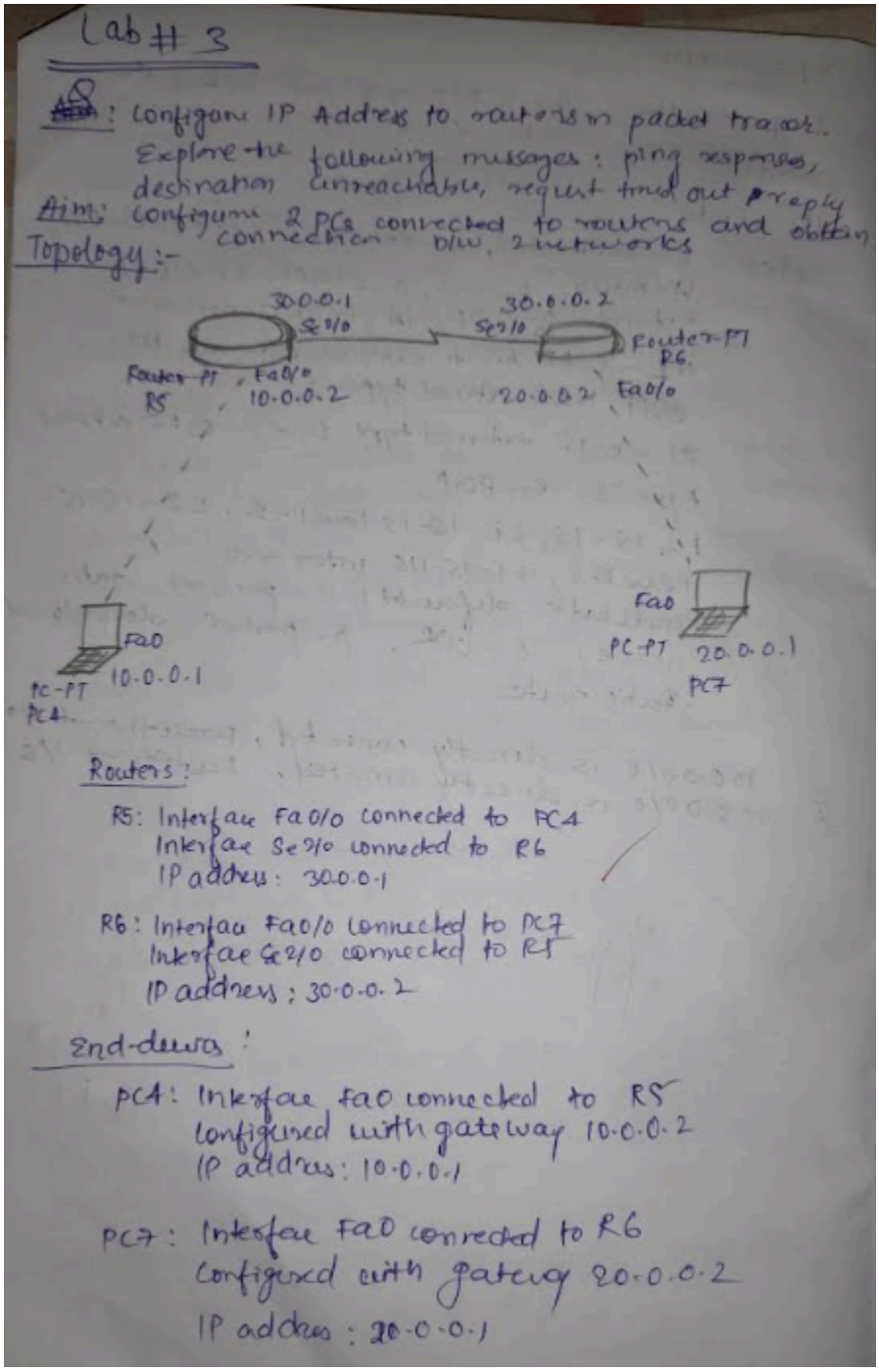
Observation Book:



Procedure :-

1. Place 2 Routers and 2 PCs. Connect the PC with Routers using cross-over connecting with fast ethernet and connect the routers to each other using serial connection
2. Configure PCs with respective IP address and gateway
3. Ensure connection between routers and PCs using the CLI of routers.
4. Ensure connection between routers by using CLI once more. Now upon checking configuration you'll be able to see the changes.
5. Try to ping one PC to another, but you get a message saying host unreachable/ request timed out (desired output).
6. Create IP route between the 2 networks

Observation :-

- There are 2 routers which are configured and correctly connected to the nodes. However, the nodes aren't able to communicate with each other.
- After establishing ip route between the 2 networks, ping between the 2 PCs is working.

Command Prompt: PC1

Before establishing ip route:

pinging 20.0.0.1 with 32 bytes of data:

Reply from 10.0.0.2 : destination host unreachable

After establishing ip route :

pinging 20.0.0.1 with 32 bytes of data:

Reply from 20.0.0.1 : bytes=32 time=5ms TTL=128

Command Prompt : PC7

⇒ Before establishing ip route:

pinging 10.0.0.1 with 32 bytes of data:

Reply from 20.0.0.2 : Destination host unreachable

⇒ After establishing ip route:

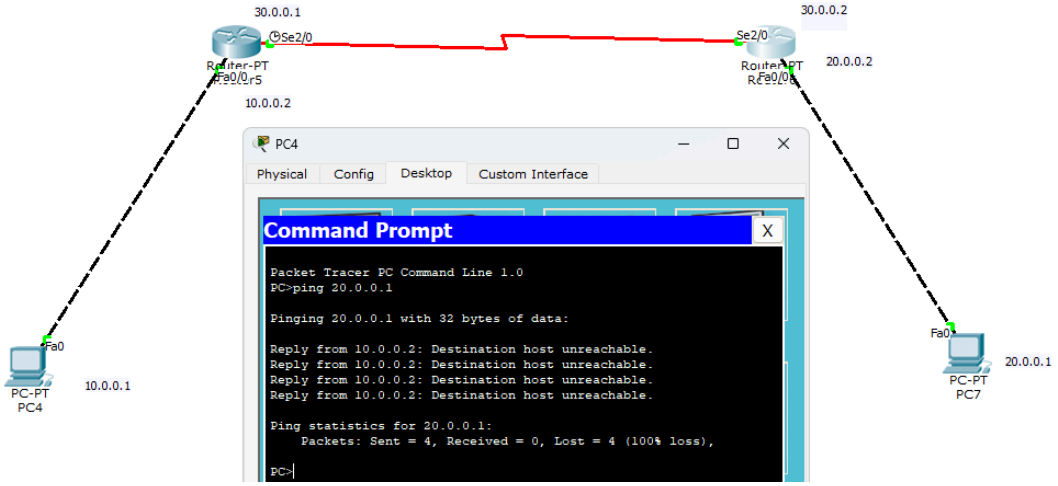
pinging 10.0.0.1 with 32 bytes of data:

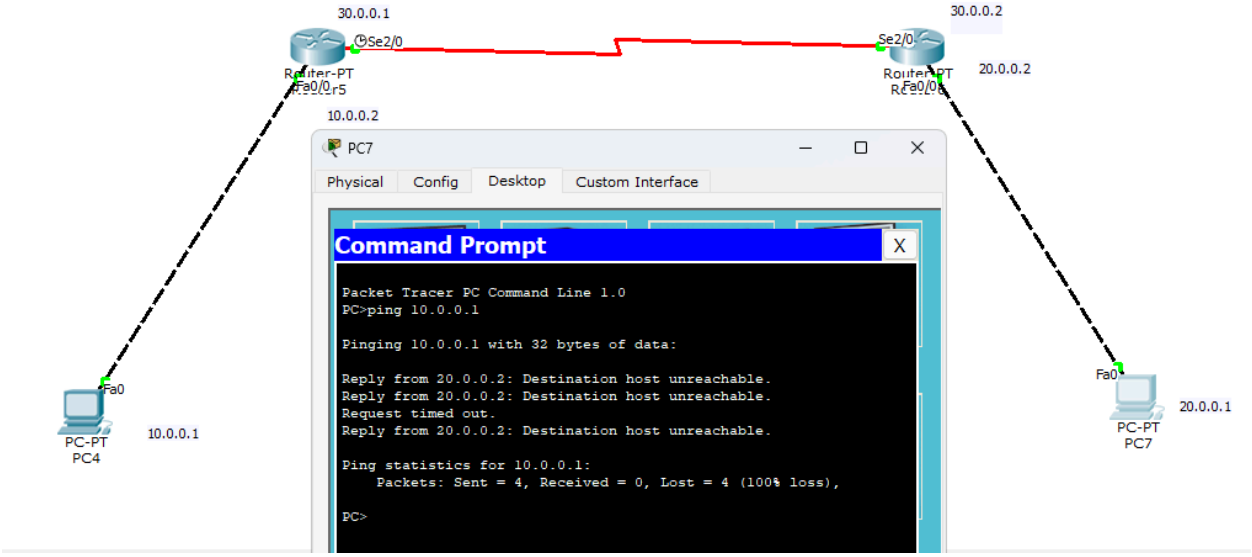
Reply from 10.0.0.1 : byte = 32 time = 3ms TTL = 128

N

192.10.24

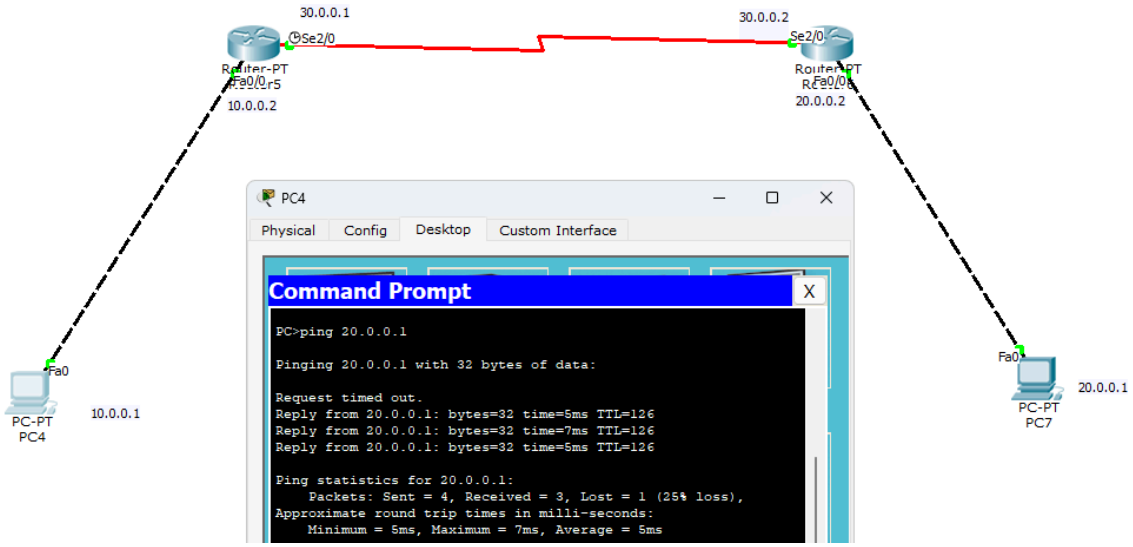
Screenshots:

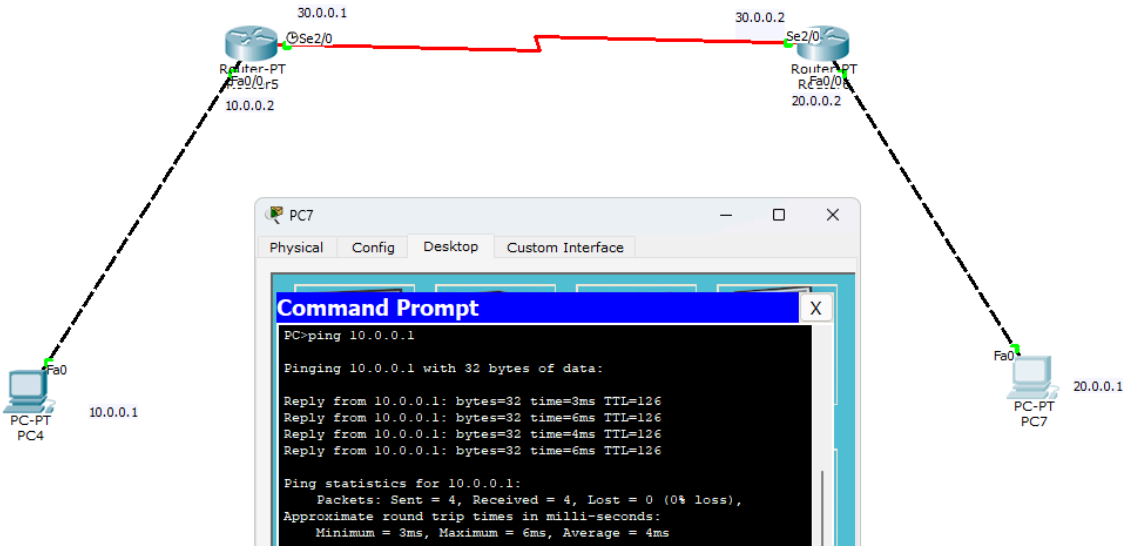




```
Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

C    10.0.0.0/8 is directly connected, FastEthernet0/0
S    20.0.0.0/8 [1/0] via 30.0.0.2
C    30.0.0.0/8 is directly connected, Serial2/0
Router#
```

```
Router(config)#ip route 10.0.0.0 255.0.0.0 30.0.0.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, 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

S    10.0.0.0/8 [1/0] via 30.0.0.1
C    20.0.0.0/8 is directly connected, FastEthernet0/0
C    30.0.0.0/8 is directly connected, Serial2/0
Router#
```


30.0.0.1
Se2/0
30.0.0.2
Se2/0
Router-PT
Fa0/0
r5
10.0.0.2
Router-PT
Fa0/0
20.0.0.2
PC4
Physical
Config
Desktop
Custom Interface
Command Prompt
X
PC>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.1: bytes=32 time=5ms TTL=126
Reply from 20.0.0.1: bytes=32 time=7ms TTL=126
Reply from 20.0.0.1: bytes=32 time=5ms TTL=126
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 5ms, Maximum = 7ms, Average = 5ms
Fa0
PC-PT
PC4
10.0.0.1
Fa0
PC-PT
PC7
20.0.0.1


30.0.0.1
Se2/0
30.0.0.2
Se2/0
Router-PT
Fa0/0
r5
10.0.0.2
Router-PT
Fa0/0
20.0.0.2
PC7
Physical
Config
Desktop
Custom Interface
Command Prompt
X
PC>ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=3ms TTL=126
Reply from 10.0.0.1: bytes=32 time=6ms TTL=126
Reply from 10.0.0.1: bytes=32 time=4ms TTL=126
Reply from 10.0.0.1: bytes=32 time=6ms TTL=126
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 3ms, Maximum = 6ms, Average = 4ms
Fa0
PC-PT
PC4
10.0.0.1
Fa0
PC-PT
PC7
20.0.0.1