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Batch: 58

Course Title: Computer Networking Lab

Course Code: CSE342.4

Section: 4

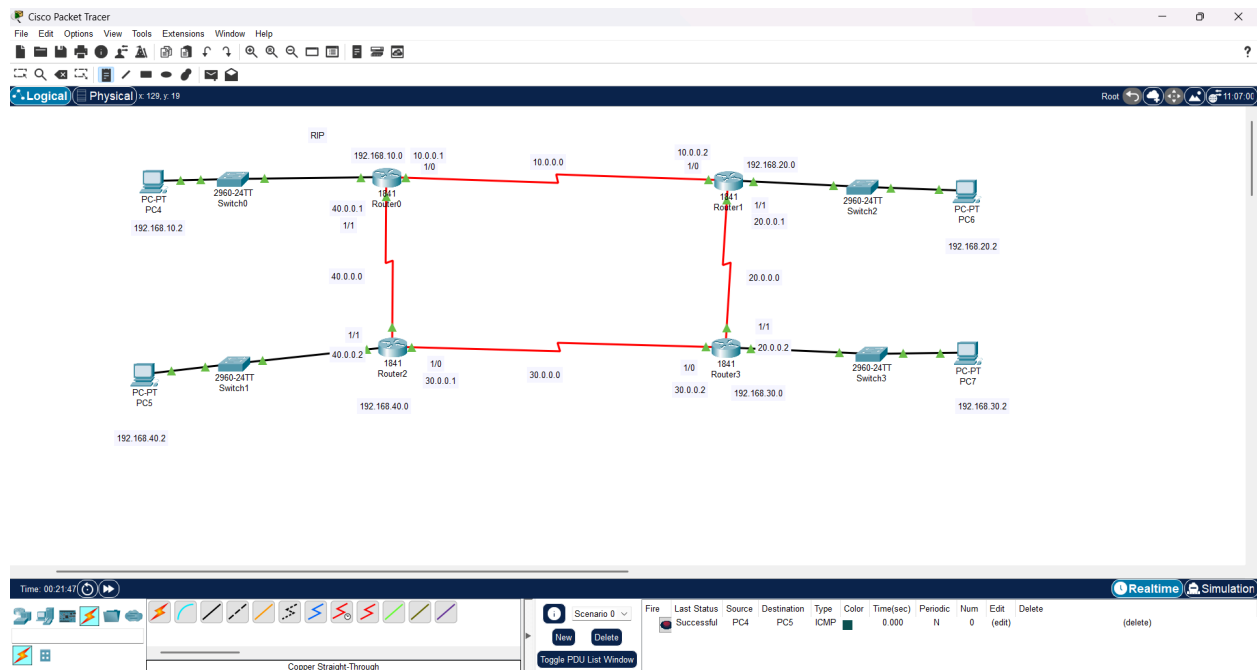
Lab Report No. : 02

Submission Date: 27/09/25

Ans to the ques no. 1

RIP (Routing Information Protocol):

Network topology diagram:



Configuration for RIP:

1. Take 4 router and install WIC-2T and restart.
2. Connect 4 routers using Serial DTE cables.
3. Take 1 switch and 1 end device for each router

4. Connect switch and end device using Copper Straight Through cable.

5. Give ip address to the end devices and also router.

Screenshots of configuration:

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

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.D3B5.0A01

IP Configuration

IPv4 Address

192.168.10.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

1200

10.0.0.1

255.0.0.0

10

On

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

On

Duplex

Full Duplex

Clock Rate

1200

IP Configuration

IPv4 Address

40.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Equivalent IOS Commands

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

☒ On

Bandwidth

☒ 100 Mbps ☐ 10 Mbps

Duplex

☐ Half Duplex ☒ Full Duplex

MAC Address0005.5E9D.AD01

IP Configuration

IPv4 Address192.168.20.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

On

2000000

10.0.0.2

255.0.0.0

10

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

1200

IP Configuration

IPv4 Address

20.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

5 of 111000

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

100 Mbps

10 Mbps

Half Duplex

Full Duplex

On

Auto

Auto

00E0.B061.D601

192.168.40.1

255.255.255.0

10

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

On

1200

30.0.0.1

255.0.0.0

10

5 of 111000

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

On

Duplex

Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

40.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

On

100 Mbps

10 Mbps

Auto

Bandwidth

Half Duplex

Full Duplex

Auto

Duplex

MAC Address

000B.BEC8.4101

IP Configuration

IPv4 Address

192.168.30.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

30.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Equivalent IOS Commands

Router3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

20.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

PC4

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

DHCP

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

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::290:21FF:FE39:A537

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

PC6

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

InterfaceFastEthernet0

IP Configuration

DHCP

Static

IPv4 Address192.168.20.2

Subnet Mask255.255.255.0

Default Gateway192.168.20.1

DNS Server0.0.0.0

IPv6 Configuration

Automatic

Static

IPv6 Address/

Link Local AddressFE80::201:96FF:FE6B:D818

Default Gateway

DNS Server

802.1X

Use 802.1X Security

AuthenticationMD5

Username

Password

PC7

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

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::209:7CFF:FE44:822B

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

Add

Network Address
10.0.0.0
20.0.0.0
30.0.0.0
40.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0

Remove

Equivalent IOS Commands

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

Add

Network Address
10.0.0.0
20.0.0.0
30.0.0.0
40.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0

Remove

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

Add

Network Address
10.0.0.0
20.0.0.0
30.0.0.0
40.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0

Remove

Router3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

RIP Routing

Network

Add

Network Address
10.0.0.0
20.0.0.0
30.0.0.0
40.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0
192.168.40.0

Remove

Cisco Packet Tracer

File

Edit

Options

View

Tools

Extensions

Window

Help

Logical

Physical

x:129, y:19

Root

11:07:00

```

graph TD
    Router0 --- Router1
    Router0 --- Router2
    Router0 --- Router3
    Router1 --- Router2
    Router1 --- Router3
    Router2 --- Router3
    PC4 --- Switch0 --- Router0
    PC5 --- Switch1 --- Router0
    PC6 --- Switch2 --- Router1
    PC7 --- Switch3 --- Router1
  
```

Time: 00:21:41

Scenario 0

New

Delete

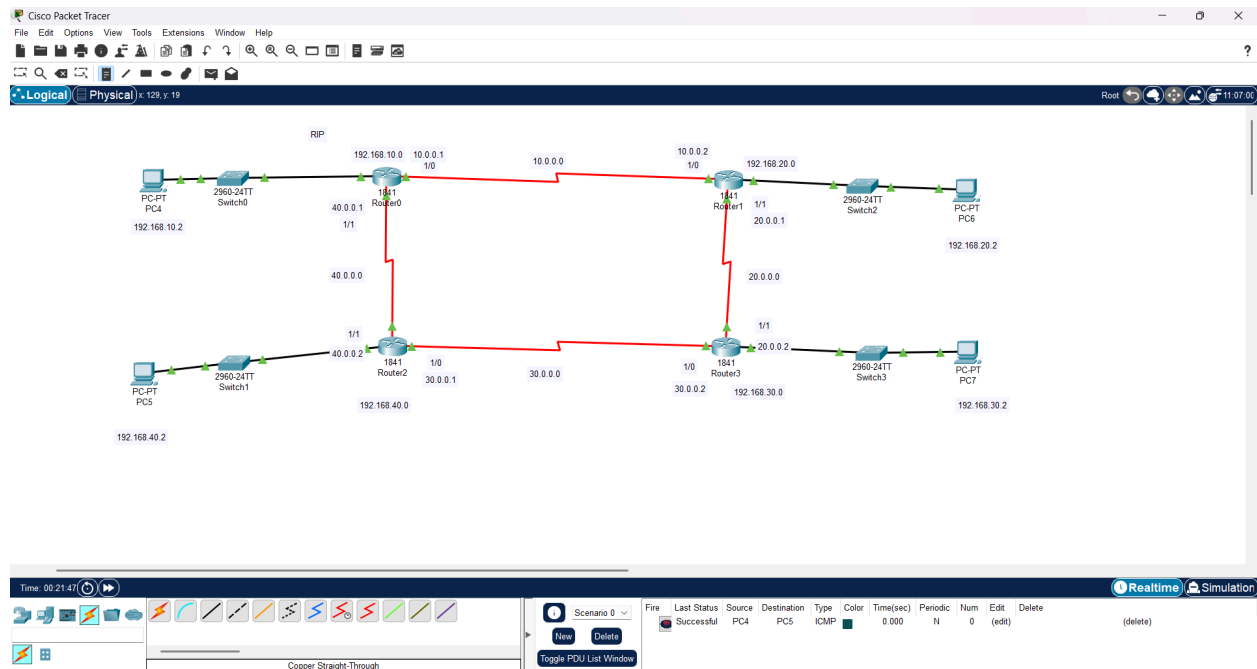
Toggle POI List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
Successful	PC4	PC5	ICMP		0.000	N	0	(edit)	(delete)	

Ans to the ques no. 2

OSPF (Open Shortest Path First):

Network topology diagram:



Configuration for RIP:

6. Take 4 router and install WIC-2T and restart.
7. Connect 4 routers using Serial DTE cables.
8. Take 1 switch and 1 end device for each router
9. Connect switch and end device using Copper Straight Through cable.

10. Give ip address to the end devices and also router.

Screenshots of configuration:

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

100 Mbps

10 Mbps

Half Duplex

Full Duplex

On

Auto

Auto

Bandwidth

Duplex

MAC Address

00D0.D3B5.0A01

IP Configuration

IPv4 Address

192.168.10.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

1200

10.0.0.1

255.0.0.0

10

On

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

On

1200

40.0.0.1

255.0.0.0

10

Equivalent IOS Commands

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

☒ On

Bandwidth

☒ 100 Mbps ☐ 10 Mbps

Duplex

☐ Half Duplex ☒ Full Duplex

MAC Address0005.5E9D.AD01

IP Configuration

IPv4 Address192.168.20.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

On

2000000

10.0.0.2

255.0.0.0

10

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

1200

IP Configuration

IPv4 Address

20.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

FastEthernet0/0

Port Status

☒

On

Bandwidth

☒100 Mbps

☐10 Mbps

☒Auto

Duplex

☐Half Duplex

☒Full Duplex

☒Auto

MAC Address

00E0.B061.D601

IP Configuration

IPv4 Address

192.168.40.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Router2

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

On

Duplex

Full Duplex

Clock Rate

1200

IP Configuration

IPv4 Address

30.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

5 of 111000

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

On

Duplex

Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

40.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

FastEthernet0/0

Port Status

100 Mbps

10 Mbps

On

Bandwidth

Duplex

Half Duplex

Full Duplex

Auto

MAC Address000B.BEC8.4101

IP Configuration

IPv4 Address192.168.30.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Equivalent IOS Commands

Router3

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/0

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

30.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Equivalent IOS Commands

Router3

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1/0

Serial0/1/1

Serial0/1/1

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

2000000

IP Configuration

IPv4 Address

20.0.0.2

Subnet Mask

255.0.0.0

Tx Ring Limit

10

PC4

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

DHCP

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

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::290:21FF:FE39:A537

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

PC6

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

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::201:96FF:FE6B:D818

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

PC7

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

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::209:7CFF:FE44:822B

Default Gateway

DNS Server

802.1X


Use 802.1X Security

Authentication

MD5

Username

Password

 Router0

PhysicalConfigCLIAttributes

IOS Command Line Interface


Router con0 is now available

Press RETURN to get started.

Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.10.0 0.0.0.255
% Incomplete command.
Router(config-router)#network 192.168.10.0 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)#
00:14:15: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.20.1 on Serial0/1/0 from LOADING to FULL, Loading Done

00:20:33: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on Serial0/1/1 from LOADING to FULL, Loading Done

CopyPaste

 Router2

— □ ×

Physical Config **CLI** Attributes


IOS Command Line Interface

Press RETURN to get started.

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.20.0 0.0.0.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#
00:14:05: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.1 on Serial0/1/0 from LOADING to FULL, Loading Done
network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#router ospf 1
      ^
% Invalid input detected at '^' marker.

Router(config-router)#router ospf 1
Router(config-router)#network 192.168.20.0 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)#
00:19:39: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on Serial0/1/1 from LOADING to FULL, Loading Done
```

Copy Paste

 Router1

PhysicalConfigCLIAttributes

IOS Command Line Interface

Router con0 is now available

Press RETURN to get started.

Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.30.0 0.0.0.255 area 0
Router(config-router)#network 20.0.0.0 0.255.255.255 area 0
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
00:19:31: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.20.1 on Serial0/1/router ospf 1
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
Router(config-router)#
00:20:14: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.1 on Serial0/1/0 from LOADING to FULL, Loading Done

CopyPaste

```

outer>en
outer#config t
outer(configuration)#router ospf 1
outer(config-router)#network 192.168.40.0 0.0.0.255 area 0
outer(config-router)#network 20.0.0.0 0.255.255.255 area 0

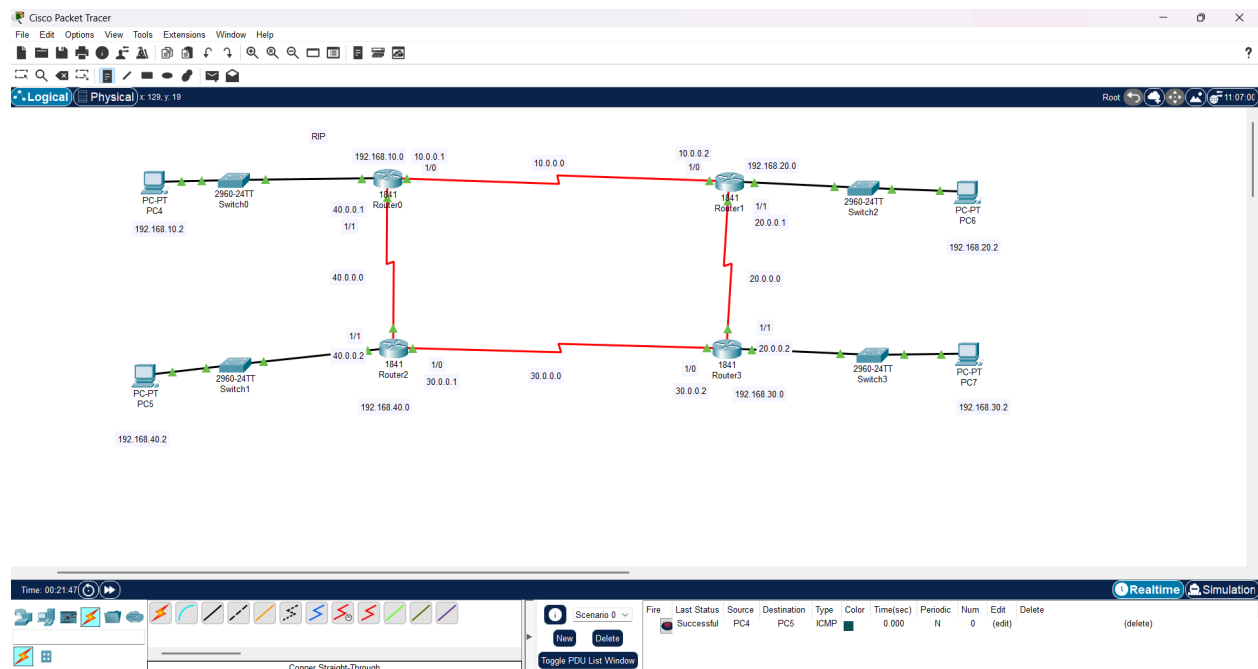
```

Invalid input detected at '^' marker.

```

outer(config-router)#network 20.0.0.0 0.255.255.255 area 0
outer(config-router)#network 30.0.0.0 0.255.255.255 area 0
outer(config-router)#

```



Ans to the ques no. 3

RIP	OSPF
1. Slow	1. Fast

2. Simple	2. Complex
3. Less efficient	3. More efficient