EXPERIMENT 4
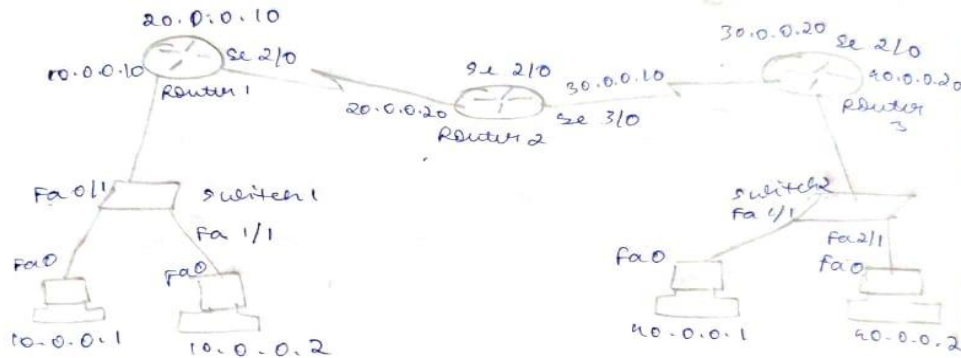
configure default route with router

- AIM: Using ip route set default route with 3 routers to route traffic to other routers over serial interface.

- TOPOLOGY:

- PROCEDURE:

1) connect the PC's to the router via switch

2) connect the routers to each other over serial interfaces using DCE / RS-232 cable.

3) configure static IPv4 for the PC's and set their default gateway.

4) set serial interface IPv4 address of the routers.

5) set routing paths for each router
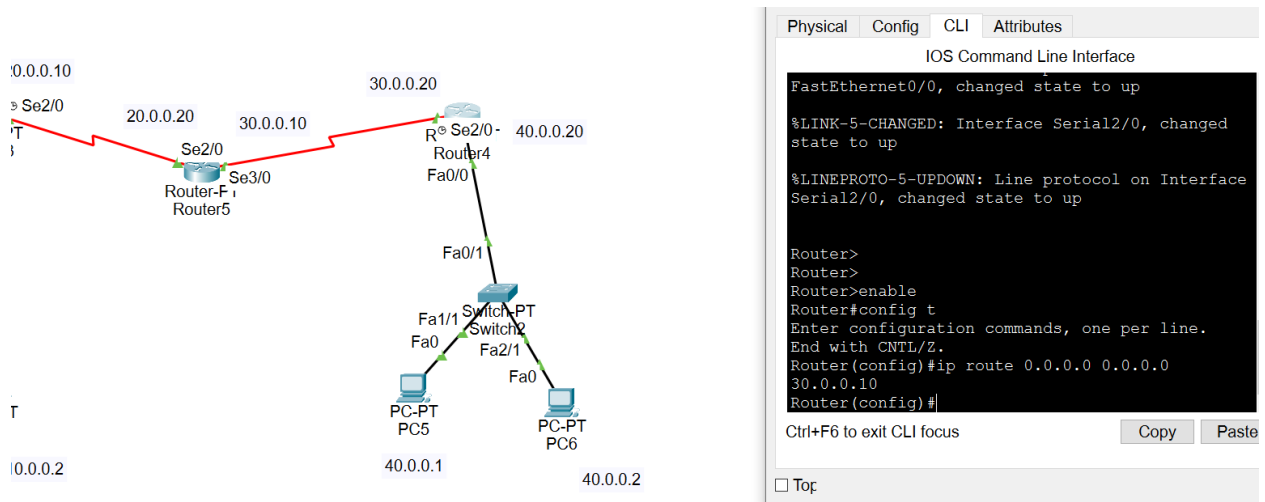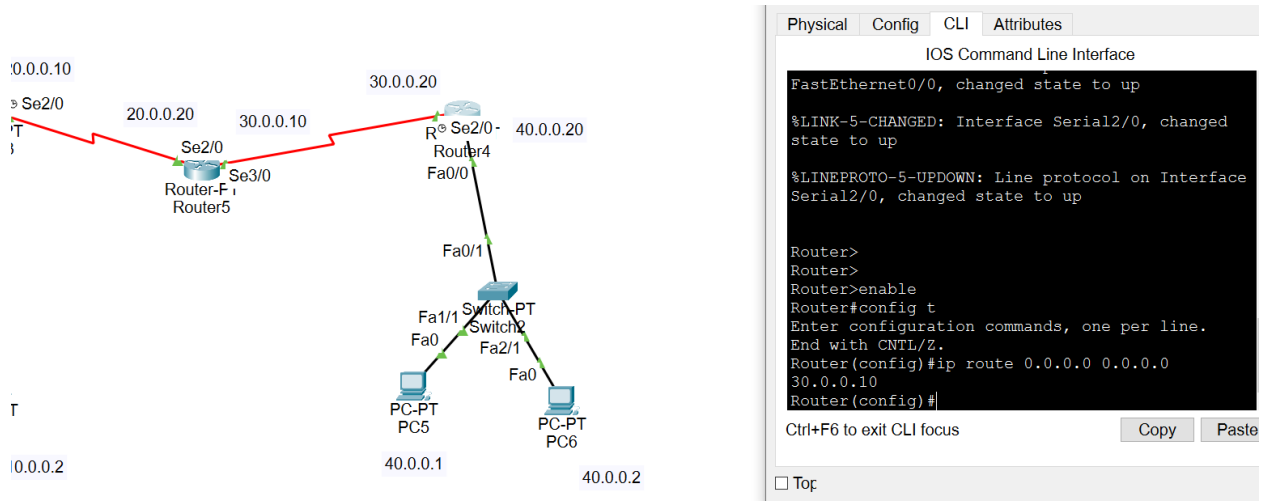
6) ping from first Lan to the other

• CLI commands :
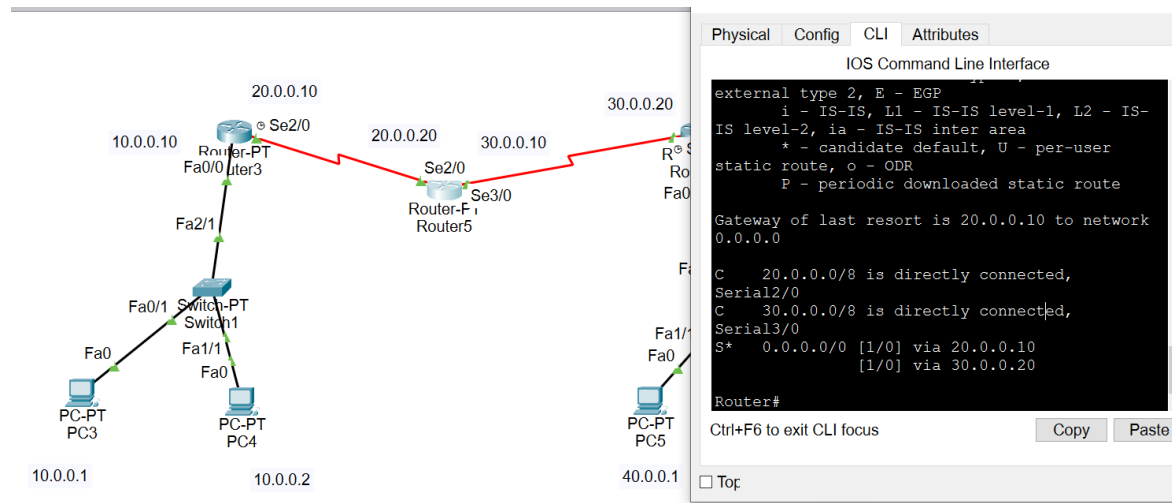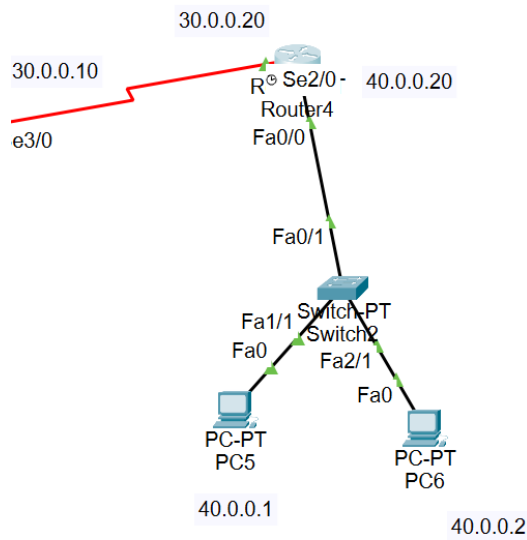
1) enable
2) show ip route
3) config t
4) ip address 10.0.0.10 / 255.0.0.0
5) no shut
6) interface serial 2/0
7) ip address 20.0.0.10 255.0.0.0
8) ip route 0.0.0.0 0.0.0.0 20.0.0.20
9) no shut

• Observation :

i) Traffic from 0.0.0.0 (Any IP range) will be forwarded onto the serial interface to the address 20.0.0.10

ii) No need to configure the router for each specific ip range

OUTPUT -

Diagram 1 (top)

- 30.0.0.20
- 30.0.0.10
- e3/0
- Se2/0 - Router4
- R
- 40.0.0.20
- Fa0/0
- Fa0/1
- Fa1/1 Switch-PT Switch2
- Fa0
- Fa2/1
- Fa0
- PC-PT PC5
- PC-PT PC6
- 40.0.0.1
- 40.0.0.2

IOS Command Line Interface (top right)

```
%LINEPROTO-5-UPDOWN: Line protocol on Interf
Serial2/0, changed state to up


Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#ip interface serial2/0
                   ^
% Invalid input detected at '^' marker.

Router(config)#interface serial2/0
Router(config-if)#
```

Ctrl+F6 to exit CLI focus   Copy

☐ Top

Diagram 2 (middle)

- 20.0.0.10
- Se2/0
- 20.0.0.20
- 30.0.0.10
- 30.0.0.20
- 10
- Router-PT
- Fa0/0 uter3
- Se2/0
- Se3/0
- Router-F Router5
- R Se2/0 - Router4
- 40.0.0.20
- Fa0/0
- Fa2/1
- 1 Switch-PT Switch1
- Fa1/1
- Fa0
- PC-PT PC4
- Fa0/1
- Fa1/1 Switch-PT Switch2
- Fa0
- Fa2/1
- Fa0
- PC-PT PC5
- PC-PT PC6
- 10.0.0.2
- 40.0.0.1
- 40.0.0.2

IOS Command Line Interface (middle right)
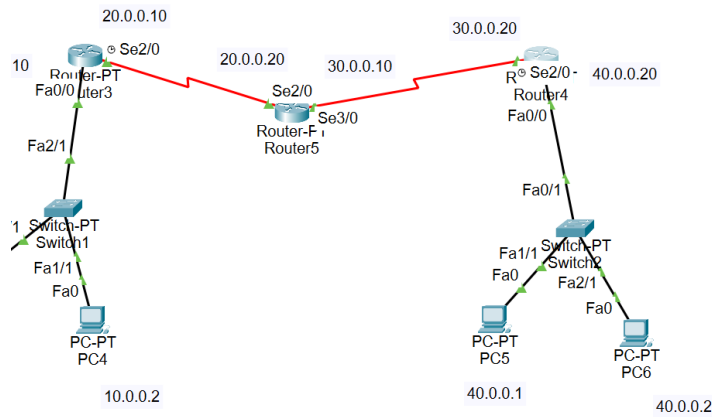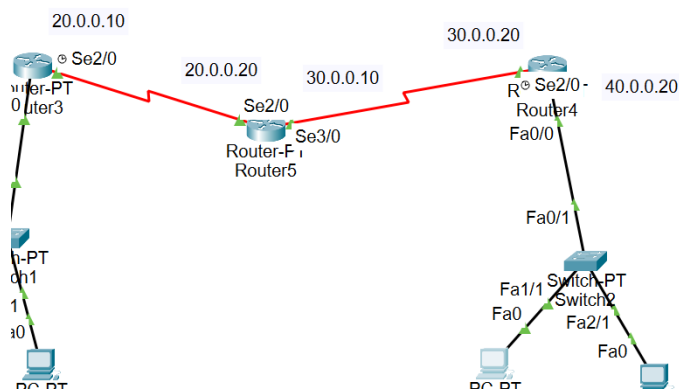
Physical | Config | CLI | Attributes

```
Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0
30.0.0.10
Router(config)#ip interface serial2/0
                   ^
% Invalid input detected at '^' marker.

Router(config)#interface serial2/0
Router(config-if)#ip address 30.0.0.20
255.0.0.0
Router(config-if)#
```

Ctrl+F6 to exit CLI focus   Copy   Past

☐ Top

Diagram 3 (bottom)

- 20.0.0.10
- Se2/0
- 20.0.0.20
- 30.0.0.10
- 30.0.0.20
- er-PT
- 0 uter3
- Se2/0
- Se3/0
- Router-F Router5
- R Se2/0 - Router4
- 40.0.0.20
- Fa0/0
- h-PT h1
- 1
- 0
- PC-PT
- Fa0/1
- Fa1/1 Switch-PT Switch2
- Fa0
- Fa2/1
- Fa0
- PC-PT
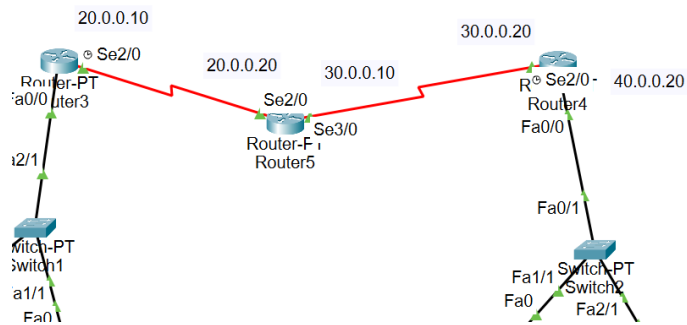
Command Prompt (bottom right)

Physical | Config | Desktop | Programming | Attributes

Command Prompt   X

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:
```

Top diagram labels:

20.0.0.10
Se2/0
Router-PT
Fa0/0 uter3
20.0.0.20
Se2/0
Router-F
Router5
Se3/0
30.0.0.10
30.0.0.20
R Se2/0 -
Router4
Fa0/0
40.0.0.20
2/1
Switch-PT
Switch1
Fa1/1
Fa0
Fa0/1
Fa1/1
Switch-PT
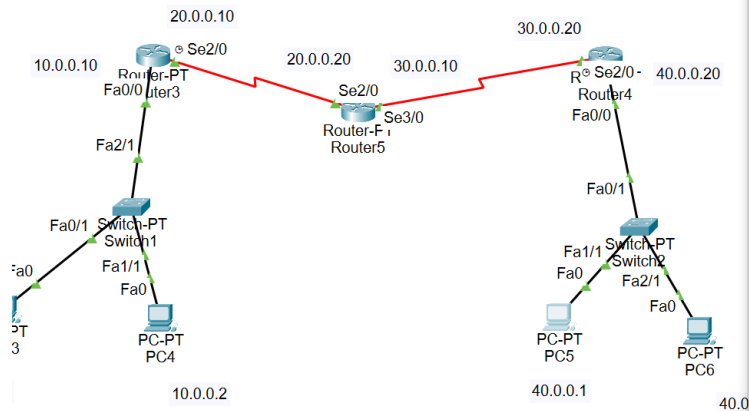Switch2
Fa0
Fa2/1

PC5 Command Prompt:

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.2: bytes=32 time=3ms TTL=125
```

Bottom diagram labels:

20.0.0.10
Se2/0
10.0.0.10
Router-PT
Fa0/0 uter3
20.0.0.20
Se2/0
Router-F
Router5
Se3/0
30.0.0.10
30.0.0.20
R Se2/0 -
Router4
Fa0/0
40.0.0.20
Fa2/1
Fa0/1 Switch-PT
Switch1
Fa0
Fa1/1
Fa0
PC-PT
PC4
10.0.0.2
Fa0/1
Fa1/1
Switch-PT
Switch2
Fa0
Fa2/1
Fa0
PC-PT
PC5
40.0.0.1
PC-PT
PC6
40.0
PT
3

PC5 Command Prompt:

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.2: bytes=32 time=3ms TTL=125
Reply from 10.0.0.2: bytes=32 time=2ms TTL=125
Reply from 10.0.0.2: bytes=32 time=2ms TTL=125

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1
(25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms

C:\>
```