

Institute of Computer Technology
B. Tech Computer Science and Engineering
Sub: Computer Network

Name: Ayush Soni

Enrollment Number: 23162581024

Branch: CSE

Batch: 53

Class: B

Practical-8

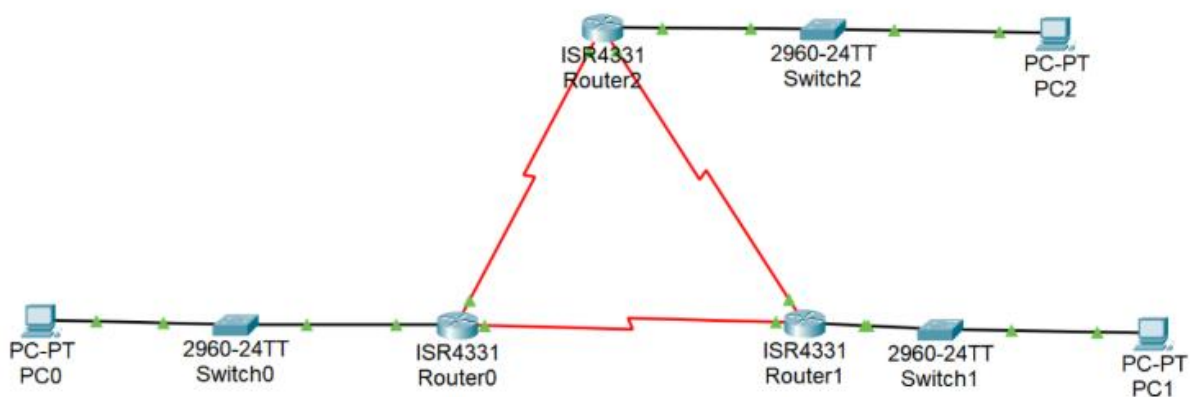
Aim: To design a network using Open Shortest Path First (OSPF) Protocol.

Scenario:

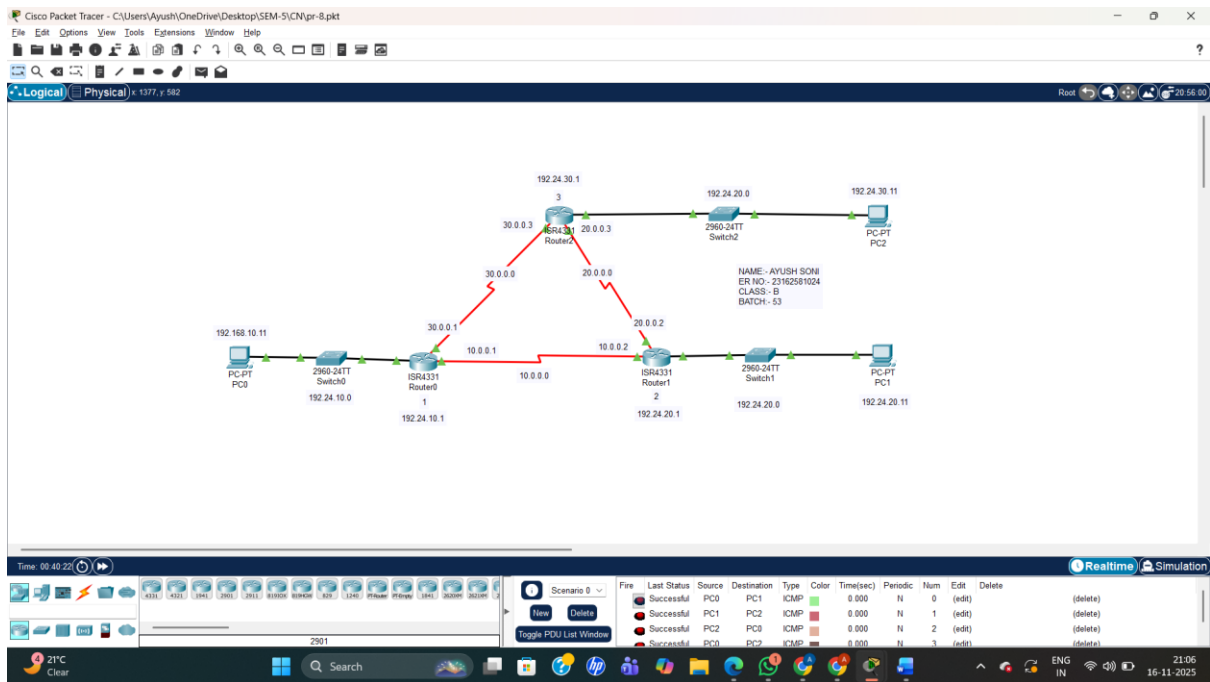
Consider that the organization has three departments and a routing protocol Open Shortest Path First (OSPF) protocol is implemented. Configure network as shown in figure below and implement Open Shortest Path First (OSPF) routing protocol.

Procedure:

- 1) Create network as given below

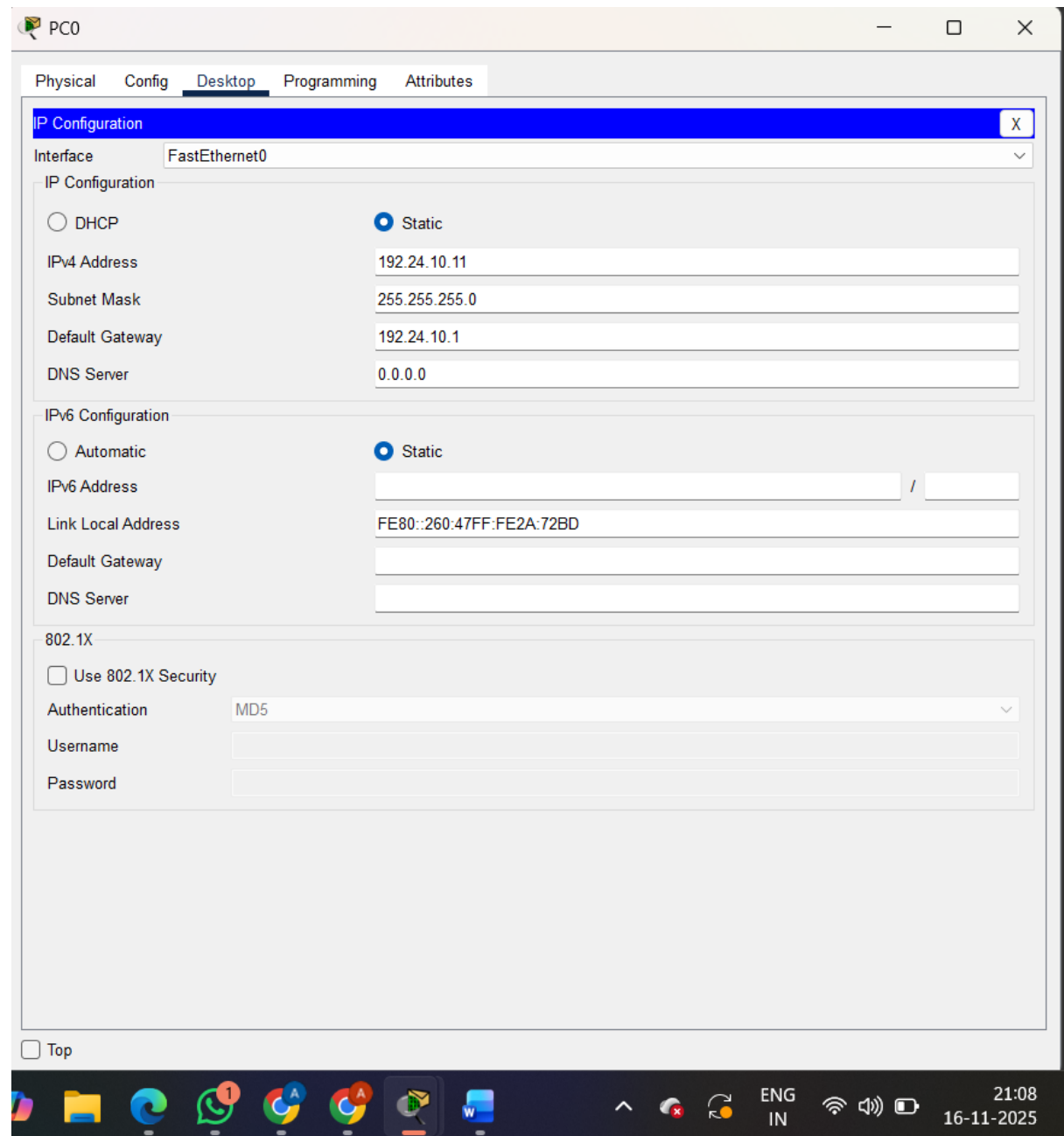


NETWORK DESIGN:



2) Configure IP address (All Devices, Routers)

PC 0:



The screenshot shows the configuration window for PC0 in a network simulator. The window has a title bar with a PC icon and the text "PC0". Below the title bar are four tabs: "Physical", "Config", "Desktop" (which is selected), "Programming", and "Attributes". The "Desktop" tab contains the "IP Configuration" section, which is highlighted with a blue header and a close button (X). Inside this section, the "Interface" is set to "FastEthernet0". Under "IP Configuration", the "Static" radio button is selected, and the fields are filled with: IPv4 Address: 192.24.10.11, Subnet Mask: 255.255.255.0, Default Gateway: 192.24.10.1, and DNS Server: 0.0.0.0. Under "IPv6 Configuration", the "Static" radio button is also selected, with fields for IPv6 Address (empty), Link Local Address: FE80::260:47FF:FE2A:72BD, Default Gateway (empty), and DNS Server (empty). The "802.1X" section has the "Use 802.1X Security" checkbox unchecked, and the "Authentication" dropdown set to "MD5", with empty fields for "Username" and "Password". At the bottom left of the configuration area is a "Top" button. The bottom of the window shows a Windows taskbar with various application icons (File Explorer, Edge, Teams, Chrome, Word) and system tray icons (network, volume, battery). The system clock in the bottom right corner shows "21:08" and "16-11-2025".

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.24.10.11

Subnet Mask: 255.255.255.0

Default Gateway: 192.24.10.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::260:47FF:FE2A:72BD

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

ENG IN 21:08 16-11-2025

PC 1:

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.24.20.11

Subnet Mask 255.255.255.0

Default Gateway 192.24.20.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:8FFF:FED9:4EDB

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

21:09 16-11-2025

PC 2:

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration [X]

Interface: FastEthernet0 ▾

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.24.30.11

Subnet Mask: 255.255.255.0

Default Gateway: 192.24.30.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::205:5EFF:FE59:2371

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5 ▾

Username:

Password:

[] Top

ROUTER 0:

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/2

Serial0/1/0

Serial0/1/1

GigabitEthernet0/0/0

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.63BA.7401

IP Configuration

IPv4 Address 192.24.10.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

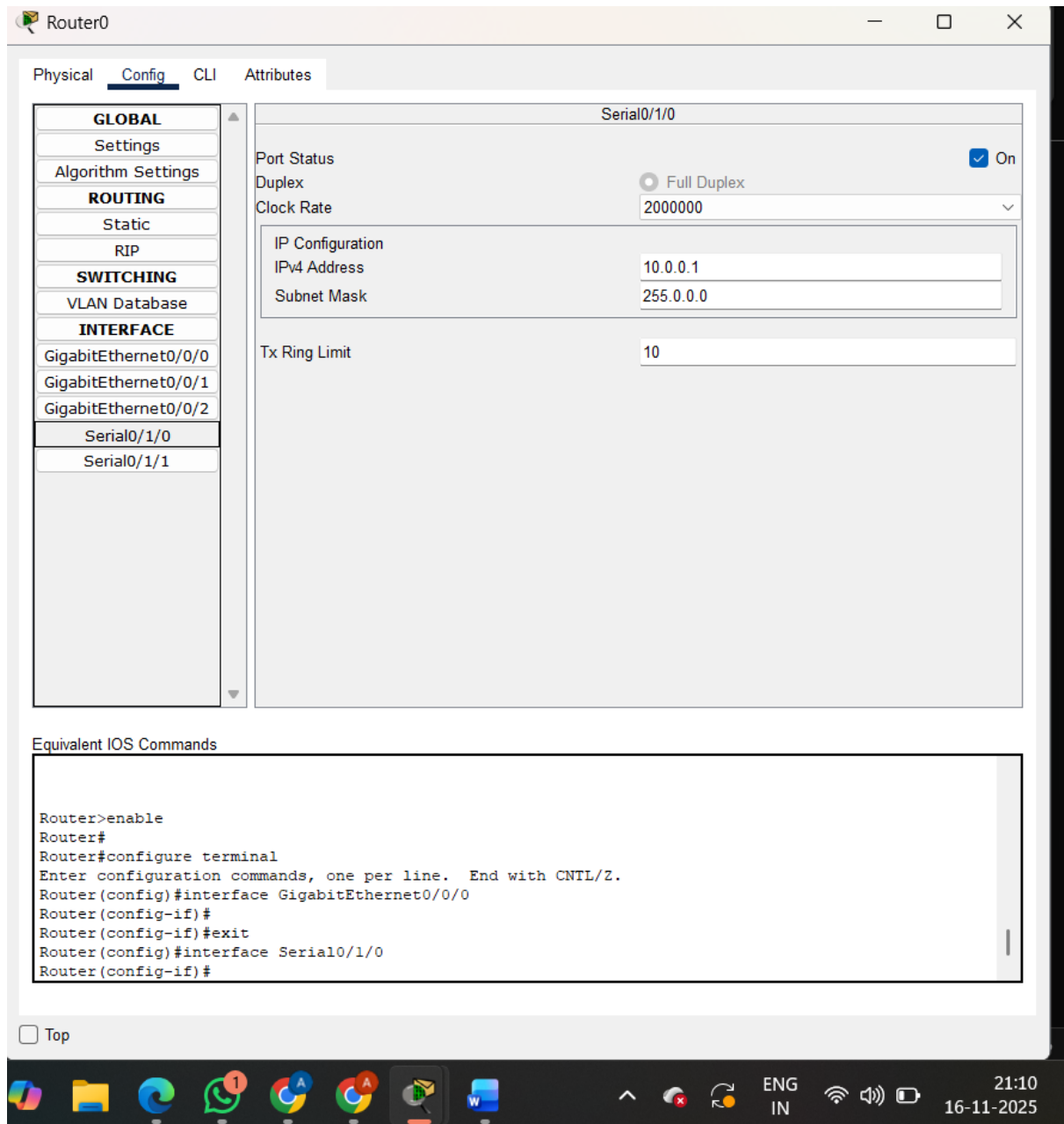
Equivalent IOS Commands

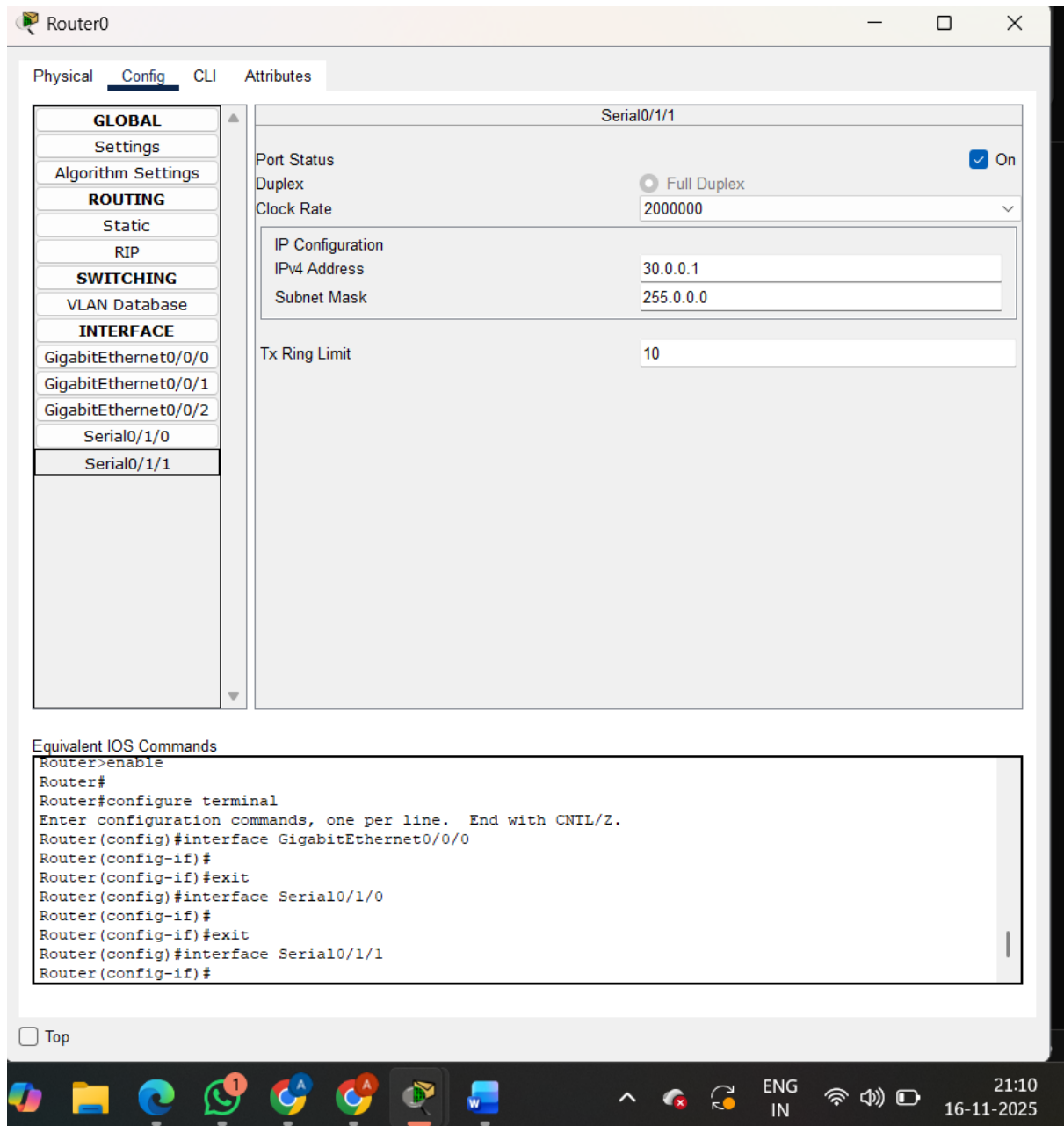
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#

☐ Top

ENG
IN

21:10
16-11-2025





Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/2

Serial0/1/0

Serial0/1/1

RIP Routing

Network

Add

Network Address
20.0.0.0
30.0.0.0
192.24.20.0

Remove

Equivalent IOS Commands

Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/1
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#

☐ Top

ENG
IN

21:12
16-11-2025

ROUTER 1

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/2

Serial0/1/0

Serial0/1/1

GigabitEthernet0/0/0

Port Status☒ On

Bandwidth

☐ 1000 Mbps

☒ 100 Mbps

☐ 10 Mbps

☒ Auto

Duplex

☐ Half Duplex

☒ Full Duplex

☒ Auto

MAC Address0001.4232.0D01

IP Configuration

IPv4 Address192.24.20.1

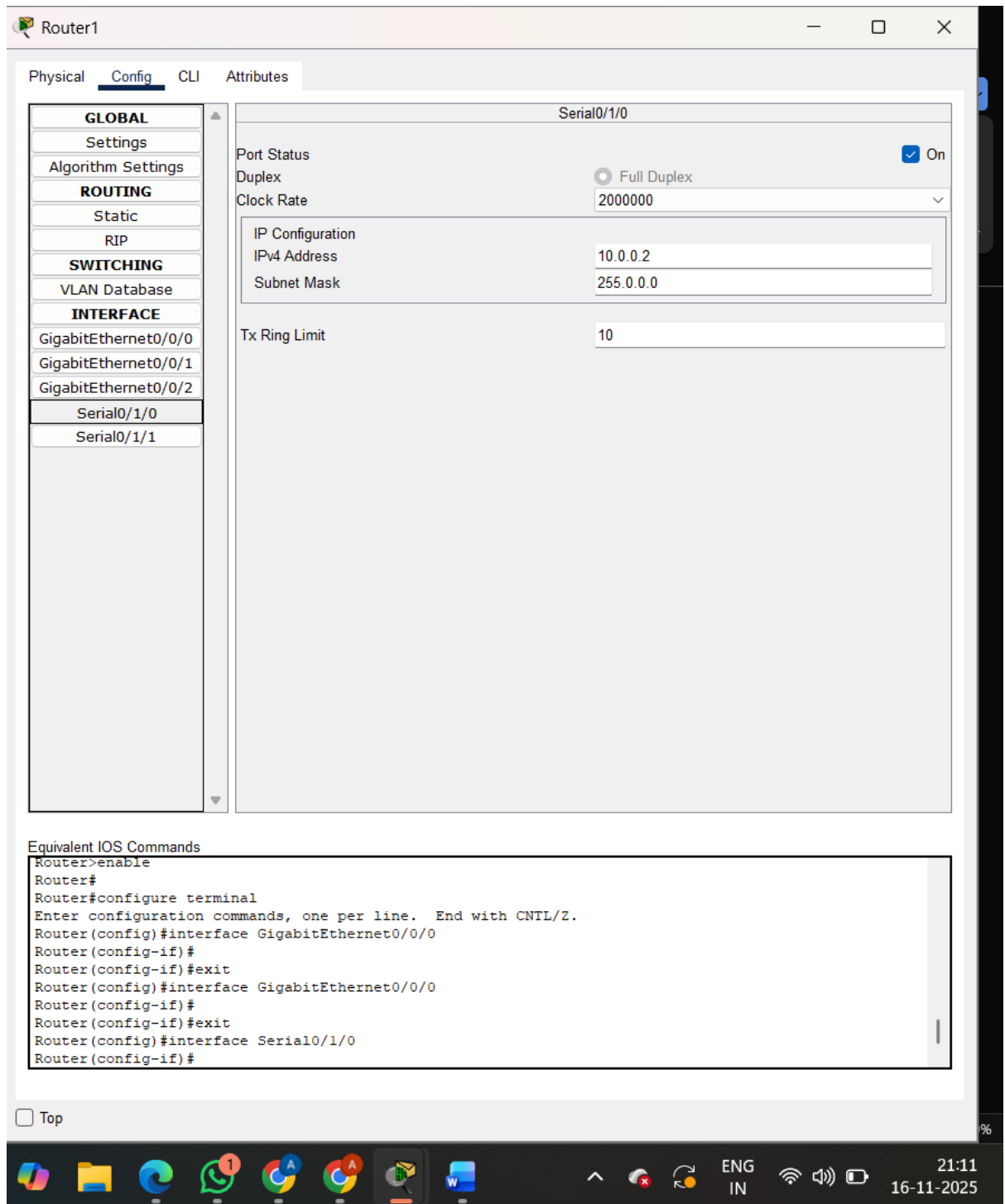
Subnet Mask255.255.255.0

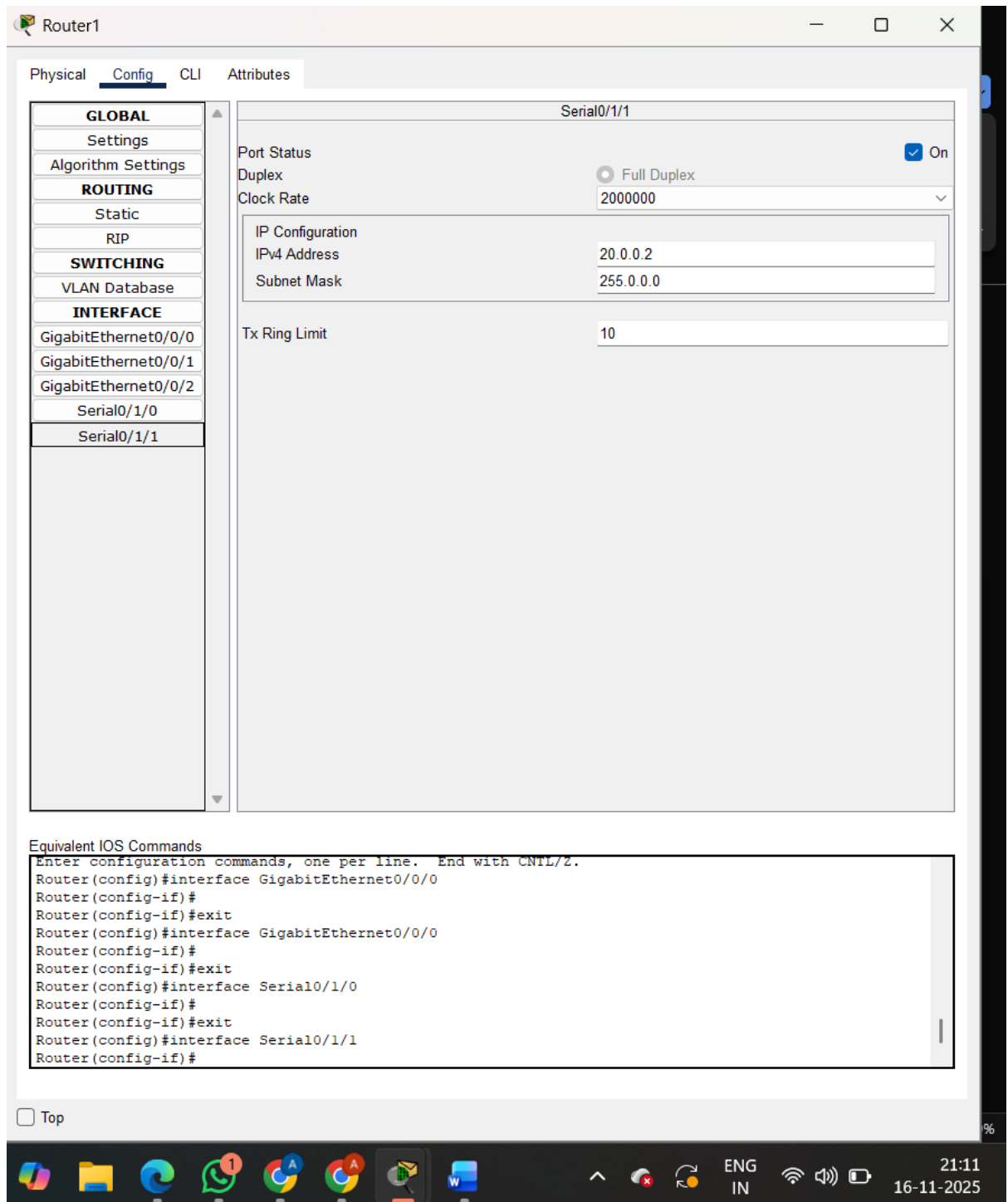
Tx Ring Limit10

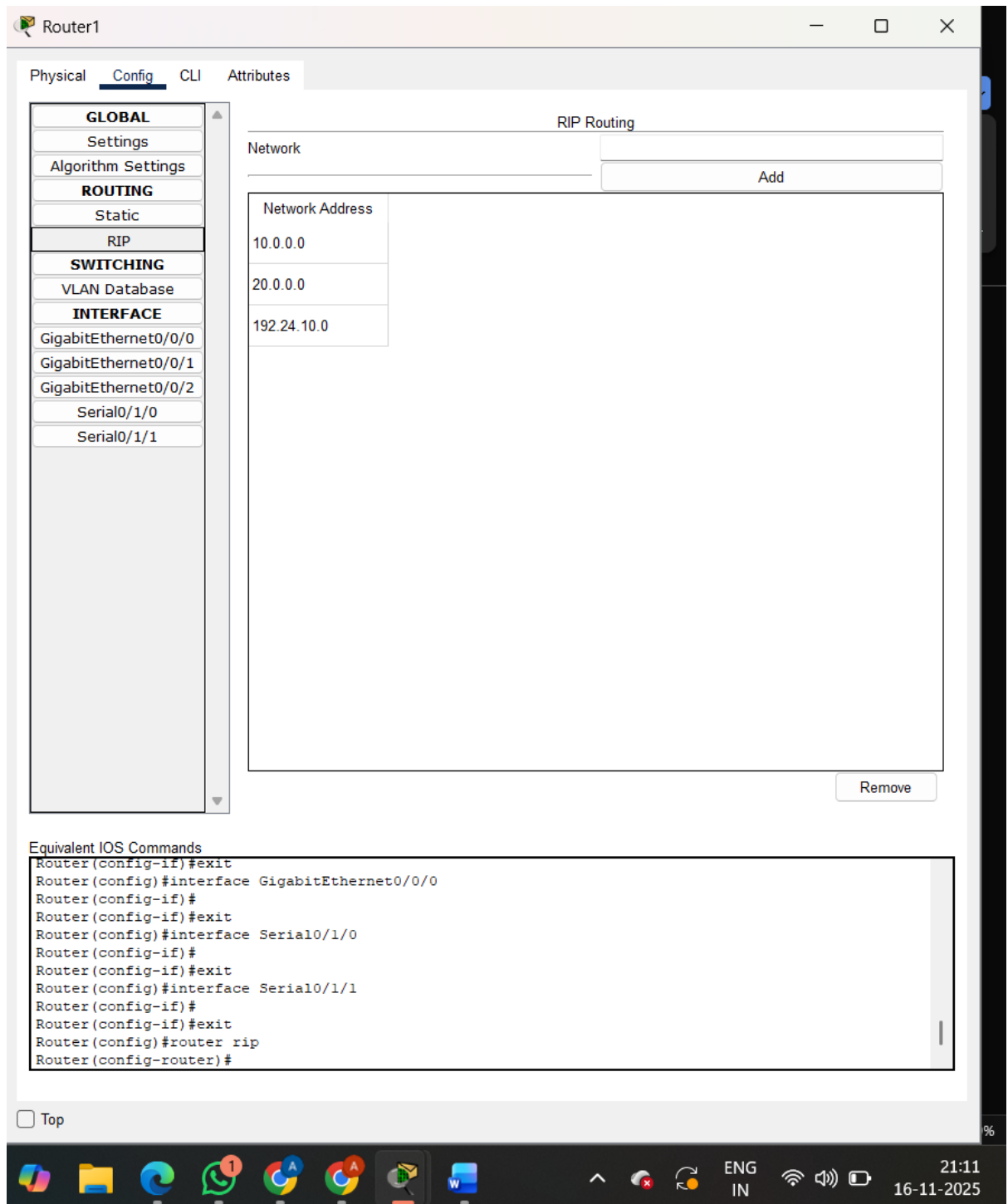
Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
```

Top







ROUTER 2:

Router2

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/2

Serial0/1/0

Serial0/1/1

GigabitEthernet0/0/0

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.C91B.4601

IP Configuration

IPv4 Address 192.24.30.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

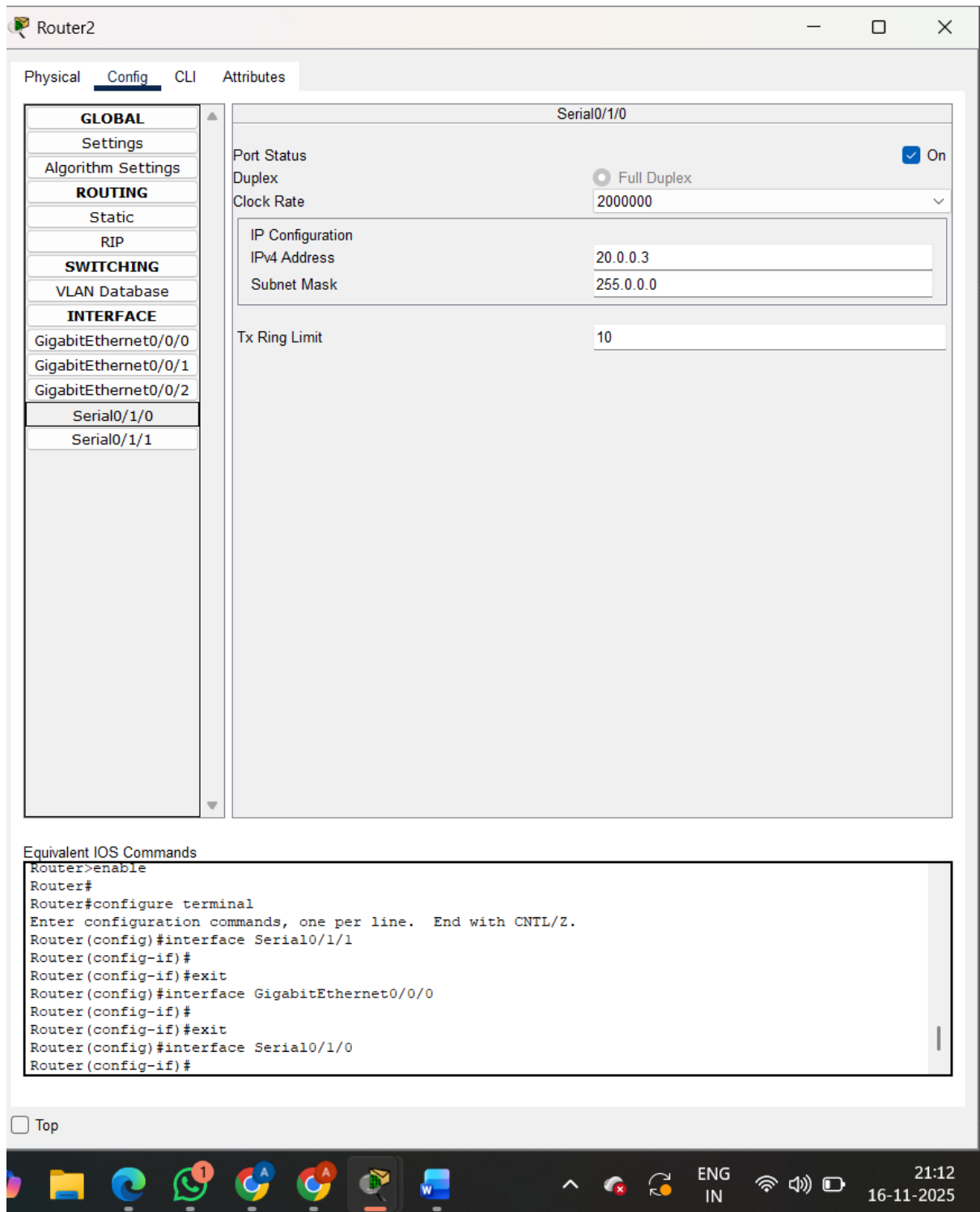
Equivalent IOS Commands

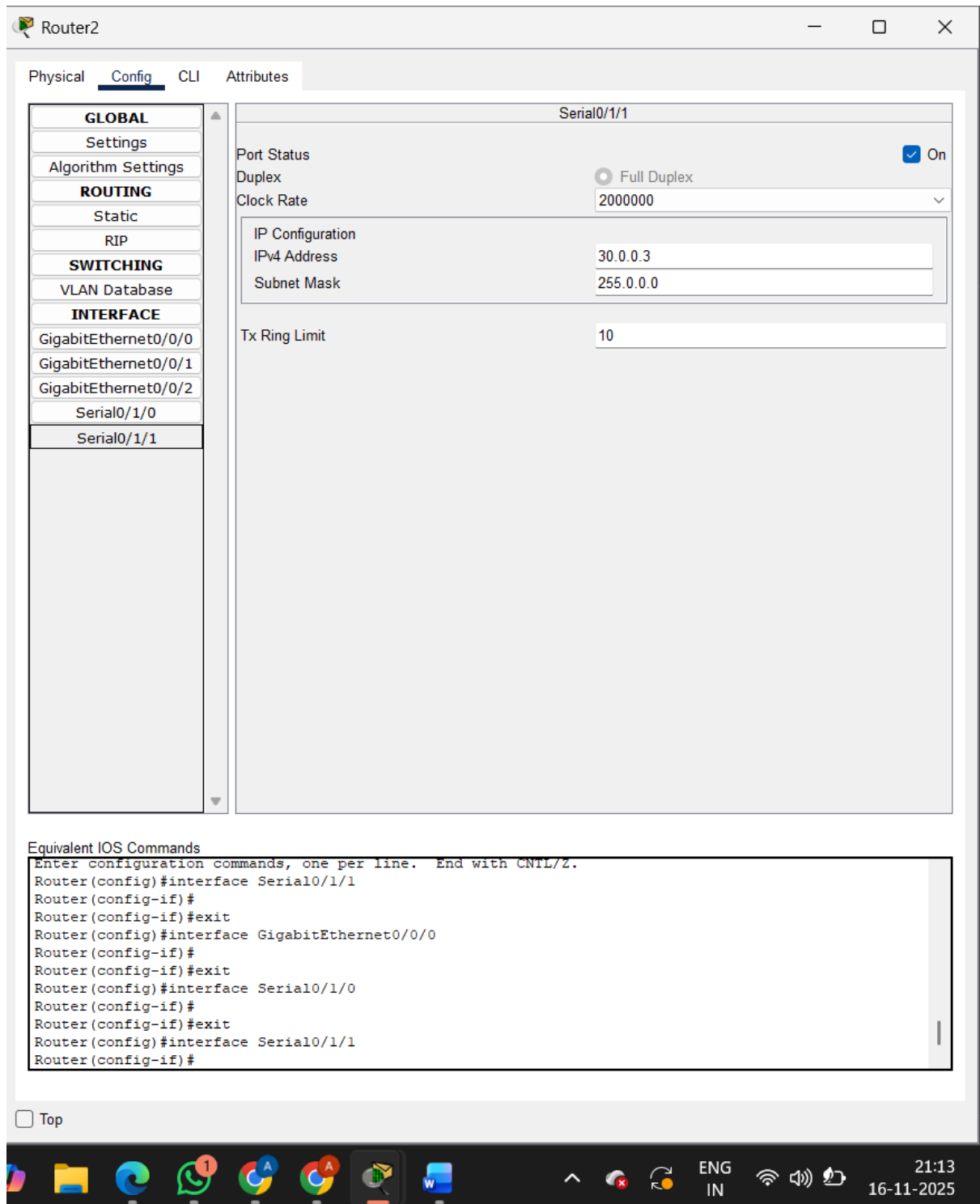
```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial0/1/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
```

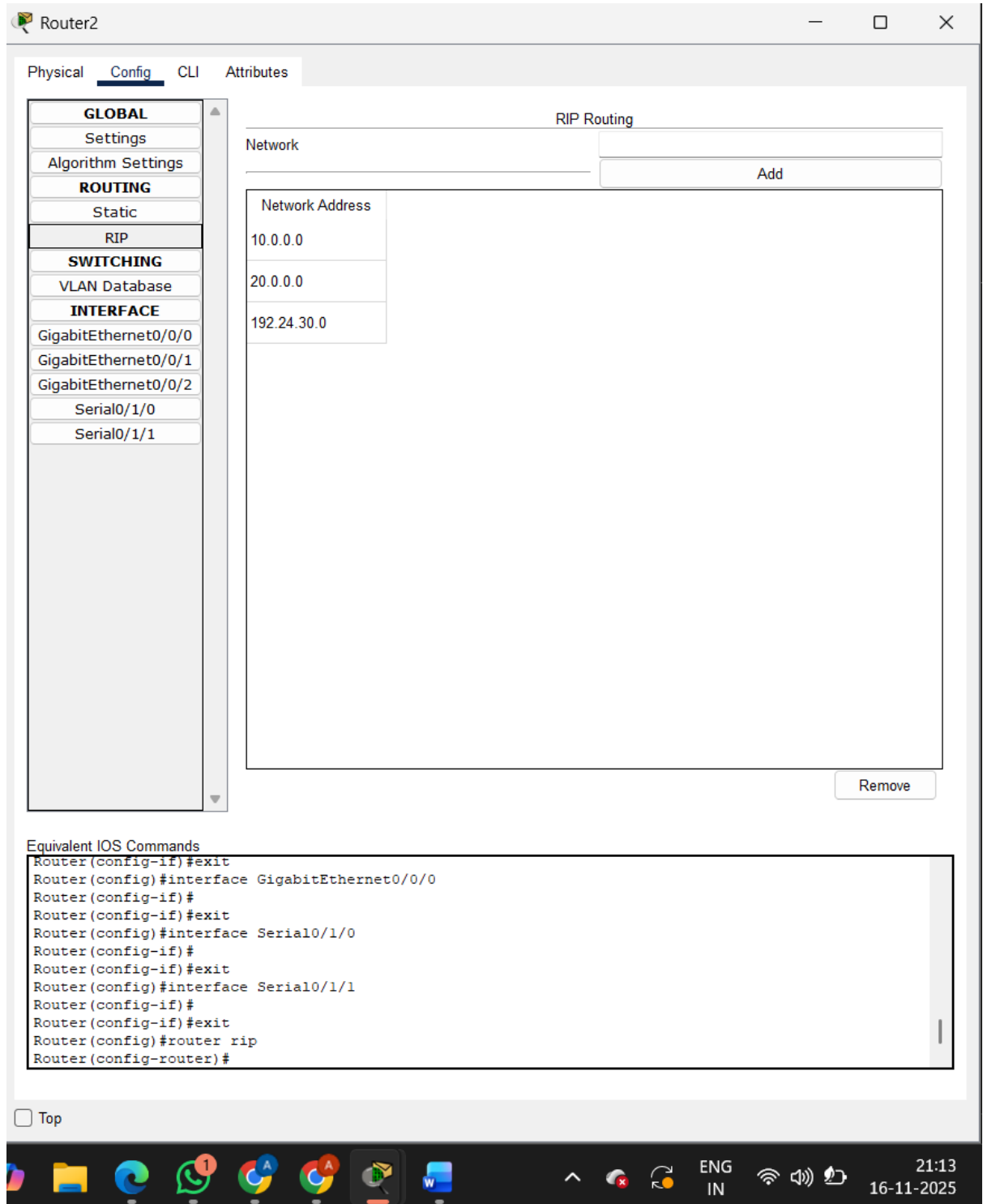
☐ Top

ENG IN

21:12
16-11-2025

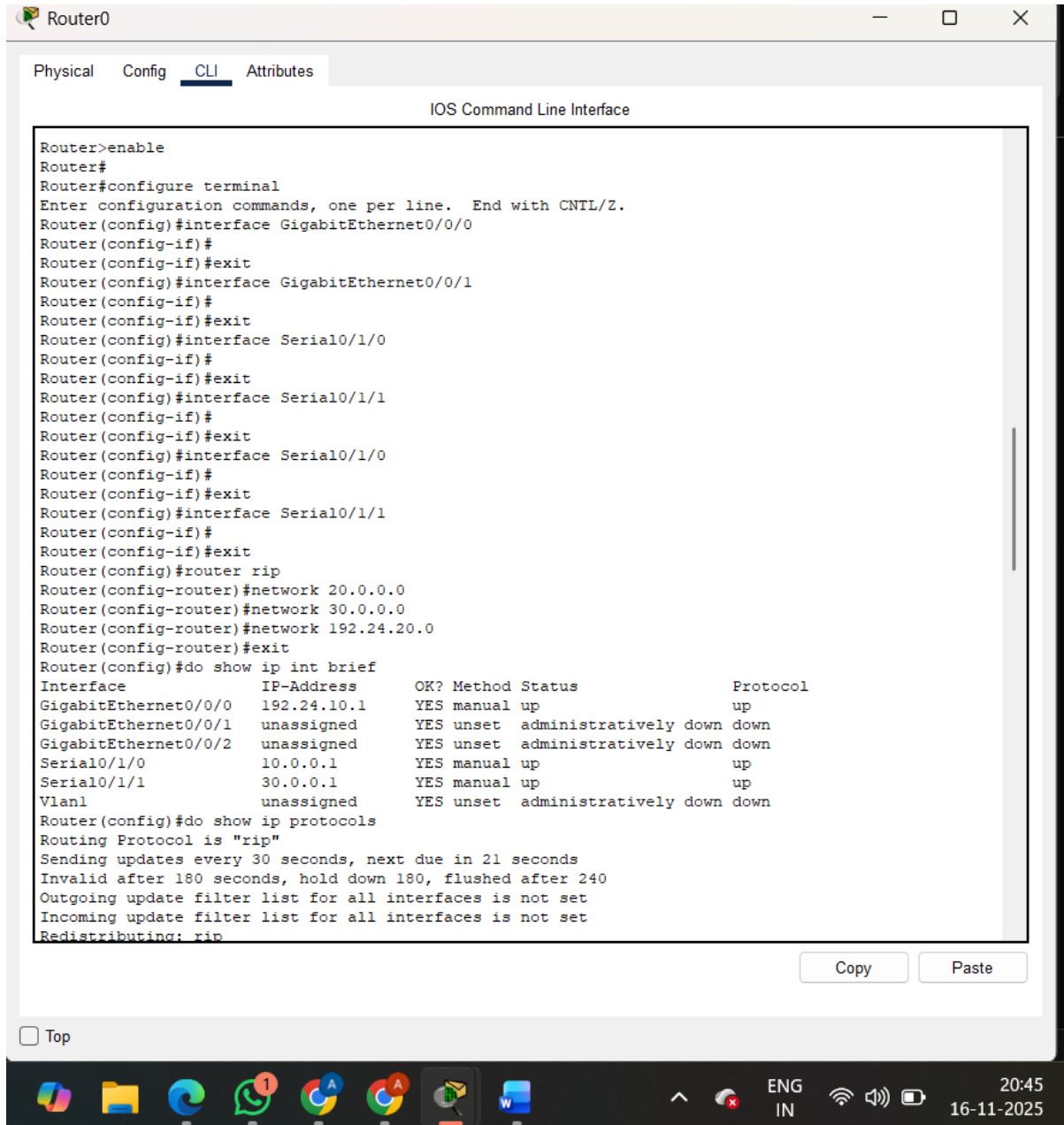






3) Configure open short path first routing table (OSPF in routers)

Router 0:



Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/1/1
Router(config-if)#
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 20.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#network 192.24.20.0
Router(config-router)#exit
Router(config)#do show ip int brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0/0	192.24.10.1	YES	manual	up	up
GigabitEthernet0/0/1	unassigned	YES	unset	administratively down	down
GigabitEthernet0/0/2	unassigned	YES	unset	administratively down	down
Serial0/1/0	10.0.0.1	YES	manual	up	up
Serial0/1/1	30.0.0.1	YES	manual	up	up
Vlan1	unassigned	YES	unset	administratively down	down

```
Router(config)#do show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 21 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
```

Copy Paste

☐ Top

ENG IN 20:45 16-11-2025

Router0

Physical

Config

CLI

Attributes

IOS Command Line Interface

Default version control: send version 1, receive any version

InterfaceSendRecvTriggered RIPKey-chain

Serial0/1/1121

Automatic network summarization is in effect

Maximum path: 4

Routing for Networks:

20.0.0.0

30.0.0.0

192.24.20.0

Passive Interface(s):

Routing Information Sources:

GatewayDistanceLast Update

Distance: (default is 120)

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Router(config)#do show ip protocols

Routing Protocol is "rip"

Sending updates every 30 seconds, next due in 2 seconds

Invalid after 180 seconds, hold down 180, flushed after 240

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Redistributing: rip

Default version control: send version 1, receive any version

InterfaceSendRecvTriggered RIPKey-chain

Serial0/1/1121

Automatic network summarization is in effect

Maximum path: 4

Routing for Networks:

20.0.0.0

30.0.0.0

192.24.20.0

Passive Interface(s):

Routing Information Sources:

GatewayDistanceLast Update

Distance: (default is 120)

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 1.1.1.1

Copy

Paste

☐ Top

ENG
IN

20:46
16-11-2025

Router0

PhysicalConfigCLIAttributes

IOS Command Line Interface

```
Router0#show ip ospf
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
 192.24.10.0 0.0.0.255 area 0
 10.0.0.0 0.0.0.3 area 0
 30.0.0.0 0.0.0.3 area 0
Routing Information Sources:
Gateway          Distance      Last Update
1.1.1.1          110           00:13:28
2.2.2.2          110           00:13:28
3.3.3.3          110           00:13:28
Distance: (default is 110)

Router(config)#
Router(config)#
Router(config)#router ospf ?
<1-65535> Process ID
Router(config)#router ospf 1
Router(config-router)#network 192.24.10.0 0.0.255 area 0
^
% Invalid input detected at '^' marker.

Router(config-router)#network 192.24.10.0.0.255 area 0
^
% Invalid input detected at '^' marker.


Router(config-router)#network 192.24.10.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
Router(config-router)#do sh ip ospf neighbor

Neighbor ID      Pri   State           Dead Time   Address        Interface
2.2.2.2          0     FULL/ -         00:00:38    10.0.0.2       Serial0/1/0
3.3.3.3          0     FULL/ -         00:00:38    30.0.0.3       Serial0/1/1




Router(config-router)#do sh 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
```

CopyPaste

☐ Top



ENG
IN



20:46
16-11-2025

Router0

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
Router(config)#router ospf 1
Router(config-router)#network 192.24.10.0 0.0.255 area 0
^
% Invalid input detected at '^' marker.

Router(config-router)#network 192.24.10.00.0.255 area 0
^
% Invalid input detected at '^' marker.

Router(config-router)#network 192.24.10.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
Router(config-router)#do sh ip ospf neighbor

Neighbor ID      Pri   State           Dead Time   Address        Interface
2.2.2.2          0     FULL/ -         00:00:38    10.0.0.2       Serial0/1/0
3.3.3.3          0     FULL/ -         00:00:38    30.0.0.3       Serial0/1/1

Router(config-router)#do sh 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, Serial0/1/0
L       10.0.0.1/32 is directly connected, Serial0/1/0
O       20.0.0.0/8 [110/128] via 10.0.0.2, 00:19:43, Serial0/1/0
        [110/128] via 30.0.0.3, 00:19:43, Serial0/1/1
O       30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/8 is directly connected, Serial0/1/1
L       30.0.0.1/32 is directly connected, Serial0/1/1
O       192.24.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.24.10.0/24 is directly connected, GigabitEthernet0/0/0
L       192.24.10.1/32 is directly connected, GigabitEthernet0/0/0
O       192.24.30.0/24 [110/65] via 30.0.0.3, 00:19:43, Serial0/1/1
--More--
```

Copy

Paste

☐ Top

ENG IN 20:46 16-11-2025

ROUTER 1:

Router1

Physical Config CLI Attributes

IOS Command Line Interface


```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#do show ipint brief
show ipint brief
^
% Invalid input detected at '^' marker.

Router(config)#do show ip int brief
Interface      IP-Address      OK? Method Status      Protocol
GigabitEthernet0/0/0  192.24.20.1    YES manual up          up
GigabitEthernet0/0/1  unassigned     YES unset  administratively down down
GigabitEthernet0/0/2  unassigned     YES unset  administratively down down
Serial0/1/0         10.0.0.2       YES manual up          up
Serial0/1/1         20.0.0.2       YES manual up          up
Vlan1              unassigned     YES unset  administratively down down
Router(config)#do show ip protocols
Routing Protocol is "rip"
Sending updates every 30 seconds, next due in 1 seconds
Invalid after 180 seconds, hold down 180, flushed after 240
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Redistributing: rip
Default version control: send version 1, receive any version
  Interface      Send Recv Triggered RIP Key-chain
  Serial0/1/0      12 1
  Serial0/1/1      12 1
Automatic network summarization is in effect
Maximum path: 4
Routing for Networks:
  10.0.0.0
  20.0.0.0
  192.24.10.0
Passive Interface(s):
Routing Information Sources:
  Gateway         Distance      Last Update
  20.0.0.3         120          00:00:19
Distance: (default is 120)

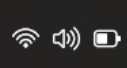
--More--
```

Copy Paste

☐ Top



ENG IN



20:49
16-11-2025

Router1

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Distance: (default is 120)

Routing Protocol is "ospf 1"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Router ID 2.2.2.2
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    10.0.0.0 0.0.0.3 area 0
    20.0.0.0 0.0.0.3 area 0
  Routing Information Sources:
    Gateway         Distance      Last Update
    1.1.1.1          110          00:23:04
    2.2.2.2          110          00:23:04
    3.3.3.3          110          00:23:04
  Distance: (default is 110)

Router(config)#
Router(config)#
Router(config)#
Router(config)#router ospf 1
Router(config-router)#network 192.24.20.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#network 20.0.0.0 0.255.255.255 area 0
Router(config-router)#do sh 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, Serial0/1/0
L       10.0.0.2/32 is directly connected, Serial0/1/0
    20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial0/1/1
L       20.0.0.2/32 is directly connected, Serial0/1/1
O       30.0.0.0/8 [110/128] via 20.0.0.3, 00:25:19, Serial0/1/1
        [110/128] via 10.0.0.1, 00:25:19, Serial0/1/0
O       192.24.10.0/24 [110/65] via 10.0.0.1, 00:25:29, Serial0/1/0
    192.24.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.24.20.0/24 is directly connected, GigabitEthernet0/0/0
L       192.24.20.1/32 is directly connected, GigabitEthernet0/0/0
O       192.24.30.0/24 [110/65] via 20.0.0.3, 00:25:19, Serial0/1/1

Router(config-router)#

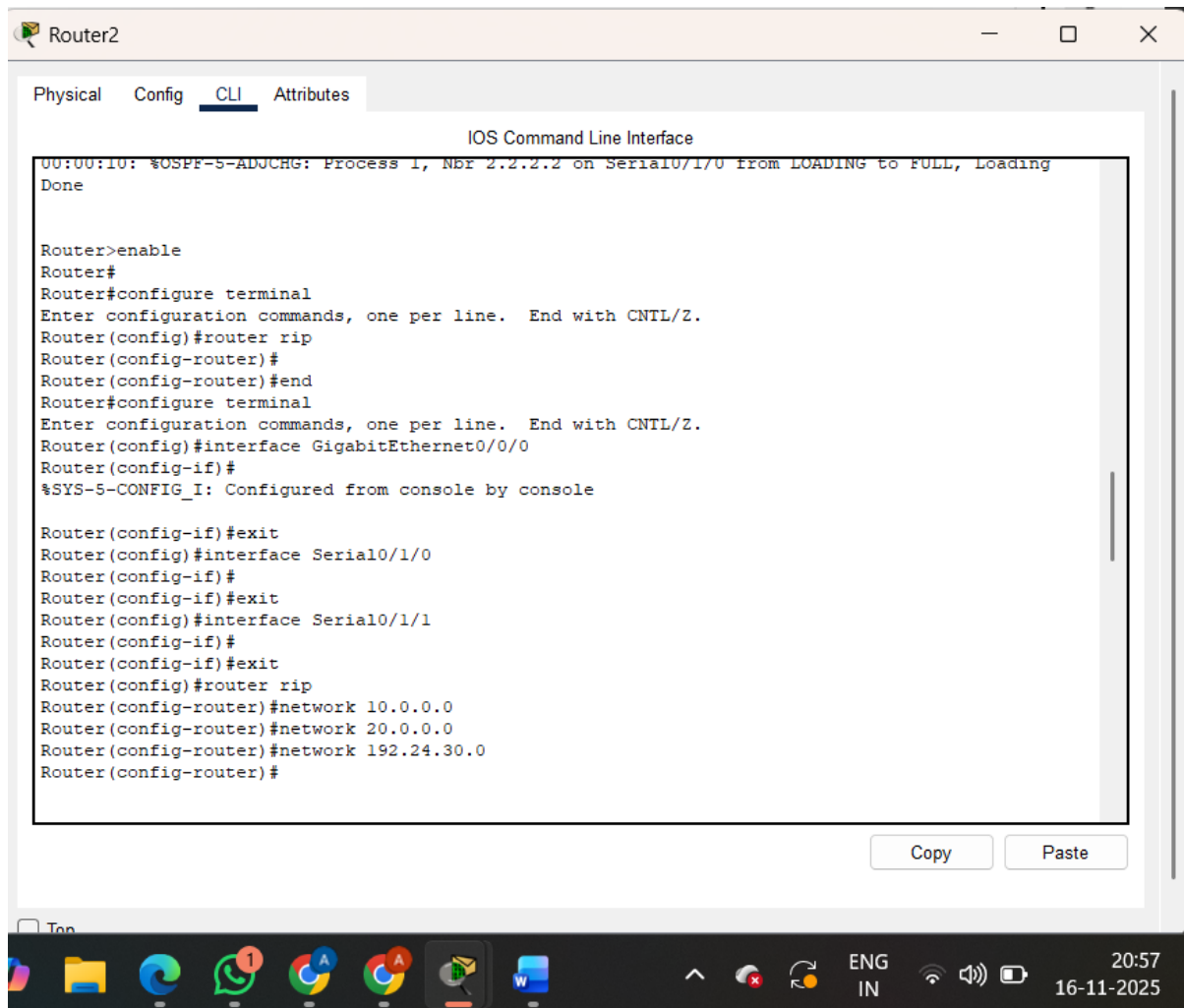
```

Copy
Paste

☐ Top

ENG
IN
20:52
16-11-2025

ROUTER 2:



Router2

Physical

Config

CLI

Attributes

IOS Command Line Interface

Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#do show ip int brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0/0 192.24.30.1 YES manual up
GigabitEthernet0/0/1 unassigned YES unset administratively down down
GigabitEthernet0/0/2 unassigned YES unset administratively down down
Serial0/1/0 20.0.0.3 YES manual up
Serial0/1/1 30.0.0.3 YES manual up
Vlan1 unassigned YES unset administratively down down
Router(config)#router ospf 1
Router(config-router)#network 192.24.30.0 0.0.0.255 area 0
Router(config-router)#network 20.0.0.0 0.255.255.255 area 0
Router(config-router)#network
% Incomplete command.
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
Router(config-router)#do sh ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface
2.2.2.2 0 FULL/ - 00:00:32 20.0.0.2 Serial0/1/0
1.1.1.1 0 FULL/ - 00:00:39 30.0.0.1 Serial0/1/1
Router(config-router)#do sh 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

O 10.0.0.0/8 [110/128] via 30.0.0.1, 00:30:51, Serial0/1/1
[110/128] via 20.0.0.2, 00:30:51, Serial0/1/0
20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 20.0.0.0/8 is directly connected, Serial0/1/0
L 20.0.0.3/32 is directly connected, Serial0/1/0
30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 30.0.0.0/8 is directly connected, Serial0/1/1
L 30.0.0.3/32 is directly connected, Serial0/1/1
O 192.24.10.0/24 [110/65] via 30.0.0.1, 00:31:01, Serial0/1/1
O 192.24.20.0/24 [110/65] via 20.0.0.2, 00:06:29, Serial0/1/0
192.24.30.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.24.30.0/24 is directly connected, GigabitEthernet0/0/0
L 192.24.30.1/32 is directly connected, GigabitEthernet0/0/0

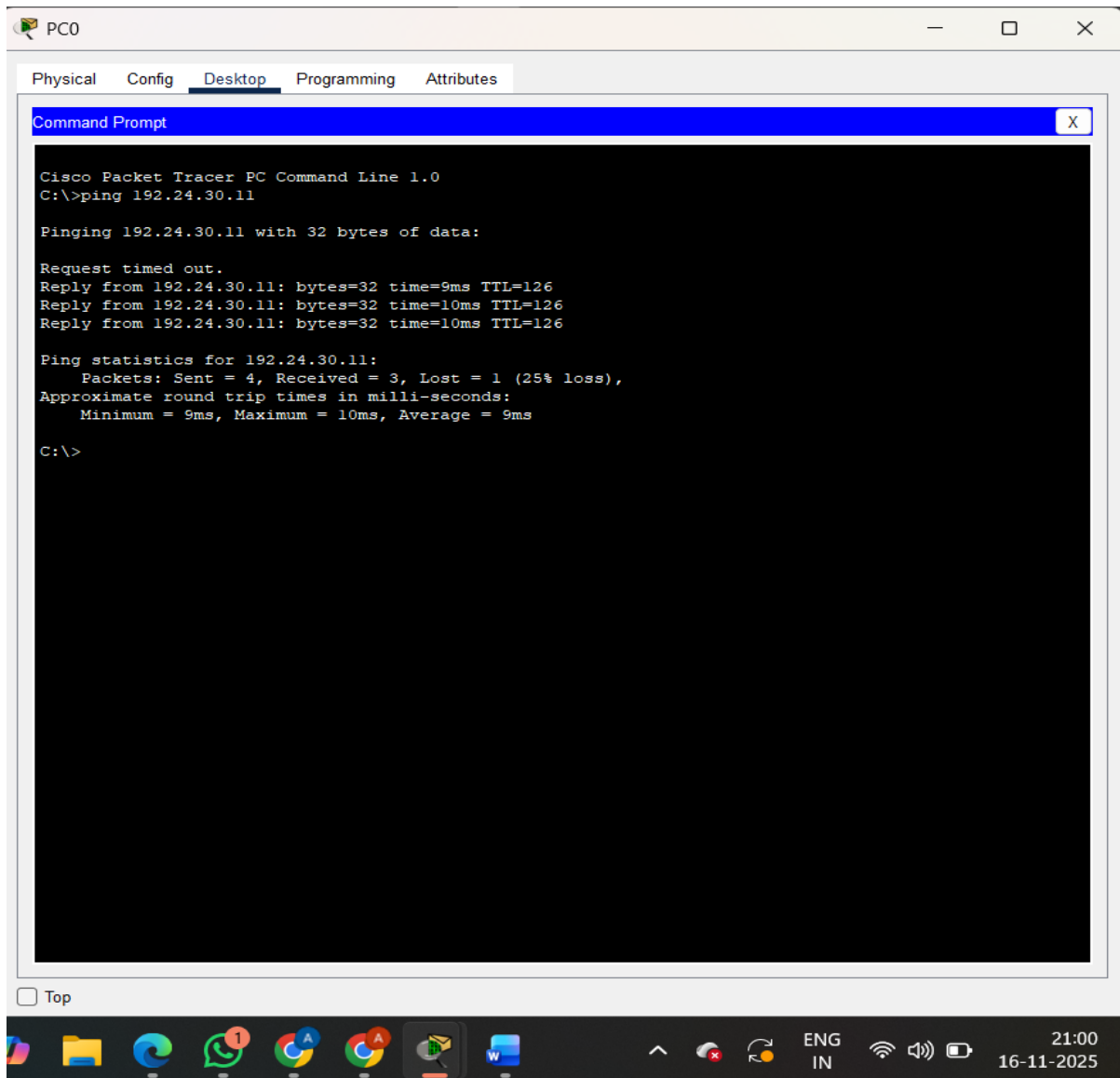
Router(config-router)#
Router(config-router)#

Copy Paste

☐ Top

ENG IN 20:58 16-11-2025

OUTPUT:



The screenshot shows a Cisco Packet Tracer PC Command Line window for PC0. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of the command 'ping 192.24.30.11'. The output indicates that the first ping request timed out, while the subsequent three replies were successful with 32 bytes of data, a time of 10ms, and a TTL of 126. The ping statistics show 4 packets sent, 3 received, and 1 lost (25% loss), with an average round trip time of 9ms. The taskbar at the bottom shows various application icons and the system clock set to 21:00 on 16-11-2025.

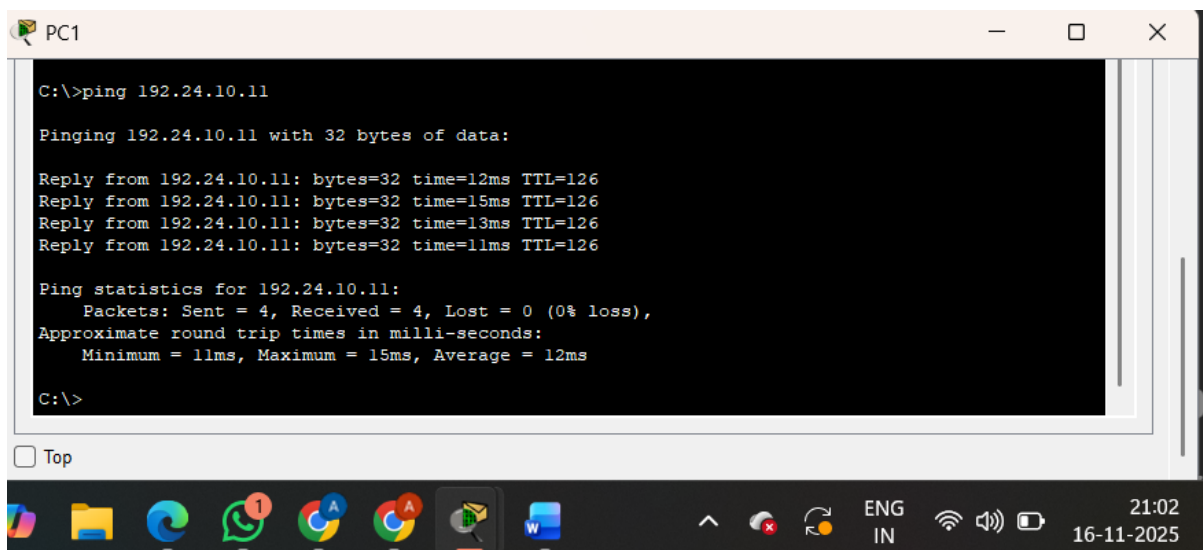
```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.24.30.11

Pinging 192.24.30.11 with 32 bytes of data:

Request timed out.
Reply from 192.24.30.11: bytes=32 time=9ms TTL=126
Reply from 192.24.30.11: bytes=32 time=10ms TTL=126
Reply from 192.24.30.11: bytes=32 time=10ms TTL=126

Ping statistics for 192.24.30.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 9ms, Maximum = 10ms, Average = 9ms

C:\>
```



The screenshot shows a Cisco Packet Tracer PC Command Line window for PC1. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of the command 'ping 192.24.10.11'. The output indicates that all four ping replies were successful with 32 bytes of data, a time of 11-15ms, and a TTL of 126. The ping statistics show 4 packets sent, 4 received, and 0 lost (0% loss), with an average round trip time of 12ms. The taskbar at the bottom shows various application icons and the system clock set to 21:02 on 16-11-2025.

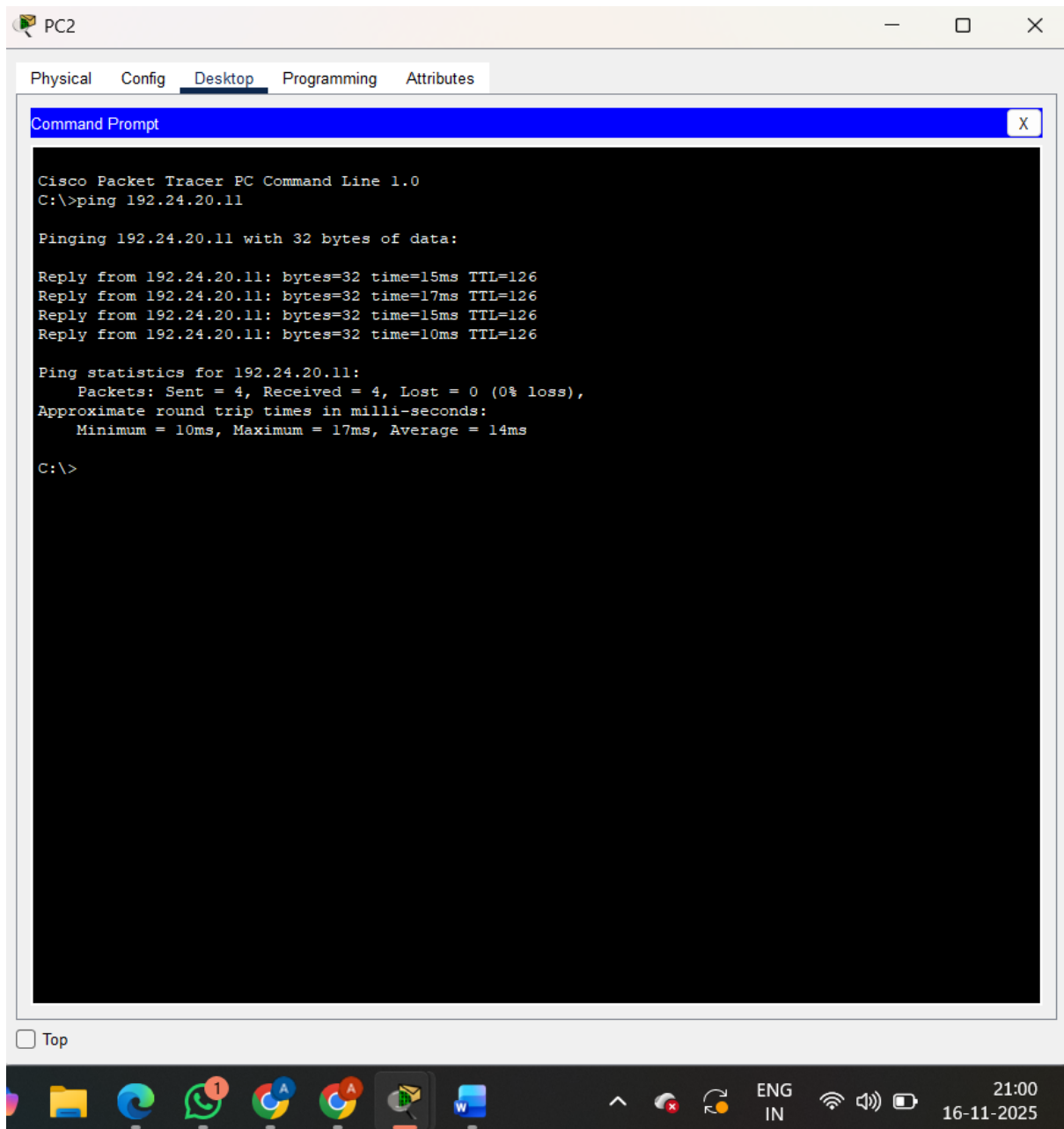
```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.24.10.11

Pinging 192.24.10.11 with 32 bytes of data:

Reply from 192.24.10.11: bytes=32 time=12ms TTL=126
Reply from 192.24.10.11: bytes=32 time=15ms TTL=126
Reply from 192.24.10.11: bytes=32 time=13ms TTL=126
Reply from 192.24.10.11: bytes=32 time=11ms TTL=126

Ping statistics for 192.24.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 11ms, Maximum = 15ms, Average = 12ms

C:\>
```



FINAL OUTPUT OF PACKET TRANSFER

The image displays a Cisco Packet Tracer network configuration and two screenshots of the packet transfer logs. The network diagram shows three routers (R0, R1, R2) connected in a triangle topology. R0 is connected to R1, R1 to R2, and R2 to R0. Each router is connected to a switch (S0, S1, S2) and a PC (PC0, PC1, PC2). The IP addresses for the routers are 192.24.10.1, 192.24.20.1, and 192.24.30.1 respectively. The switches are 192.24.10.0, 192.24.20.0, and 192.24.30.0. The PCs are 192.168.10.11, 192.24.20.11, and 192.24.30.11. The network is configured with OSPF.

The first screenshot shows the packet transfer logs for the network. The logs are as follows:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
Successful	PC0	PC1	ICMP	0.000	N	0	(edit)	(delete)		
Successful	PC1	PC2	ICMP	0.000	N	1	(edit)	(delete)		
Successful	PC2	PC0	ICMP	0.000	N	2	(edit)	(delete)		
Successful	PC0	PC2	ICMP	0.000	N	3	(edit)	(delete)		

The second screenshot shows the packet transfer logs for the network. The logs are as follows:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
Successful	PC2	PC0	ICMP	0.000	N	2	(edit)	(delete)		
Successful	PC0	PC2	ICMP	0.000	N	3	(edit)	(delete)		
Successful	PC1	PC0	ICMP	0.000	N	4	(edit)	(delete)		
Successful	PC2	PC1	ICMP	0.000	N	5	(edit)	(delete)		

Conclusion:

The network was effectively designed and configured using the OSPF routing protocol. All routers successfully formed neighbor relationships and exchanged routing information accurately. Each department's network achieved complete connectivity with optimal path selection. OSPF provided rapid convergence, automatic route updates, and stable communication across all network segments, demonstrating a well-implemented OSPF setup for a multi-department organization.

Note: Make sure the last two digits of your enrollment numbers appear in the network IP address that must be visible in the snapshot of the cisco packet tracer. i.e. 192.XX.10.1 (XX indicates last two digits of your enrollment no.)