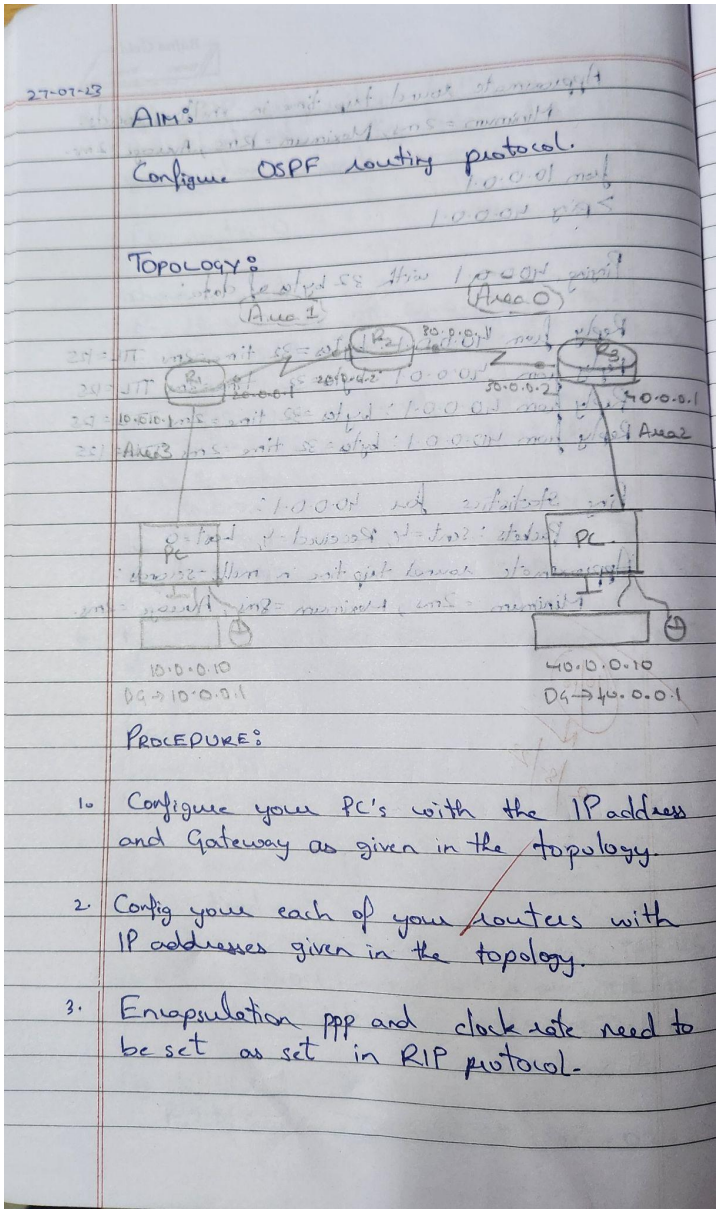
# EXPERIMENT 6

## AIM:

Configure OSPF routing protocol.

## OBSERVATION:



4. Now, enable IP routing by configuring ospf routing protocol in all routers.

In Router R1

```
R1(config)# router ospf 1
R1(config-router)# router-id 1.1.1.1
R1(config-router)# network 10.0.0.0 0.255.255.255 area 1
R1(config-router)# network 20.0.0.0 0.255.255.255 area 1
R1(config-router)# exit
```

In Router R2

```
R2(config)# router ospf 1
R2(config-router)# router-id 2.2.2.2
R2(config-router)# network 20.0.0.0 0.255.255.255 area 1
R2(config-router)# network 30.0.0.0 0.255.255.255 area 0
R2(config-router)# network exit
```

In Router R3

```
R3(config)# router ospf 1
R3(config-router)# router ospf 1
R3(config-router)# router-id 3.3.3.3
R3(config-router)# network 30.0.0.0 0.255.255.255 area 0
R3(config-router)# network 40.0.0.0 0.255.255.255 area 2
R3(config-router)# exit
```

R1 (config) # interface serial 2/0

4. R1 (config-if) # interface loopback 0
R1 (config-if) # ip add 172.16.1.252 255.255.0.0
R1 (config-if) # no shutdown.
R2 (config) # interface ~~3/0~~ serial 3/0
R2 (config-if) # interface loopback 0
R2 (config-if) # ip add 172.16.1.253 255.255.0.0
R2 (config-if) # no shutdown.
R3 (config) # interface serial 2/0
R3 (config-if) # interface loopback 0
R3 (config-if) # ip add 172.16.1.254 255.255.0.0
R3 (config-if) # no shutdown

5. Creating a virtual link.

In Router R1,
R1 (config) # router ospf 1
R1 (config-router) # area 1 virtual-link 2.2.2.2
R1 (config-router) #

In Router R2,

R2 (config) # router ospf 1
R2 (config-router) # area 1 virtual-link 1.1.1.1
R2 (config-router) # exit

Bafna Gold
Date: Page:

OUTPUT:

Router 0.

C 10.0.0.0/8 is directly connected, FastEthernet 0/0
20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 20.0.0.0/8 is directly connected, Serial 2/0
C 20.0.0.0/8 is directly connected, Serial 2/0
O 30.0.0.0/8 [110/129] via 20.0.0.2, 00:03:30, Serial 2/0
O IA 40.0.0.0/8 [110/129] via 20.0.0.2, 00:03:30, Serial 2/0
C 172.16.0.0/16 is directly connected, Loopback 0

PC 1 - 10.0.0.10

ping 40.0.0.10

pinging 40.0.0.10 with 32 bytes of data:

Reply from 40.0.0.10: bytes = 32 time = 8ms TTL = 125.
Reply from 40.0.0.10: bytes = 32 time = 2ms TTL = 125
Reply from 40.0.0.10: bytes = 32 time = 7ms TTL = 125
Reply from 40.0.0.10: bytes = 32 time = 13ms TTL = 125

Ping statistics for 40.0.0.10:
Packets: sent = 4, Received = 4, Lost = 0 (0% Loss)
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 13ms, Average = 7ms

PC2: 40.0.0.10

ping 10.0.0.10

pinging 10.0.0.10 with 32 bytes of data:

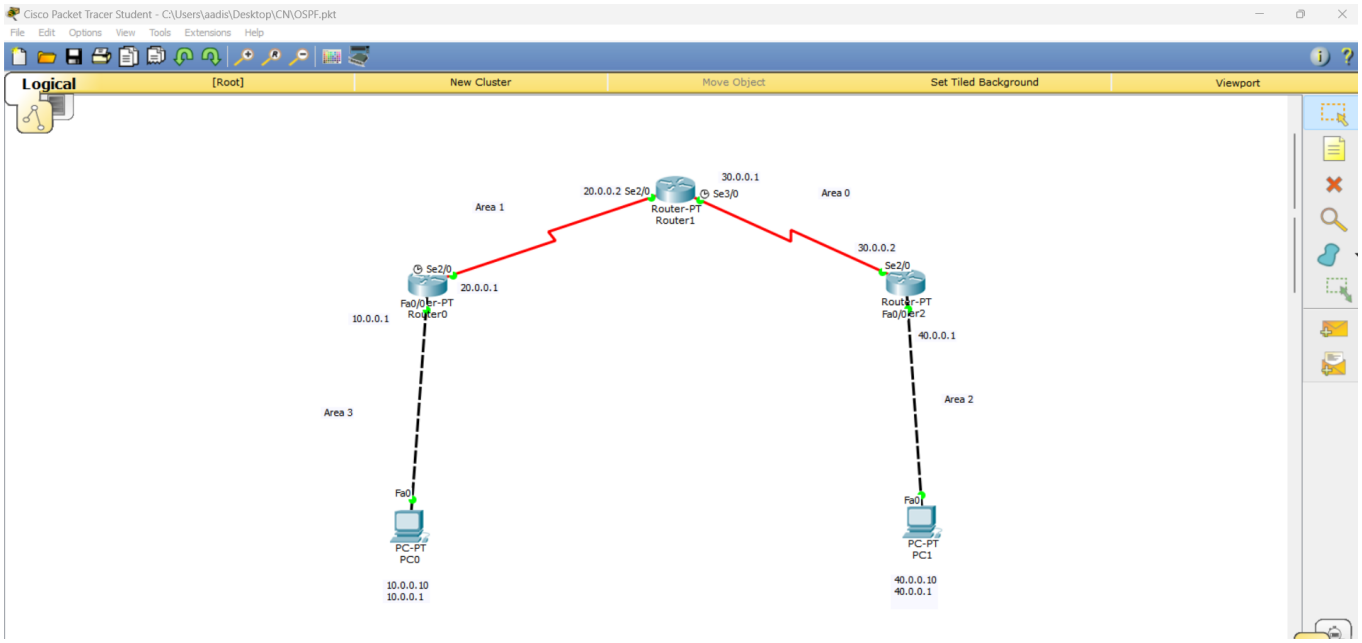
Reply from 10.0.0.10: bytes = 32 time = 9ms TTL = 125
Reply from 10.0.0.10: bytes = 32 time = 6ms TTL = 125
Reply from 10.0.0.10: bytes = 32 time = 16ms TTL = 125.
Reply from 10.0.0.10: bytes = 32 time = 2ms TTL = 125.

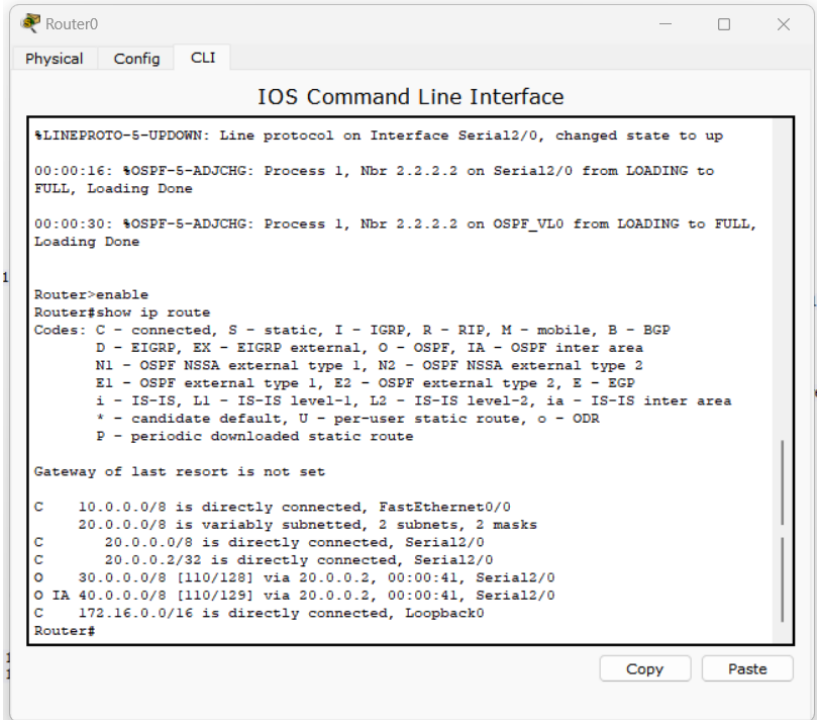
Ping statistics for 10.0.0.10:
Packets: Sent = 4, Received = 4, Lost to (0% Loss).
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 16ms, Average 8ms

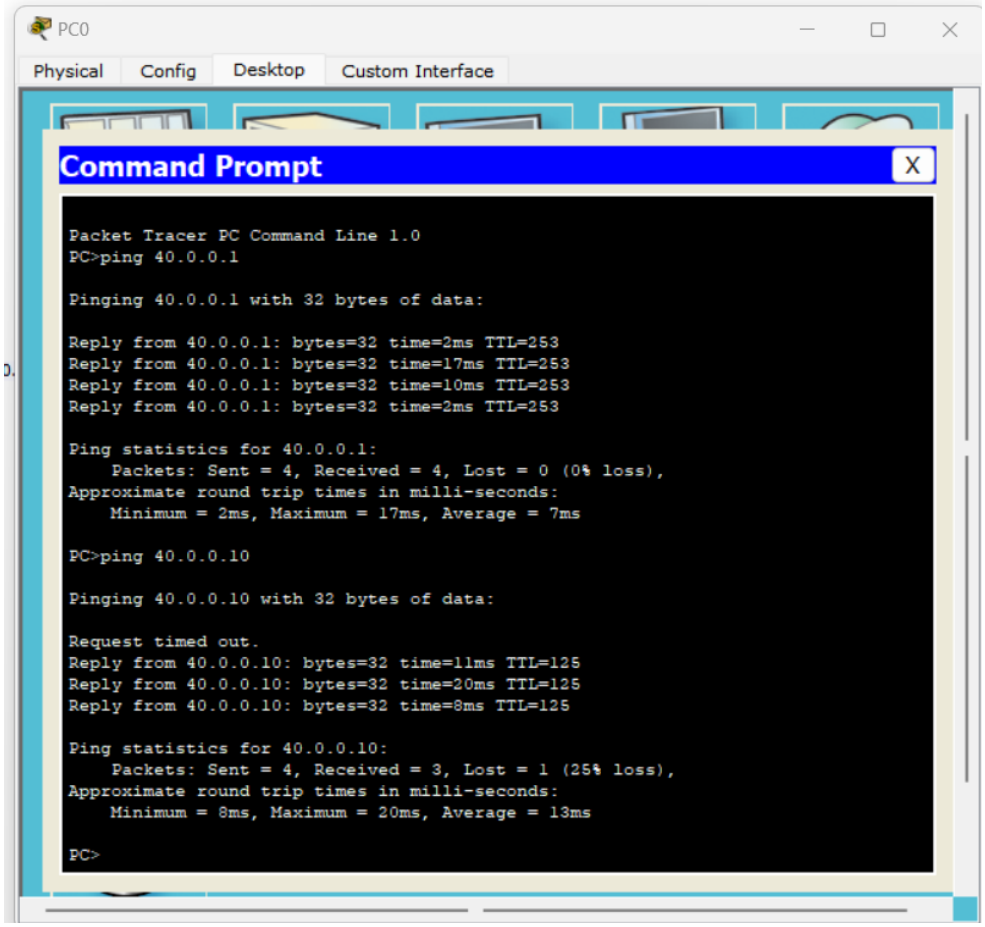
10/10

2/8/23

# Result:


Cisco Packet Tracer Student - C:\Users\aadis\Desktop\CN\OSPF.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
30.0.0.1
20.0.0.2 Se2/0
Se3/0
Area 0
Area 1
Router-PT
Router1
30.0.0.2
Se2/0
Se2/0
20.0.0.1
Router-PT
Router0
10.0.0.1
Router-PT
Router2
40.0.0.1
Area 2
Area 3
Fa0
Fa0
PC-PT
PC0
10.0.0.10
10.0.0.1
PC-PT
PC1
40.0.0.10
40.0.0.1


Router0
Physical
Config
CLI
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
00:00:16: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on Serial2/0 from LOADING to FULL, Loading Done
00:00:30: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on OSPF_VL0 from LOADING to FULL, Loading Done
Router>enable
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
20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 20.0.0.0/8 is directly connected, Serial2/0
C 20.0.0.2/32 is directly connected, Serial2/0
O 30.0.0.0/8 [110/128] via 20.0.0.2, 00:00:41, Serial2/0
O IA 40.0.0.0/8 [110/129] via 20.0.0.2, 00:00:41, Serial2/0
C 172.16.0.0/16 is directly connected, Loopback0
Router#
Copy
Paste


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Reply from 40.0.0.1: bytes=32 time=2ms TTL=253
Reply from 40.0.0.1: bytes=32 time=17ms TTL=253
Reply from 40.0.0.1: bytes=32 time=10ms TTL=253
Reply from 40.0.0.1: bytes=32 time=2ms TTL=253
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 17ms, Average = 7ms
PC>ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:
Request timed out.
Reply from 40.0.0.10: bytes=32 time=11ms TTL=125
Reply from 40.0.0.10: bytes=32 time=20ms TTL=125
Reply from 40.0.0.10: bytes=32 time=8ms TTL=125
Ping statistics for 40.0.0.10:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 8ms, Maximum = 20ms, Average = 13ms
PC>