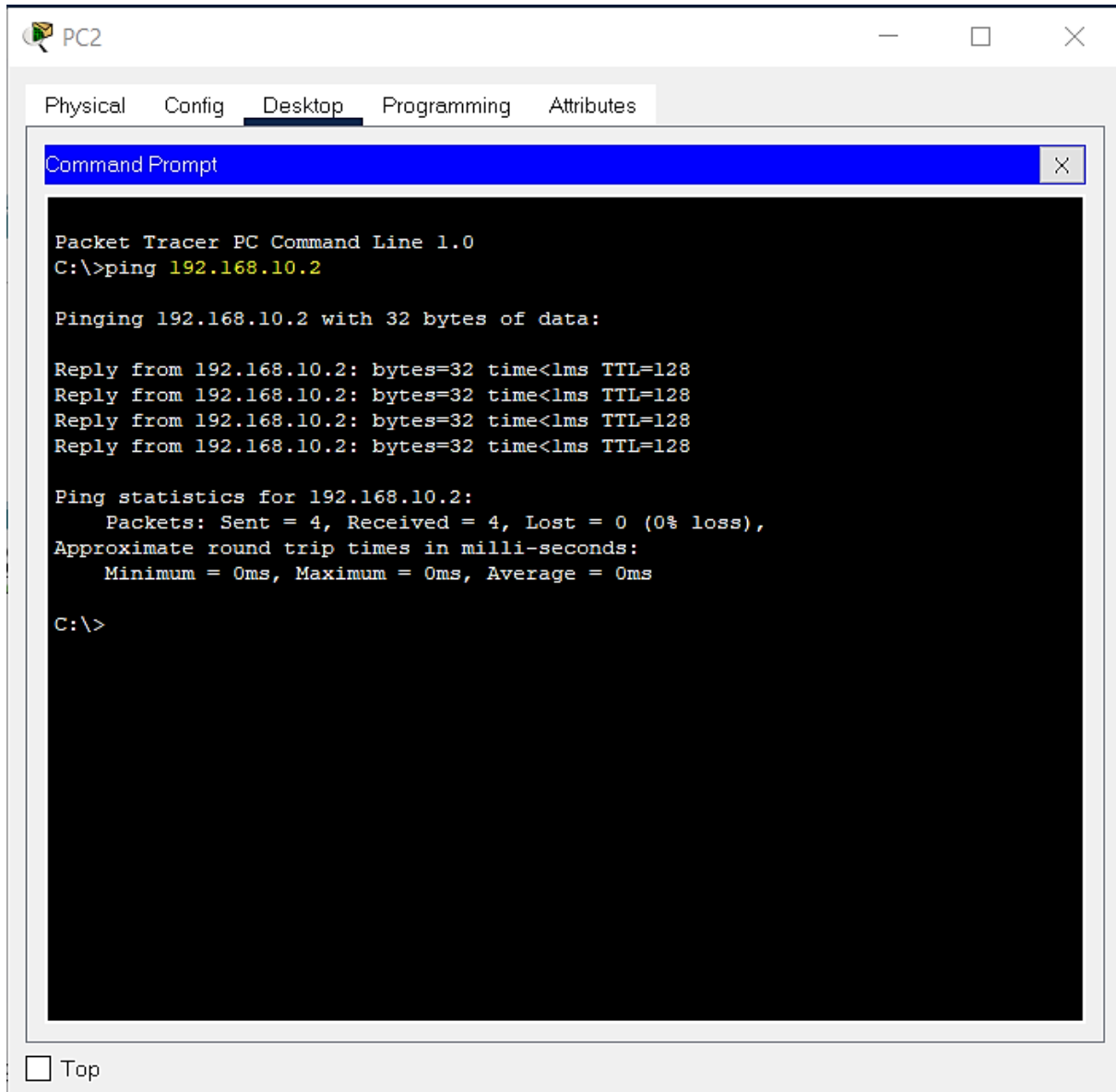
2620XM

6) Display the ARP tables for the routers.



7) Test connectivity within the same VIT, Indian Bank PCs.

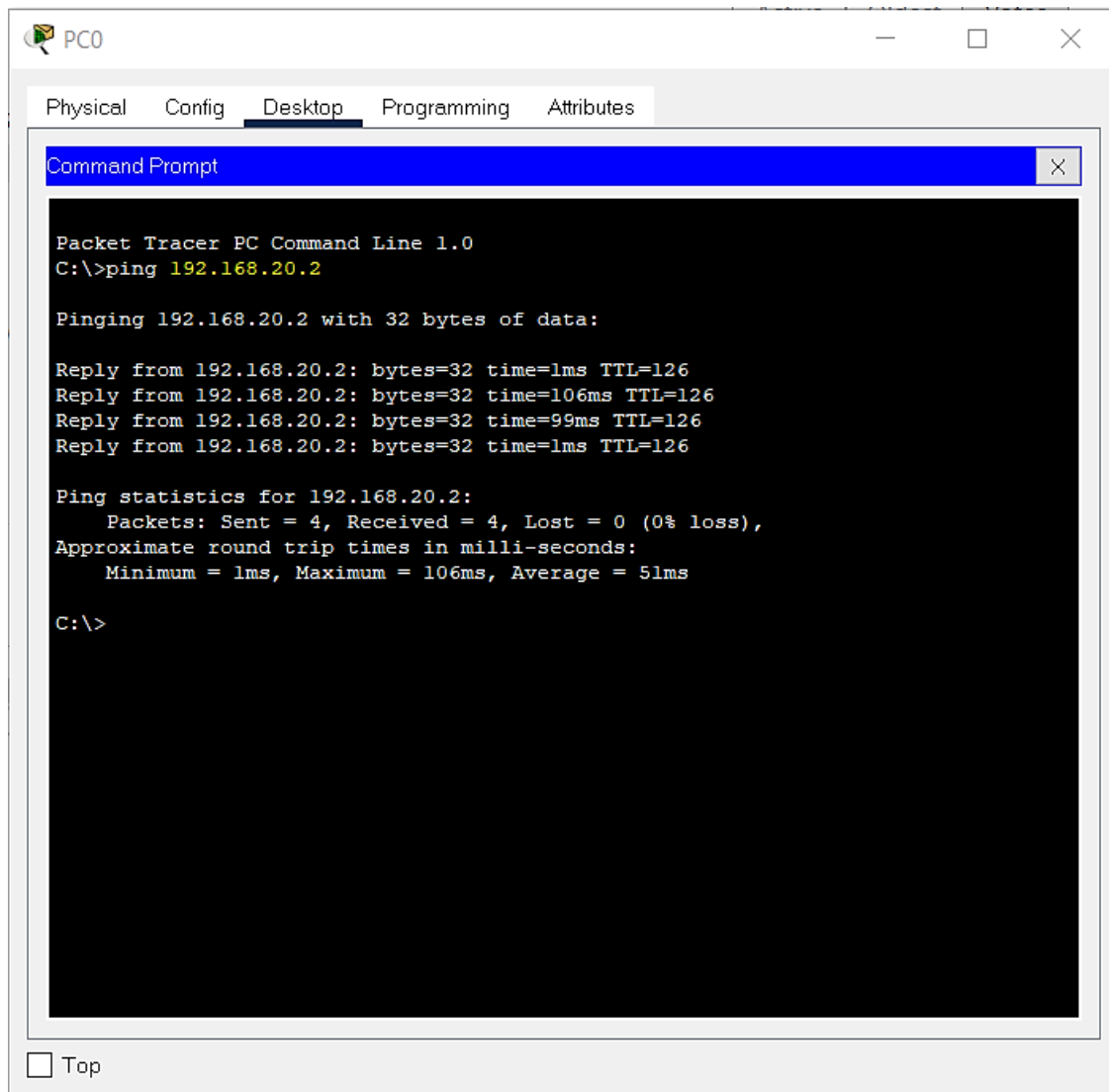
Testing connection between PC2 (192.168.10.4) and PC0 (192.168.10.2) using ping command:



8) Test the connectivity between the server and the PCs.

i. Using ping command

Testing connection between PC0 (192.168.10.2) and Server0 (192.168.20.2) using ping command:



```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.2

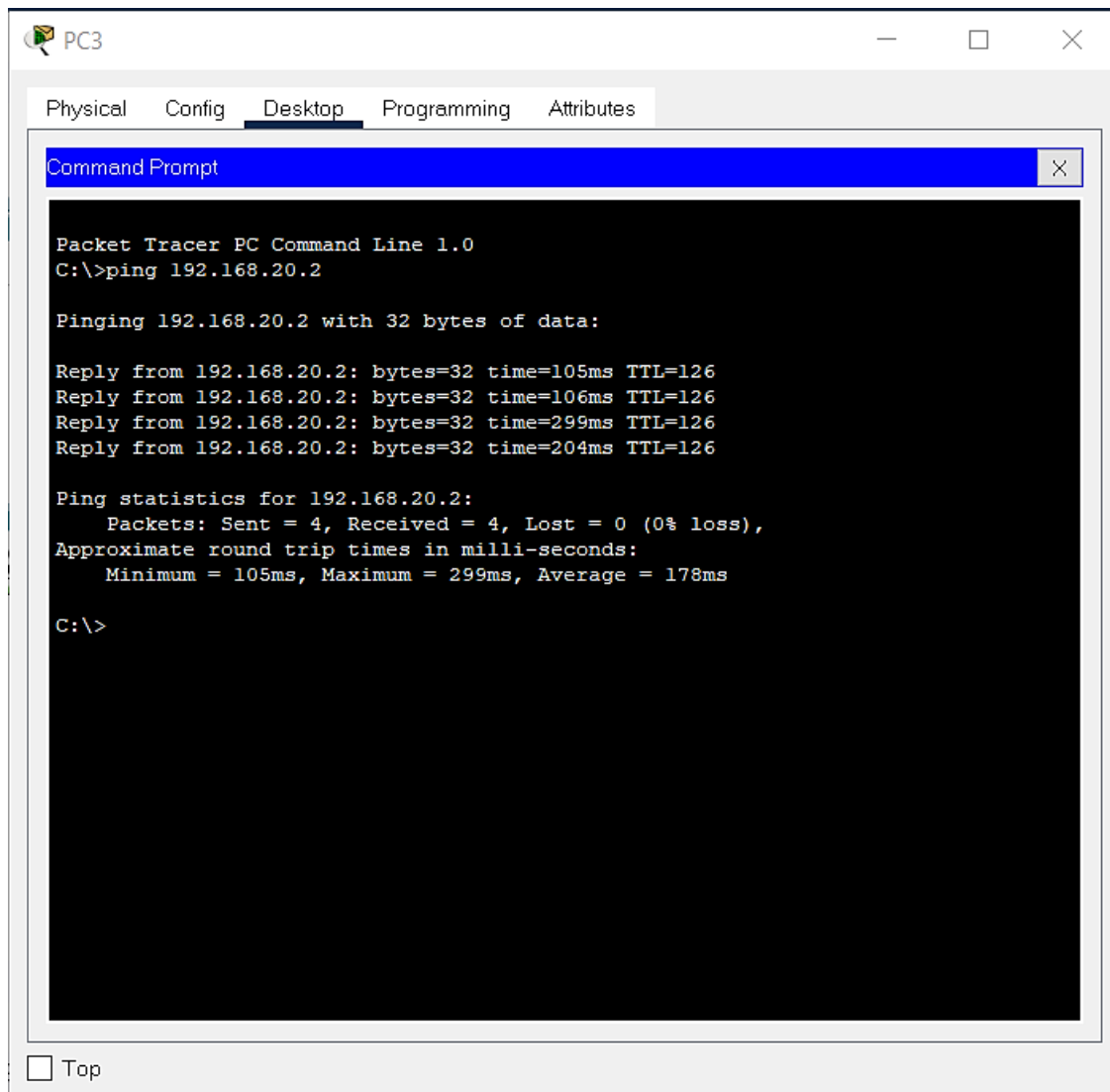
Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time=1ms TTL=126
Reply from 192.168.20.2: bytes=32 time=106ms TTL=126
Reply from 192.168.20.2: bytes=32 time=99ms TTL=126
Reply from 192.168.20.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 106ms, Average = 51ms

C:\>
```

Testing connection between PC3 (192.168.30.2) and Server0 (192.168.20.2) using ping command:



The screenshot shows a Packet Tracer PC window for PC3. The 'Desktop' tab is selected, displaying a 'Command Prompt' window. The command prompt shows the execution of the 'ping 192.168.20.2' command, which successfully pings the destination IP address. The output includes the number of bytes sent, the time taken for each reply, and the TTL. The ping statistics show that all four packets were received with 0% loss, and the average round trip time is 178ms.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

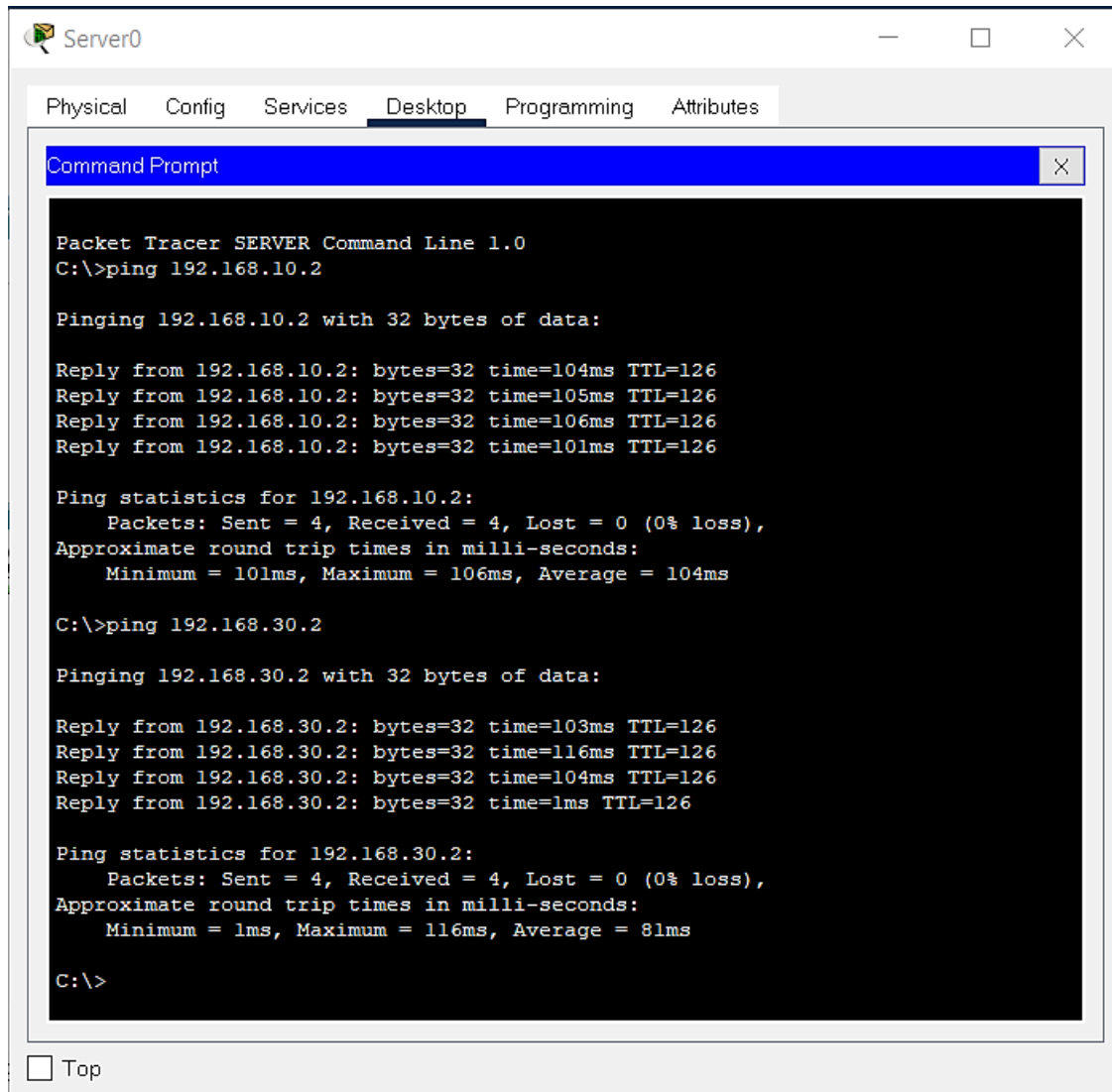
Reply from 192.168.20.2: bytes=32 time=105ms TTL=126
Reply from 192.168.20.2: bytes=32 time=106ms TTL=126
Reply from 192.168.20.2: bytes=32 time=299ms TTL=126
Reply from 192.168.20.2: bytes=32 time=204ms TTL=126

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 105ms, Maximum = 299ms, Average = 178ms

C:\>
```

☐ Top

Testing connection between Server0 (192.168.20.2) with PC0 and PC3 using ping command:



The screenshot shows a Packet Tracer window titled 'Server0' with tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the output of two ping commands. The first command is 'ping 192.168.10.2', which returns four successful replies with times ranging from 101ms to 106ms and a TTL of 126. The second command is 'ping 192.168.30.2', which also returns four successful replies with times ranging from 1ms to 116ms and a TTL of 126. Ping statistics for both destinations show 4 packets sent, 4 received, and 0% loss.

```
Packet Tracer SERVER Command Line 1.0
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=104ms TTL=126
Reply from 192.168.10.2: bytes=32 time=105ms TTL=126
Reply from 192.168.10.2: bytes=32 time=106ms TTL=126
Reply from 192.168.10.2: bytes=32 time=101ms TTL=126

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 101ms, Maximum = 106ms, Average = 104ms

C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=103ms TTL=126
Reply from 192.168.30.2: bytes=32 time=116ms TTL=126
Reply from 192.168.30.2: bytes=32 time=104ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 116ms, Average = 81ms

C:\>
```

☐ Top

ii. Using PDU

Testing connection between Server0 (192.168.20.2) with PC0 (192.168.10.2) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\TheoryDA.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 1006, y: 605 [Root] 13:21:30

VIT, Indian Bank

- Router0: 2811, 10.0.0.1
- Switch0: 2951T-24, 192.168.10.1
- PC0: 192.168.10.2
- PC1: 192.168.10.3
- PC2: 192.168.10.4
- Default Gateway - 192.168.10.1

Indian Bank Headquarters, Mumbai

- Router1: 2811, 10.0.0.3
- Switch1: 2951T-24, 192.168.20.1
- Server-PT: 192.168.20.2
- Default Gateway - 192.168.20.1

Indian Bank, Chennai

- Router2: 2811, 20.0.0.2
- Switch2: 2951T-24, 192.168.30.1
- PC3: 192.168.30.2
- PC4: 192.168.30.3
- Printer-PT: 192.168.30.1
- Default Gateway - 192.168.30.1

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	Server0	ICMP
	0.001	Server0	Switch1	ICMP
	0.002	Switch1	Router1	ICMP
	0.003	Router1	Router0	ICMP
	0.004	Router0	Switch0	ICMP
	0.005	Switch0	PC0	ICMP
	0.006	PC0	Switch0	ICMP
	0.007	Switch0	Router0	ICMP
	0.008	Router0	Router1	ICMP
	0.009	Router1	Switch1	ICMP
Visible	0.010	Switch1	Server0	ICMP

Reset Simulation ☒ Constant Delay Captured to... 0.010 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:14:22.902 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Server0	PC0	ICMP		0.000	N	0	(edit)	(delete)

Testing connection between Server0 (192.168.20.2) with PC3 (192.168.30.2) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\TheoryDA.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 695, y: 649 [Root] 12:17:30

VIT, Indian Bank

- Router0: 10.0.0.1, 192.168.10.1
- Switch0: 2951T-24
- PC-PT PC0: 192.168.10.2
- PC-PT PC1: 192.168.10.3
- PC-PT PC2: 192.168.10.4
- Default Gateway - 192.168.10.1

Indian Bank Headquarters, Mumbai

- Router1: 10.0.0.3, 192.168.20.1
- Switch1: 2951T-24
- Server-PT Server0: 192.168.20.2
- Default Gateway - 192.168.20.1

Indian Bank, Chennai

- Router2: 20.0.0.2, 192.168.30.1
- Switch2: 2951T-24
- PC-PT PC3: 192.168.30.2
- PC-PT PC4: 192.168.30.3
- Printer-PT Printer0
- Default Gateway - 192.168.30.1

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	Server0	ICMP
	0.001	Server0	Switch1	ICMP
	0.002	Switch1	Router1	ICMP
	0.003	Router1	Router2	ICMP
	0.004	Router2	Switch2	ICMP
	0.005	Switch2	PC3	ICMP
	0.006	PC3	Switch2	ICMP
	0.007	Switch2	Router2	ICMP
	0.008	Router2	Router1	ICMP
	0.009	Router1	Switch1	ICMP
Visible	0.010	Switch1	Server0	ICMP

Reset Simulation ☒ Constant Delay Captured to... 0.010 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:14:01.764 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

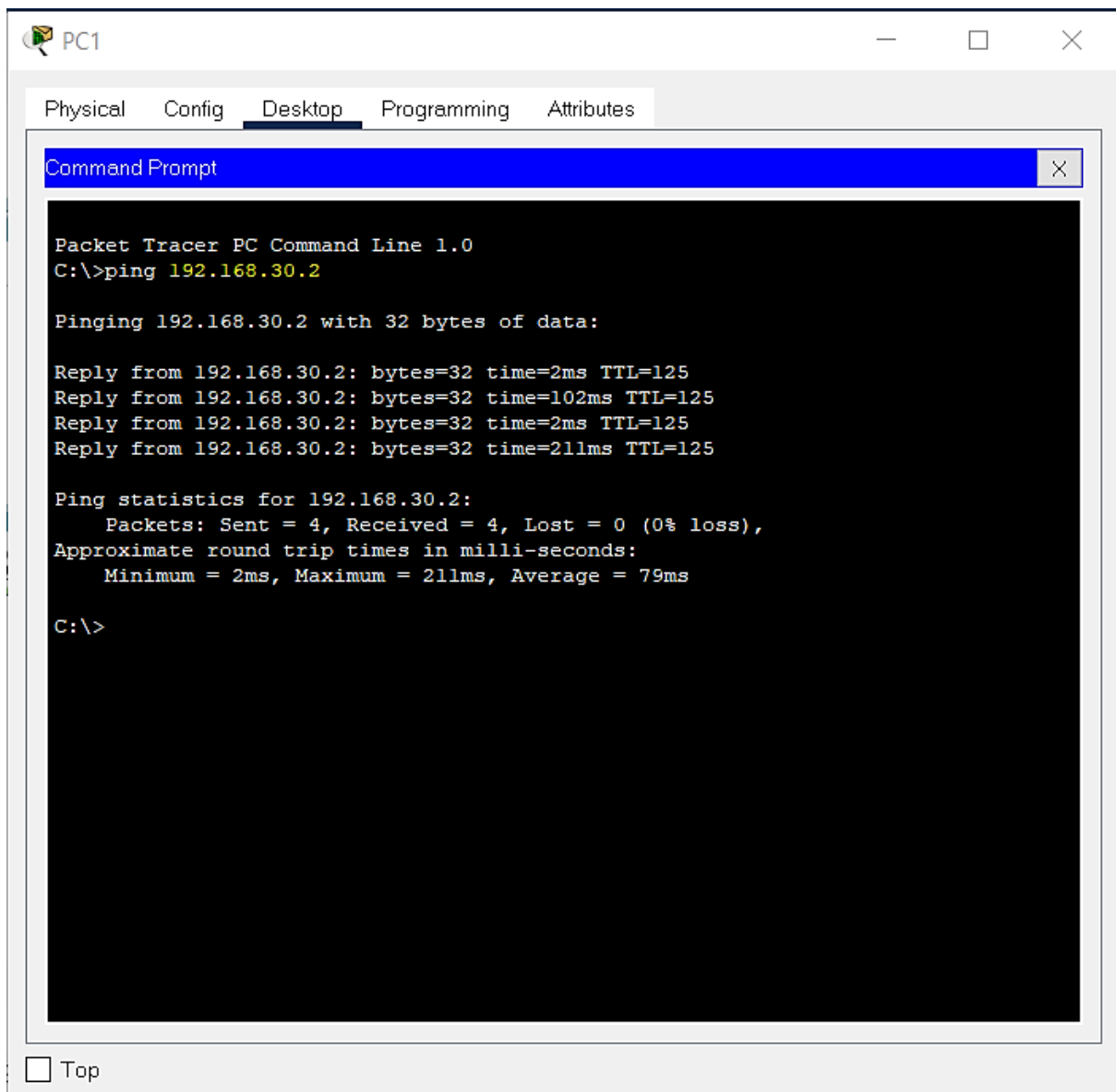
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Successful	Server0	PC3	ICMP		0.000	N	0	(edit)	(delete)
------------	---------	-----	------	--	-------	---	---	--------	----------

9) Test the connectivity between one PC in one network to another PC in the other network.

Using ping command:

Testing connection between PC1 (192.168.10.3) and PC3 (192.168.30.2) using ping command:



10) Screenshot of PDU sent from one PC in one network to another PC in other network.

Testing connection between PC1 (192.168.10.3) and PC3 (192.168.30.2) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\TheoryDA.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 657, y 649 [Root] 16.02.30

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	—	PC1	ICMP
	0.001	PC1	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Router1	ICMP
	0.004	Router1	Router2	ICMP
	0.005	Router2	Switch2	ICMP
Visible	0.006	Switch2	PC3	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.006 s

Play Controls

Event List Filters - Visible Events
ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT-TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:16:59.627 PLAY CONTROLS

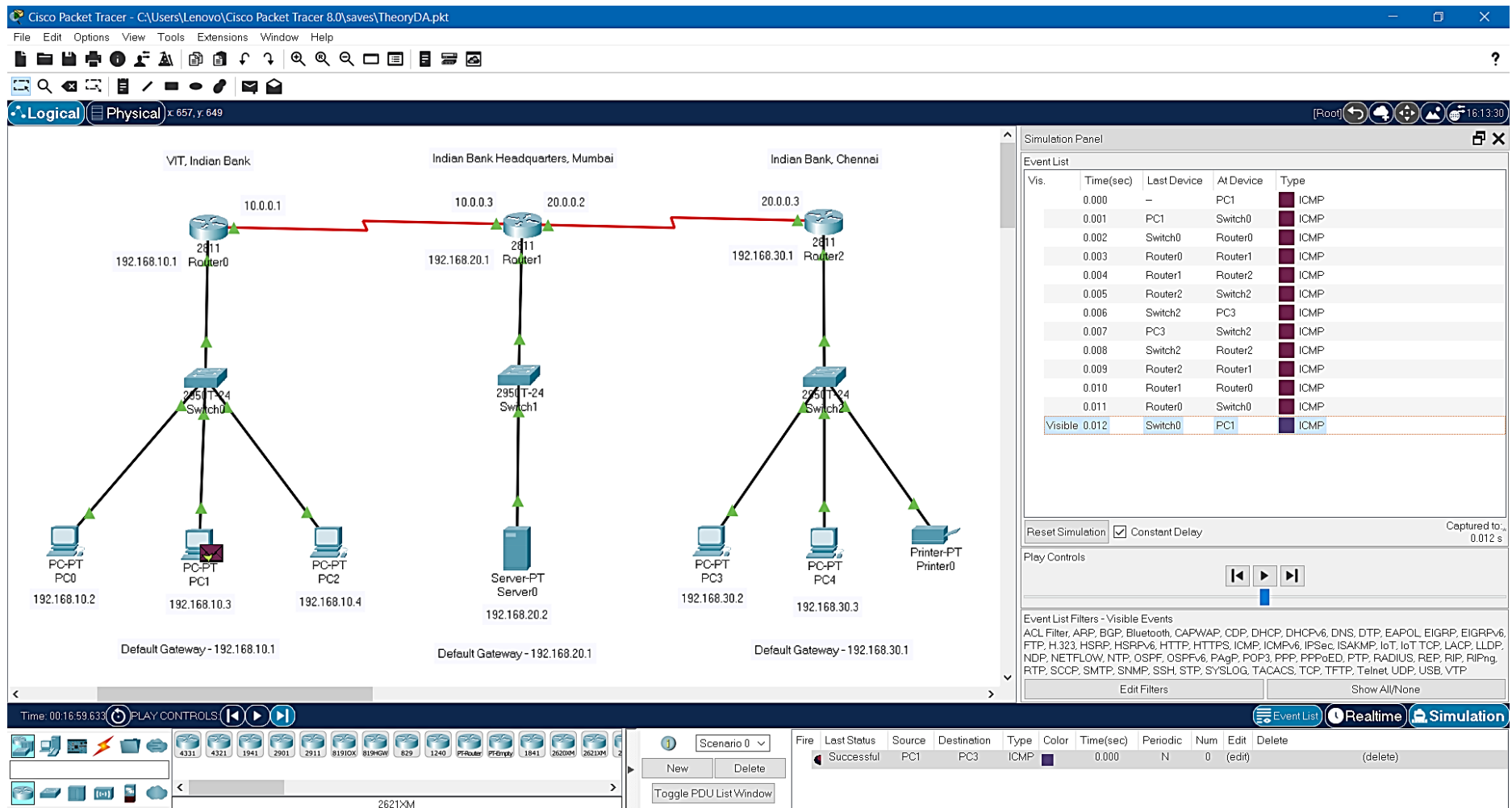
Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

In Progress		PC1	PC3	ICMP		0.000	N	0	(edit)	(delete)
-------------	--	-----	-----	------	--	-------	---	---	--------	----------



QUESTION 2:

Implementing Distance Vector Routing:

Distance vector routing protocol is used to find the distance between different networks using different routers.

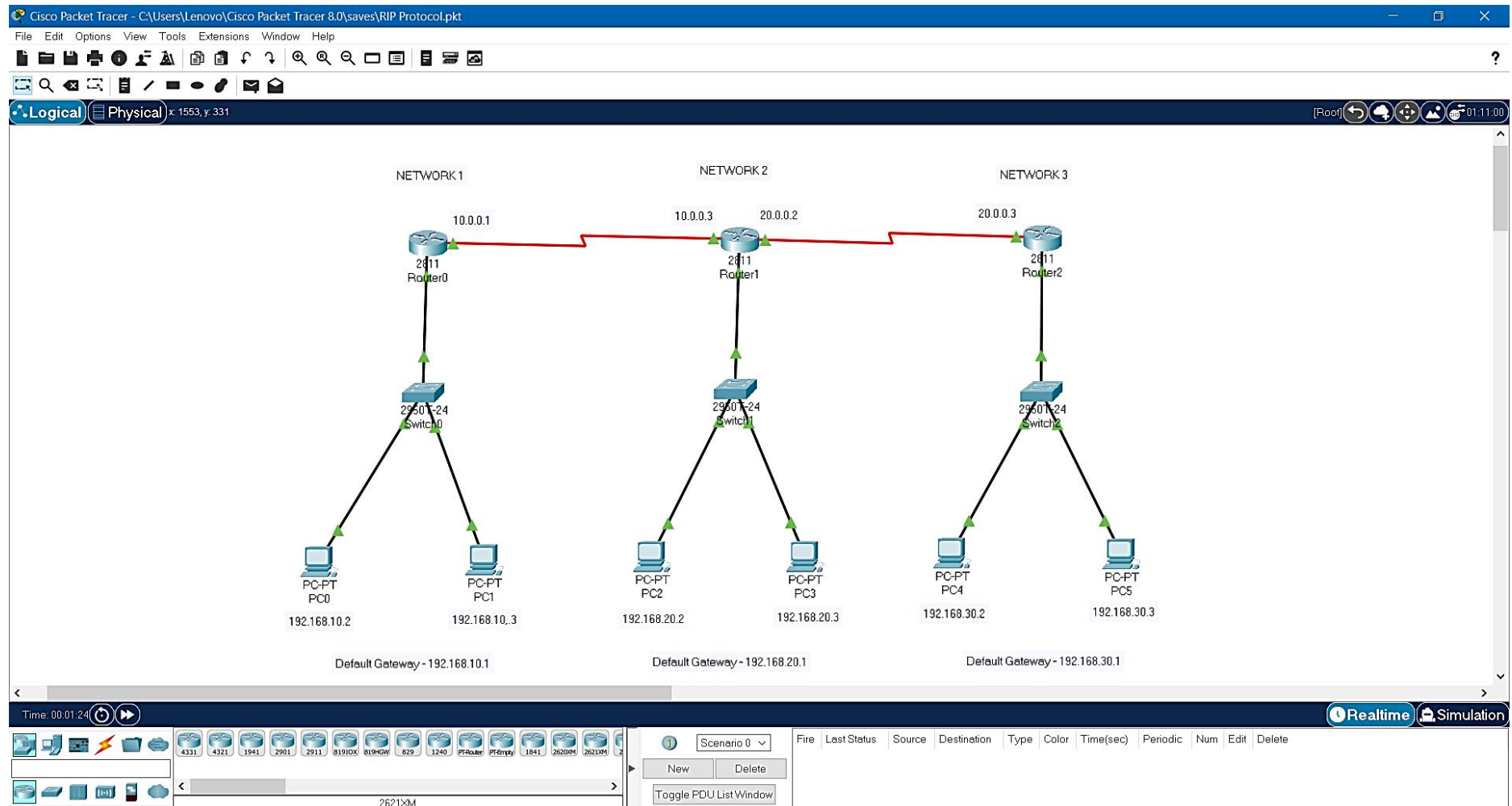
Very commonly used to find this is the RIP protocol (i.e., the Routing Information Protocol). This method is very common and popular for finding the distance vector.

So, I will be using this to determine the best route the reach the destination.

Hence, I will be using the RIP protocol for finding the distance between the different networks.

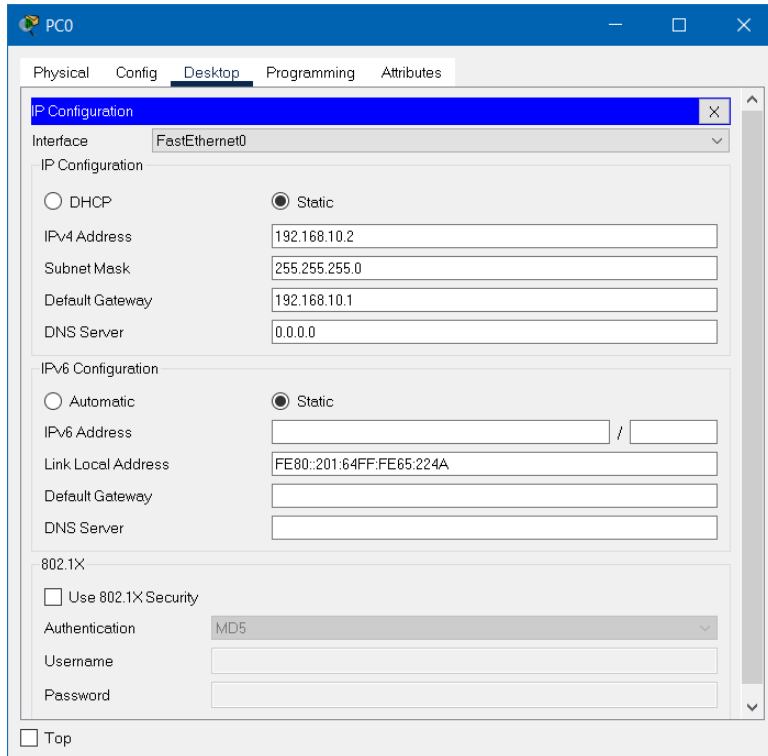
I will be designing it using three networks (i.e., three routers) each network having 2 PCs we will be finding the distance using RIP protocol.

1) Screen shot of the designed network



2) IP address configuration with default gateway for all PCs.

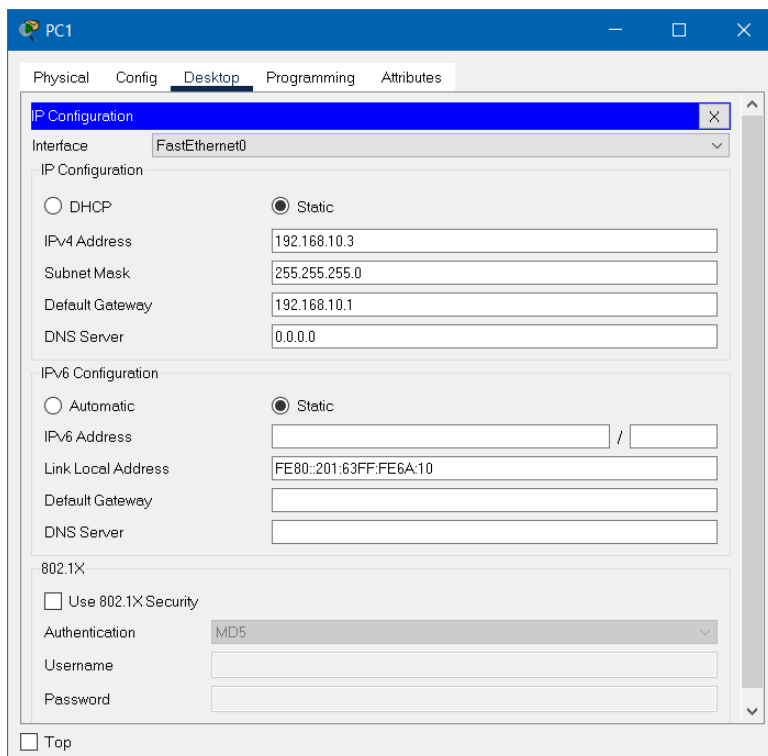
PC0:



The screenshot shows the configuration window for PC0. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is set to 192.168.10.2, Subnet Mask to 255.255.255.0, Default Gateway to 192.168.10.1, and DNS Server to 0.0.0.0. The 'IPv6 Configuration' section is also expanded, showing 'Static' selected, with an empty IPv6 Address field, a Link Local Address of FE80::201:64FF:FE65:224A, and empty fields for Default Gateway and DNS Server. The '802.1X' section is collapsed.

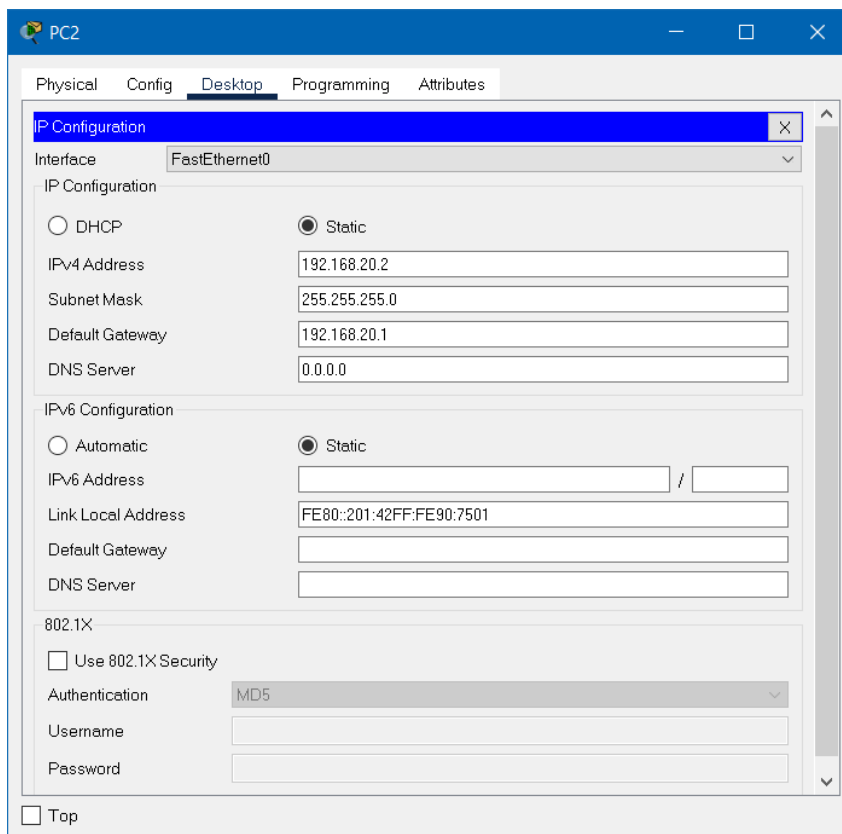
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::201:64FF:FE65:224A
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

PC1:



The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is set to 192.168.10.3, Subnet Mask to 255.255.255.0, Default Gateway to 192.168.10.1, and DNS Server to 0.0.0.0. The 'IPv6 Configuration' section is also expanded, showing 'Static' selected, with an empty IPv6 Address field, a Link Local Address of FE80::201:63FF:FE6A:10, and empty fields for Default Gateway and DNS Server. The '802.1X' section is collapsed.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.3
Subnet Mask	255.255.255.0
Default Gateway	192.168.10.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::201:63FF:FE6A:10
Default Gateway	
DNS Server	
802.1X	
<input type="checkbox"/> Use 802.1X Security	
Authentication	MD5
Username	
Password	

PC2:

The screenshot shows the configuration window for PC2. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is set to 192.168.20.2, Subnet Mask to 255.255.255.0, Default Gateway to 192.168.20.1, and DNS Server to 0.0.0.0. The IPv6 Configuration section is also expanded, showing the 'Static' radio button selected. The IPv6 Address is empty, Link Local Address is FE80::201:42FF:FE90:7501, and Default Gateway and DNS Server are empty. The 802.1X section is expanded, showing 'Use 802.1X Security' unchecked, Authentication set to MD5, and Username and Password fields empty. A 'Top' button is at the bottom left.

PC2

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:42FF:FE90:7501

Default Gateway

DNS Server

802.1X

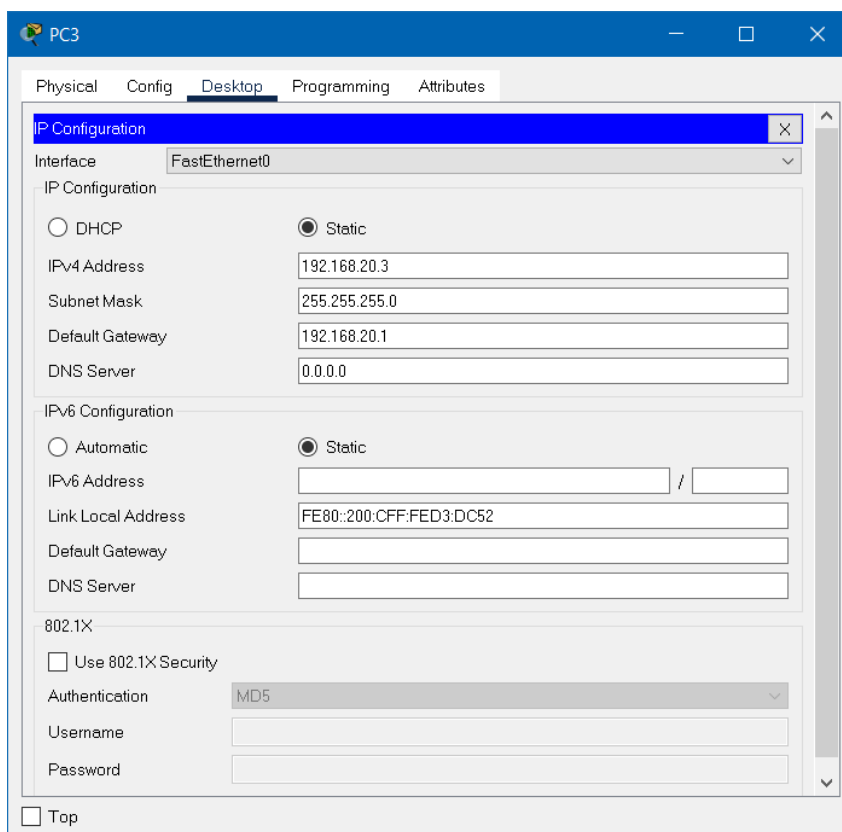
☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC3:

The screenshot shows the configuration window for PC3. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is set to 192.168.20.3, Subnet Mask to 255.255.255.0, Default Gateway to 192.168.20.1, and DNS Server to 0.0.0.0. The IPv6 Configuration section is also expanded, showing the 'Static' radio button selected. The IPv6 Address is empty, Link Local Address is FE80::200:CFF:FED3:DC52, and Default Gateway and DNS Server are empty. The 802.1X section is expanded, showing 'Use 802.1X Security' unchecked, Authentication set to MD5, and Username and Password fields empty. A 'Top' button is at the bottom left.

PC3

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.20.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::200:CFF:FED3:DC52

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC4:

The screenshot shows the configuration window for PC4. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is 192.168.30.2, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.30.1, and DNS Server is 0.0.0.0. The 'IPv6 Configuration' section is also expanded, showing the 'Static' radio button selected. The IPv6 Address is empty, Link Local Address is FE80::20C:85FF:FE17:1BD3, and both Default Gateway and DNS Server are empty. The '802.1X' section is expanded, showing 'Use 802.1X Security' unchecked, 'Authentication' set to MD5, and 'Username' and 'Password' fields empty. A 'Top' button is at the bottom left.

PC4

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.30.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20C:85FF:FE17:1BD3

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC5:

The screenshot shows the configuration window for PC5. The 'Desktop' tab is selected. The 'IP Configuration' section is expanded, showing the configuration for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is 192.168.30.3, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.30.1, and DNS Server is 0.0.0.0. The 'IPv6 Configuration' section is also expanded, showing the 'Static' radio button selected. The IPv6 Address is empty, Link Local Address is FE80::2E0:F9FF:FEE1:393B, and both Default Gateway and DNS Server are empty. The '802.1X' section is expanded, showing 'Use 802.1X Security' unchecked, 'Authentication' set to MD5, and 'Username' and 'Password' fields empty. A 'Top' button is at the bottom left.

PC5

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.30.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.30.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:F9FF:FEE1:393B

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

3) IP Configuration of Routers.

Router0:

The screenshot shows the Router0 configuration window with the 'Config' tab selected. The left sidebar shows the configuration tree with 'FastEthernet0/0' selected under the 'INTERFACE' section. The main area displays the configuration for 'FastEthernet0/0'. The 'Port Status' is 'On'. 'Bandwidth' is set to '100 Mbps'. 'Duplex' is set to 'Full Duplex'. 'MAC Address' is '00D0.BAC0.9001'. 'IP Configuration' shows 'IPv4 Address' as '192.168.10.1' and 'Subnet Mask' as '255.255.255.0'. 'Tx Ring Limit' is '10'. Below the configuration, the 'Equivalent IOS Commands' section shows the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

The screenshot shows the Router0 configuration window with the 'Config' tab selected. The left sidebar shows the configuration tree with 'Serial0/0/0' selected under the 'INTERFACE' section. The main area displays the configuration for 'Serial0/0/0'. The 'Port Status' is 'On'. 'Duplex' is set to 'Full Duplex'. 'Clock Rate' is '64000'. 'IP Configuration' shows 'IPv4 Address' as '10.0.0.1' and 'Subnet Mask' as '255.0.0.0'. 'Tx Ring Limit' is '10'. Below the configuration, the 'Equivalent IOS Commands' section shows the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

At the bottom left, there is a 'Top' button.

Router1:

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status ☒ On

Bandwidth

100 Mbps

10 Mbps

Auto

Duplex

Half Duplex

Full Duplex

Auto

MAC Address 00D0.BAC0.9001

IP Configuration

IPv4 Address 192.168.10.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

Serial0/0/0

Port Status ☒ On

Duplex

Full Duplex

Clock Rate 64000

IP Configuration

IPv4 Address 10.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config)#interface Serial0/0/0
Router(config-if)#clock rate 64000
This command applies only to DCE interfaces
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

☐ Top

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

Serial0/0/1

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Serial0/0/1

☒ On

Full Duplex

64000

20.0.0.2

255.0.0.0

10

Equivalent IOS Commands

Router (config-if)#
Router (config-if)#exit
Router (config)#interface Serial0/0/1
Router (config-if)#
Router (config-if)#exit
Router (config)#interface Serial0/0/0
Router (config-if)#
Router (config-if)#exit
Router (config)#interface Serial0/0/1
Router (config-if)#

☐ Top

Router2:

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status ☒ On

Bandwidth

100 Mbps

10 Mbps

Auto

Duplex

Half Duplex

Full Duplex

Auto

MAC Address 0050.0FC8.A701

IP Configuration

IPv4 Address 192.168.30.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

Serial0/0/0

Port Status ☒ On

Duplex

Full Duplex

Clock Rate 64000

IP Configuration

IPv4 Address 20.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
```

☐ Top

4) Display the routing tables for the routers.

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\RIP Protocol.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 1515, y 165 [Root] 05:15:00

NETWORK 1 NETWORK 2 NETWORK 3

10.0.0.1 10.0.0.3 20.0.0.2 20.0.0.3

Router0 Router1 Router2

Routing Table for Router0

Type	Network	Port	Next Hop IP	Metric
C	10.0.0.0/8	Serial0/0/0	—	0/0
L	10.0.0.1/32	Serial0/0/0	—	0/0
R	20.0.0.0/8	Serial0/0/0	10.0.0.3	120/1
C	192.168.10.0/24	FastEthernet0/0	—	0/0
L	192.168.10.1/32	FastEthernet0/0	—	0/0
R	192.168.20.0/24	Serial0/0/0	10.0.0.3	120/1
R	192.168.30.0/24	Serial0/0/0	10.0.0.3	120/2

PC-PT PC0 192.168.10.2

PC-PT PC1 192.168.10.3

Default Gateway - 192.168.10.1

Routing Table for Router1

Type	Network	Port	Next Hop IP	Metric
C	10.0.0.0/8	Serial0/0/0	—	0/0
L	10.0.0.3/32	Serial0/0/0	—	0/0
C	20.0.0.0/8	Serial0/0/1	—	0/0
L	20.0.0.2/32	Serial0/0/1	—	0/0
R	192.168.10.0/24	Serial0/0/0	10.0.0.1	120/1
C	192.168.20.0/24	FastEthernet0/0	—	0/0
L	192.168.20.1/32	FastEthernet0/0	—	0/0
R	192.168.30.0/24	Serial0/0/1	20.0.0.3	120/1

PC2 192.168.20.2

PC3 192.168.20.3

Default Gateway - 192.168.20.1

Routing Table for Router2

Type	Network	Port	Next Hop IP	Metric
R	10.0.0.0/8	Serial0/0/0	20.0.0.2	120/1
C	20.0.0.0/8	Serial0/0/0	—	0/0
L	20.0.0.3/32	Serial0/0/0	—	0/0
R	192.168.10.0/24	Serial0/0/0	20.0.0.2	120/2
R	192.168.20.0/24	Serial0/0/0	20.0.0.2	120/1
C	192.168.30.0/24	FastEthernet0/0	—	0/0
L	192.168.30.1/32	FastEthernet0/0	—	0/0

PC-PT PC4 192.168.30.2

PC-PT PC5 192.168.30.3

Default Gateway - 192.168.30.1

Time: 00:05:55

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

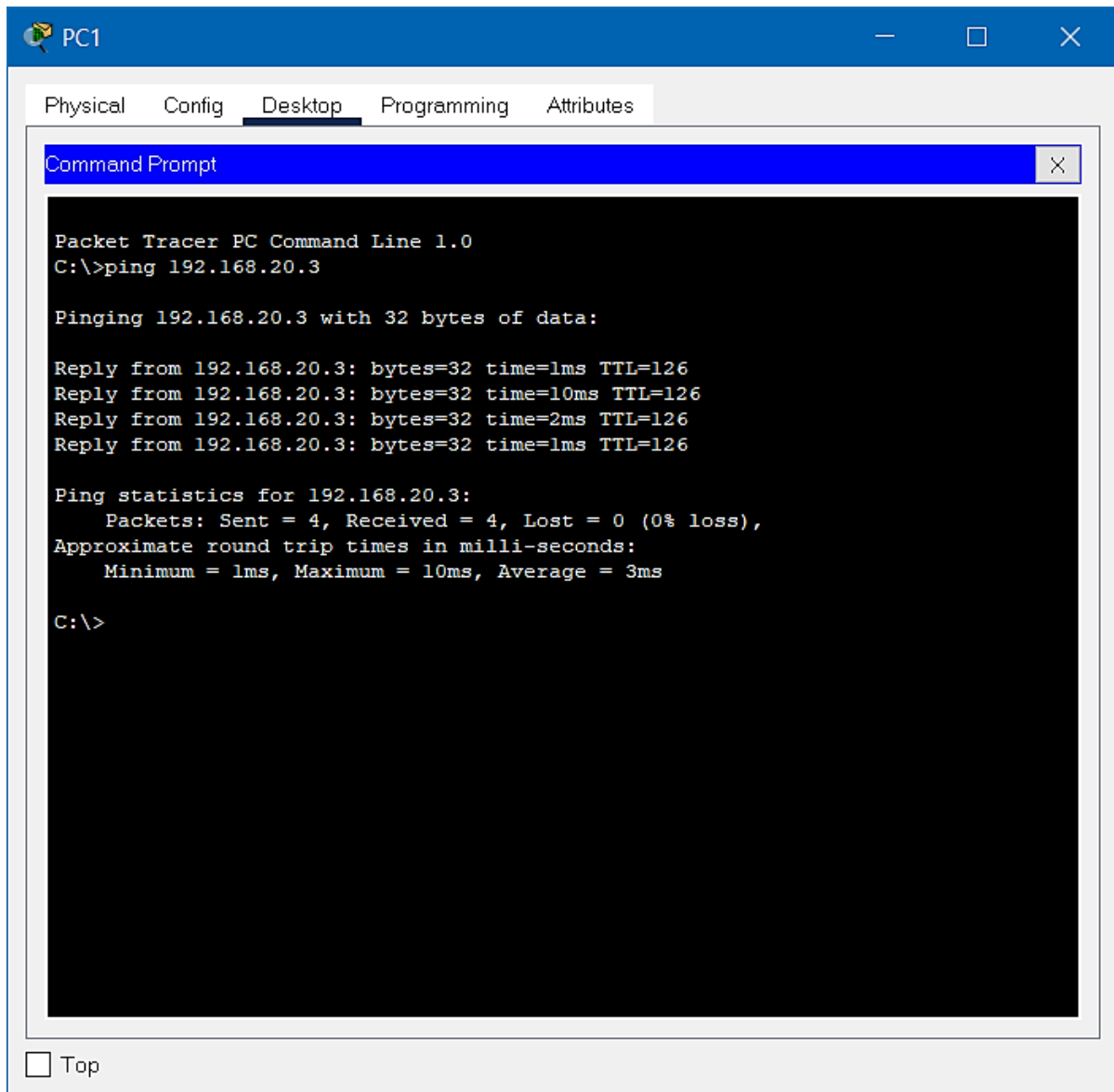
2620XM

Realtime Simulation

5) Test the connectivity between NETWORK 1 and NETWORK 2.

i) Using ping command

Testing connection between PC1 (192.168.10.3) and PC3 (192.168.20.3) using ping command:



```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.3

Pinging 192.168.20.3 with 32 bytes of data:

Reply from 192.168.20.3: bytes=32 time=1ms TTL=126
Reply from 192.168.20.3: bytes=32 time=10ms TTL=126
Reply from 192.168.20.3: bytes=32 time=2ms TTL=126
Reply from 192.168.20.3: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 10ms, Average = 3ms

C:\>
```

ii) Using PDU

Testing connection between PC1 (192.168.10.3) and PC3 (192.168.20.3) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\RIP Protocol.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 693, y 680 [Root] 08:58:00

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	PC1	ICMP
	0.001	PC1	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Router1	ICMP
	0.004	Router1	Switch1	ICMP
	0.005	Switch1	PC3	ICMP
	0.006	PC3	Switch1	ICMP
	0.007	Switch1	Router1	ICMP
	0.008	Router1	Router0	ICMP
	0.009	Router0	Switch0	ICMP
Visible	0.010	Switch0	PC1	ICMP

Reset Simulation ☒ Constant Delay Captured to 0.010 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT-TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, PoP3, PPP, PPPoE, RTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:09:42.980 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

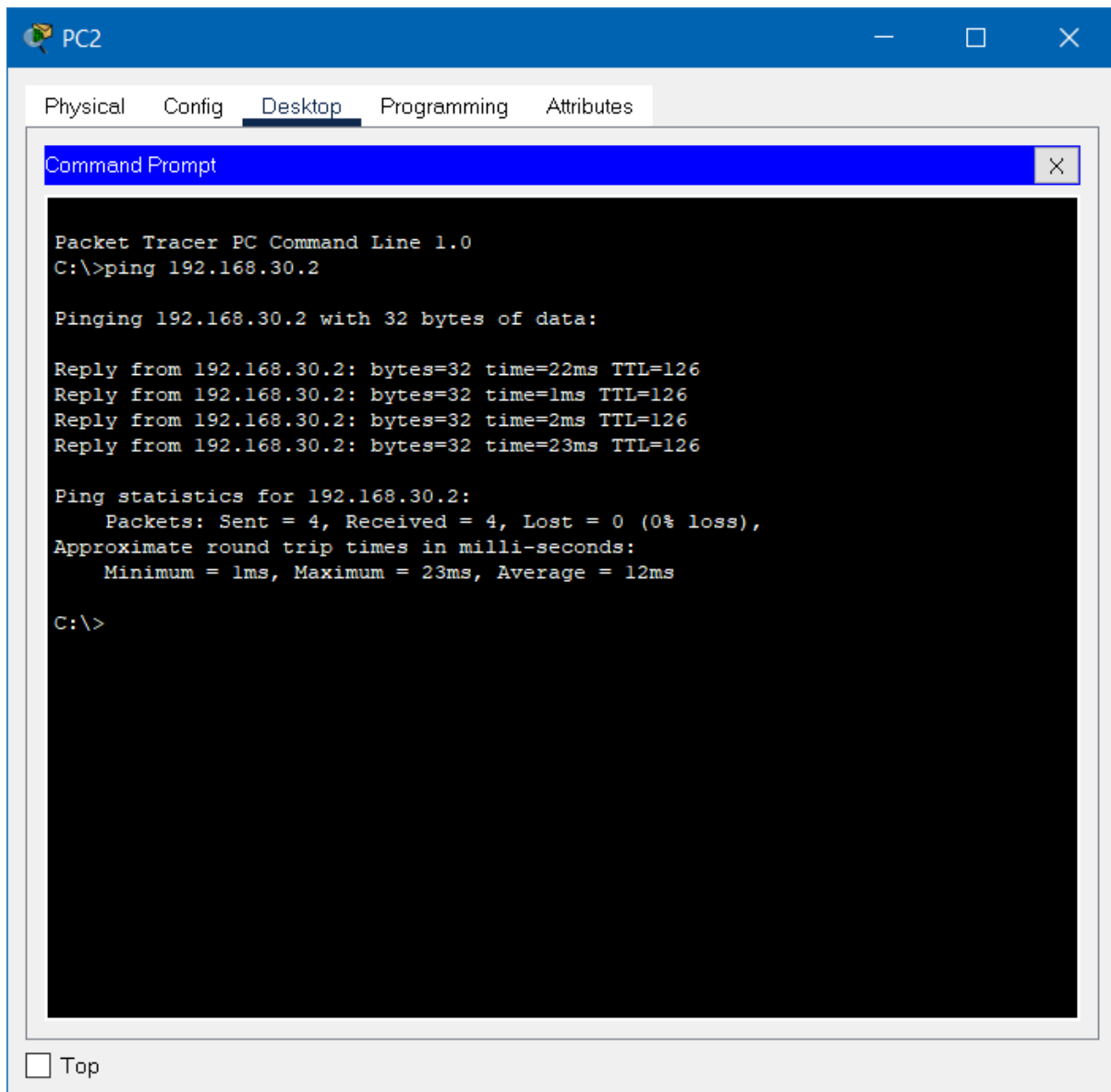
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Successful	PC1	PC3	ICMP		0.000	N	0	(edit)	(delete)
------------	-----	-----	------	--	-------	---	---	--------	----------

6) Test the connectivity between NETWORK 2 and NETWORK 3.

i) Using ping command

Testing connection between PC2 (192.168.20.2) and PC4 (192.168.30.2) using ping command:



The screenshot shows a Packet Tracer PC Command Line window for PC2. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected. Inside the Desktop tab, a Command Prompt window is open. The Command Prompt displays the output of a ping command from PC2 to PC4 (192.168.30.2). The output shows four successful replies with varying round-trip times (1ms, 2ms, 22ms, 23ms) and a TTL of 126. Ping statistics indicate 4 packets sent, 4 received, and 0% loss.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=22ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=2ms TTL=126
Reply from 192.168.30.2: bytes=32 time=23ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 23ms, Average = 12ms

C:\>
```

ii) Using PDU

Testing connection between PC2 (192.168.20.2) and PC4 (192.168.30.2) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\RIP Protocol.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 774, y 680 [Root] 09:51:30

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	PC2	ICMP
	0.001	PC2	Switch1	ICMP
	0.002	Switch1	Router1	ICMP
	0.003	Router1	Router2	ICMP
	0.004	Router2	Switch2	ICMP
	0.005	Switch2	PC4	ICMP
	0.006	PC4	Switch2	ICMP
	0.007	Switch2	Router2	ICMP
	0.008	Router2	Router1	ICMP
	0.009	Router1	Switch1	ICMP
Visible	0.010	Switch1	PC2	ICMP

Reset Simulation ☒ Constant Delay Captured to 0.010 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT-TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, PoP3, PPP, PPPoE, RTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:09:52.989 PLAY CONTROLS

Scenario 0

New Delete

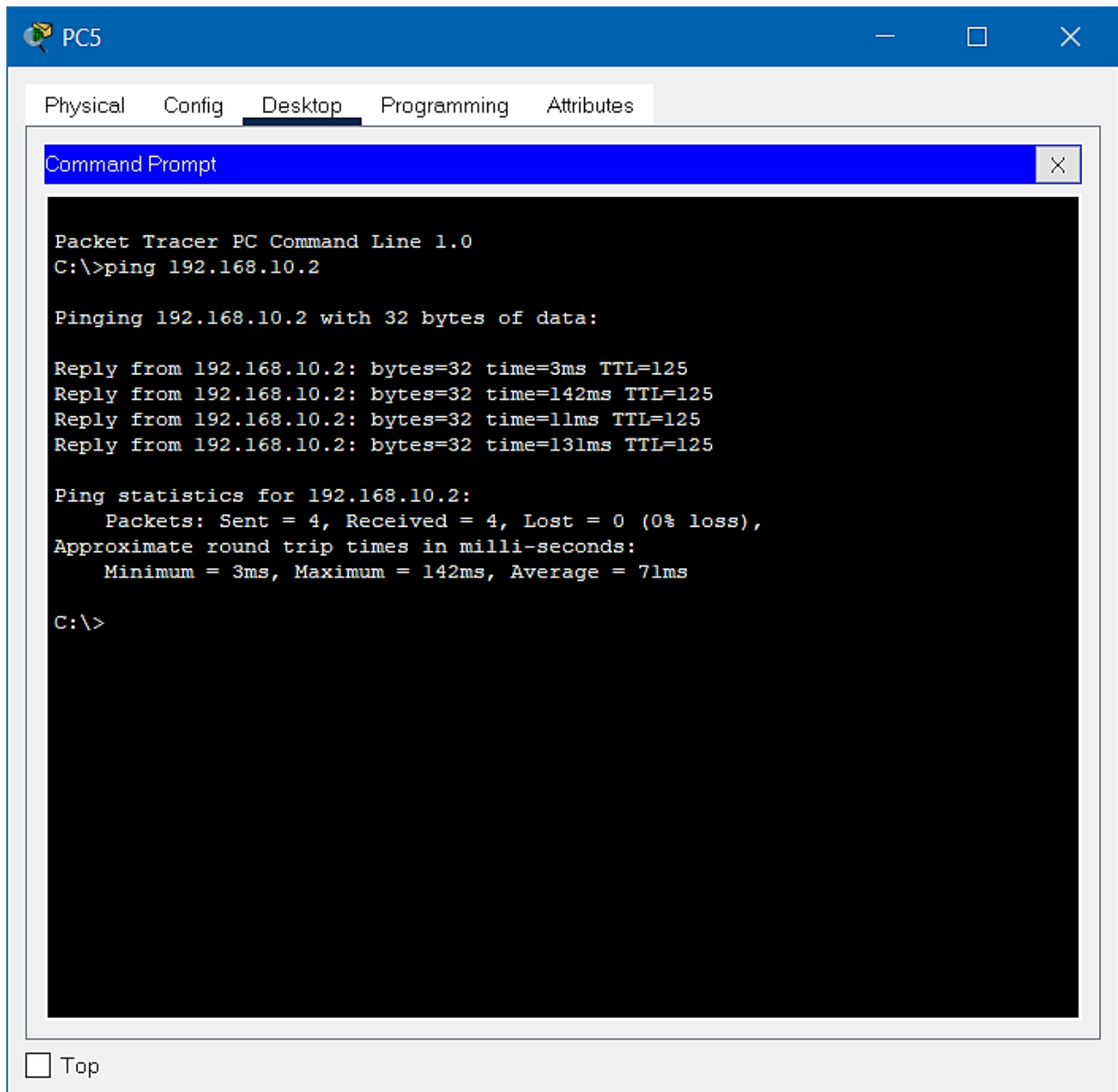
Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	PC4	ICMP		0.000	N	0	(edit)	(delete)

7) Test the connectivity between NETWORK 3 and NETWORK 1.

i) Using ping command

Testing connection between PC5 (192.168.30.3) and PC0 (192.168.10.2) using ping command:



ii) Using PDU

Testing connection between PC5 (192.168.30.3) and PC0 (192.168.10.2) using PDU:

Cisco Packet Tracer - C:\Users\Lenovo\Cisco Packet Tracer 8.0\saves\RIP Protocol.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x 535, y 680 [Root] 10:47:30

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	-	PC5	ICMP
	0.001	PC5	Switch2	ICMP
	0.002	Switch2	Router2	ICMP
	0.003	Router2	Router1	ICMP
	0.004	Router1	Router0	ICMP
	0.005	Router0	Switch0	ICMP
	0.006	Switch0	PC0	ICMP
	0.007	PC0	Switch0	ICMP
	0.008	Switch0	Router0	ICMP
	0.009	Router0	Router1	ICMP
	0.010	Router1	Router2	ICMP
	0.011	Router2	Switch2	ICMP
Visible	0.012	Switch2	PC5	ICMP

Reset Simulation ☒ Constant Delay Captured to... 0.012 s

Play Controls

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, IoT, IoT-TCP, LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, PoP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Time: 00:10:02.961 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC5	PC0	ICMP		0.000	N	0	(edit)	(delete)

8) Configuration of RIP Routing for the Routers.

Router0:

The screenshot shows the configuration window for Router0. The 'Config' tab is selected, and the 'RIP' option under the 'ROUTING' section is highlighted in the left sidebar. The main area is titled 'RIP Routing' and contains a 'Network' input field, an 'Add' button, and a list of network addresses: 10.0.0.0 and 192.168.10.0. A 'Remove' button is located at the bottom right of the list. Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands:

```
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#
```

At the bottom left, there is a checkbox labeled 'Top'.

Router1:

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

10.0.0.0

20.0.0.0

192.168.20.0

Add

Remove

Equivalent IOS Commands

Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#

☐ Top

Router2:

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

20.0.0.0

192.168.30.0

Add

Remove

Equivalent IOS Commands

Router (config-if) #
Router (config-if) #exit
Router (config) #interface FastEthernet0/1
Router (config-if) #
Router (config-if) #exit
Router (config) #interface Serial0/0/0
Router (config-if) #
Router (config-if) #exit
Router (config) #router rip
Router (config-router) #

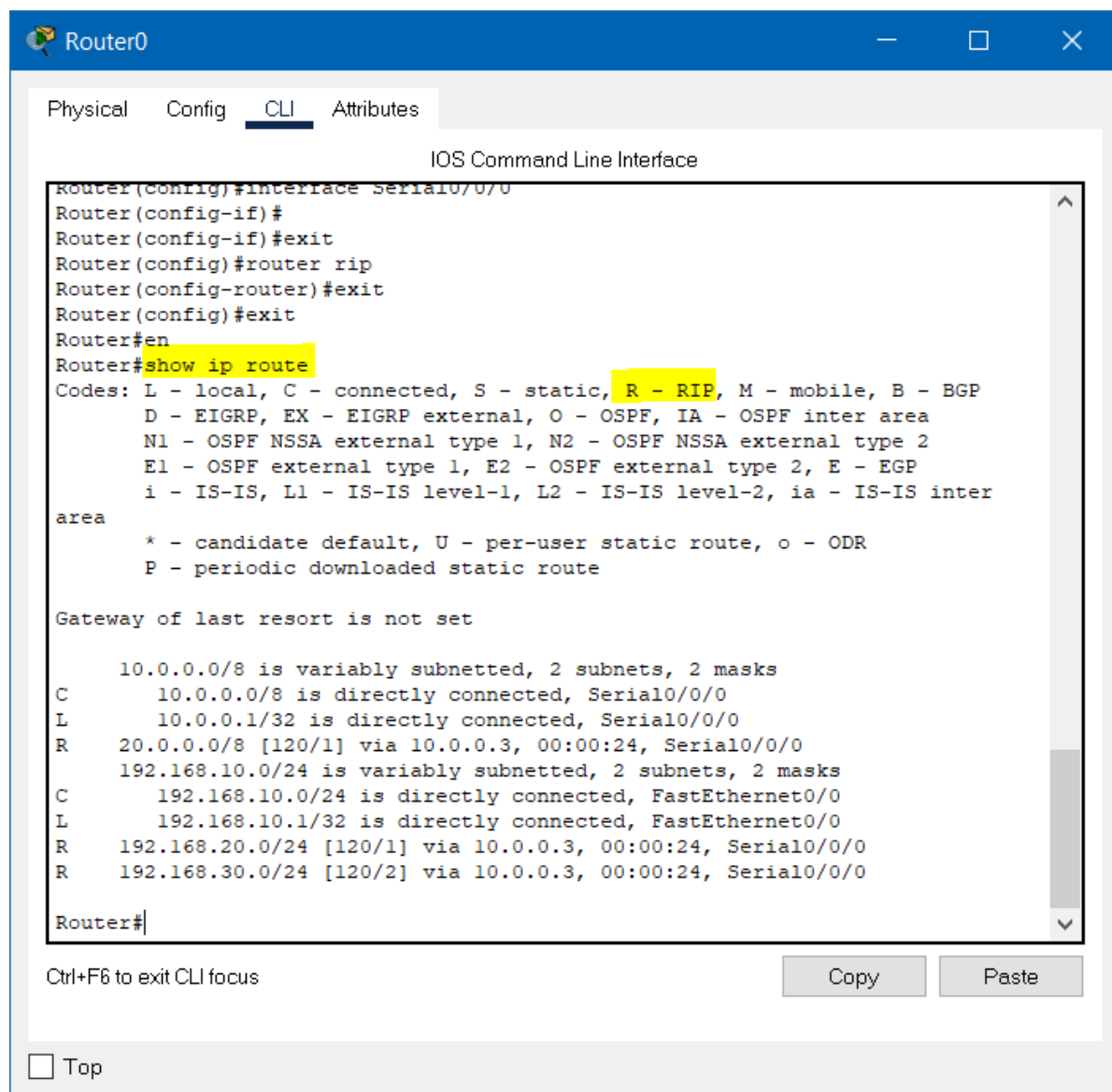
☐ Top

9) IMPLEMENTATION OF THE RIP.

Screenshots of the CLI for the Routers showing the route for the routers.

Command used: show ip route

Router0:



The screenshot shows the CLI of Router0. The command 'show ip route' has been executed, displaying the routing table. The output includes codes for route types (L, C, S, R, M, B, D, EX, O, IA, N1, N2, E1, E2, E, i), a gateway of last resort, and a list of routes with their metrics and interfaces.

```
Router0
Physical Config CLI Attributes
IOS Command Line Interface
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#exit
Router(config)#exit
Router#en
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
       area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/8 is directly connected, Serial0/0/0
L       10.0.0.1/32 is directly connected, Serial0/0/0
R       20.0.0.0/8 [120/1] via 10.0.0.3, 00:00:24, Serial0/0/0
      192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/24 is directly connected, FastEthernet0/0
L       192.168.10.1/32 is directly connected, FastEthernet0/0
R       192.168.20.0/24 [120/1] via 10.0.0.3, 00:00:24, Serial0/0/0
R       192.168.30.0/24 [120/2] via 10.0.0.3, 00:00:24, Serial0/0/0

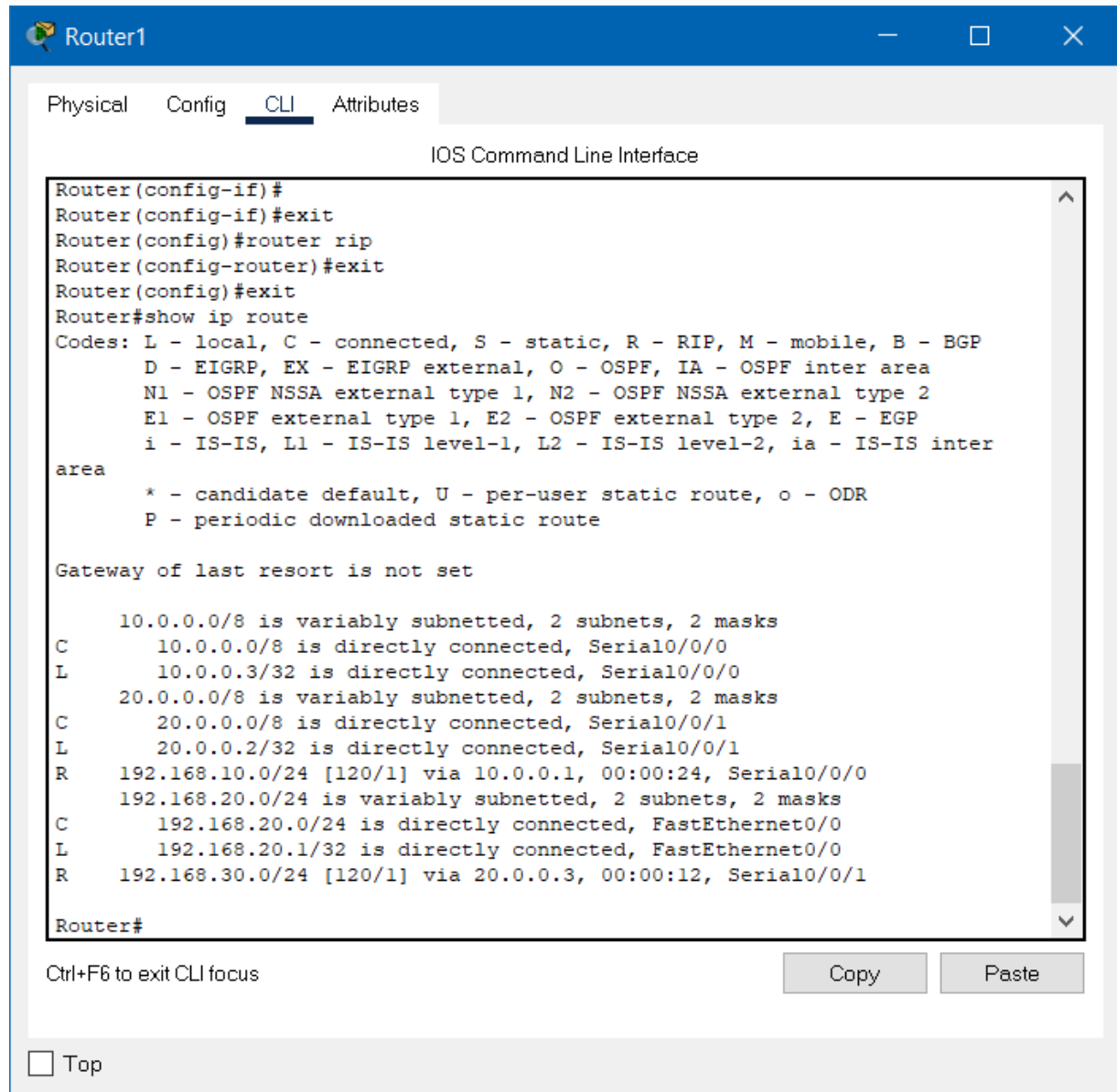
Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Router1:



The screenshot shows a window titled "Router1" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The command history shows the following sequence of commands:

```
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#exit
Router(config)#exit
Router#show ip route
```

The output of the `show ip route` command is as follows:

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

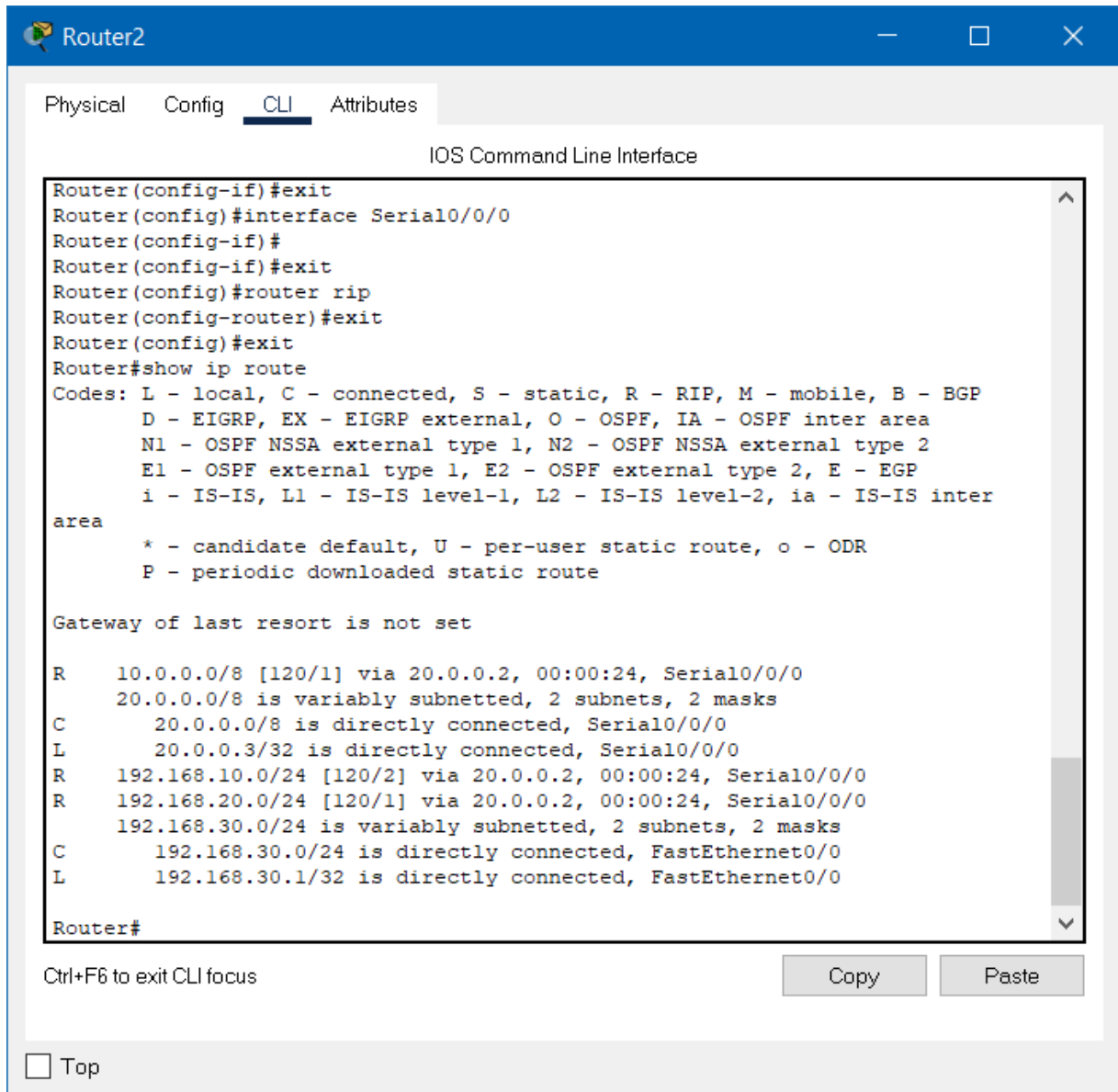
Gateway of last resort is not set

    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/8 is directly connected, Serial0/0/0
L       10.0.0.3/32 is directly connected, Serial0/0/0
    20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial0/0/1
L       20.0.0.2/32 is directly connected, Serial0/0/1
R       192.168.10.0/24 [120/1] via 10.0.0.1, 00:00:24, Serial0/0/0
        192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, FastEthernet0/0
L       192.168.20.1/32 is directly connected, FastEthernet0/0
R       192.168.30.0/24 [120/1] via 20.0.0.3, 00:00:12, Serial0/0/1

Router#
```

At the bottom of the CLI window, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste". Below the CLI window, there is a checkbox labeled "Top".

Router2:



The screenshot shows a window titled "Router2" with a blue header bar. Below the header is a tabbed interface with "Physical", "Config", "CLI", and "Attributes" tabs. The "CLI" tab is active, displaying the "IOS Command Line Interface". The interface shows a series of commands entered in the CLI, followed by the output of the "show ip route" command. The output lists the routing table, including local, connected, and static routes. At the bottom of the CLI window, there is a "Ctrl+F6 to exit CLI focus" message and "Copy" and "Paste" buttons. A "Top" button is also visible at the bottom left of the window.

```
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#exit
Router(config)#exit
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
       area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

R    10.0.0.0/8 [120/1] via 20.0.0.2, 00:00:24, Serial0/0/0
     20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    20.0.0.0/8 is directly connected, Serial0/0/0
L    20.0.0.3/32 is directly connected, Serial0/0/0
R    192.168.10.0/24 [120/2] via 20.0.0.2, 00:00:24, Serial0/0/0
R    192.168.20.0/24 [120/1] via 20.0.0.2, 00:00:24, Serial0/0/0
     192.168.30.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.30.0/24 is directly connected, FastEthernet0/0
L    192.168.30.1/32 is directly connected, FastEthernet0/0

Router#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

THANK YOU