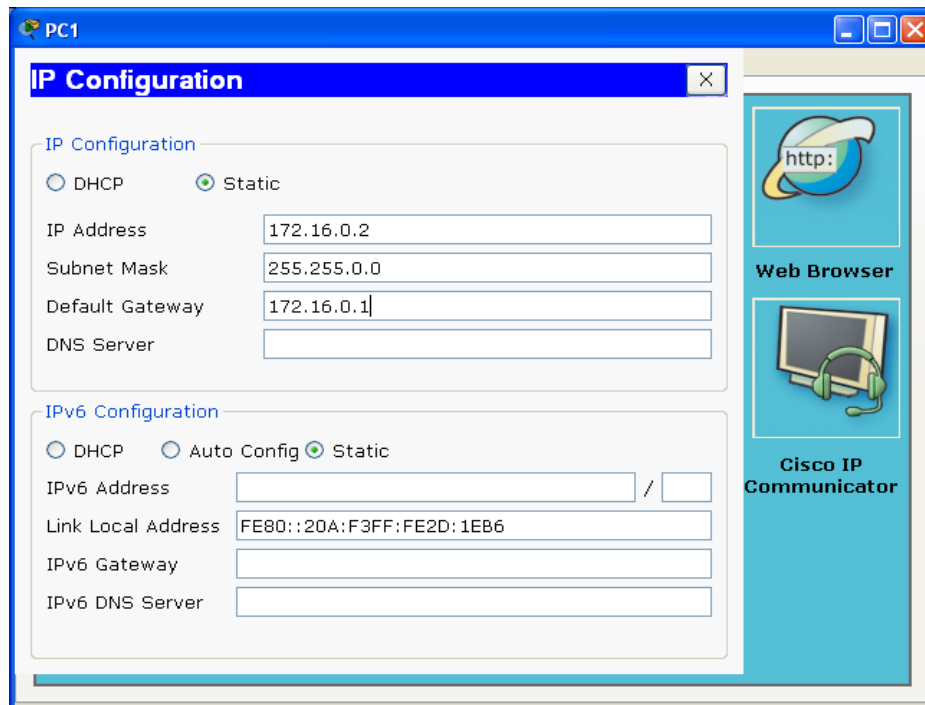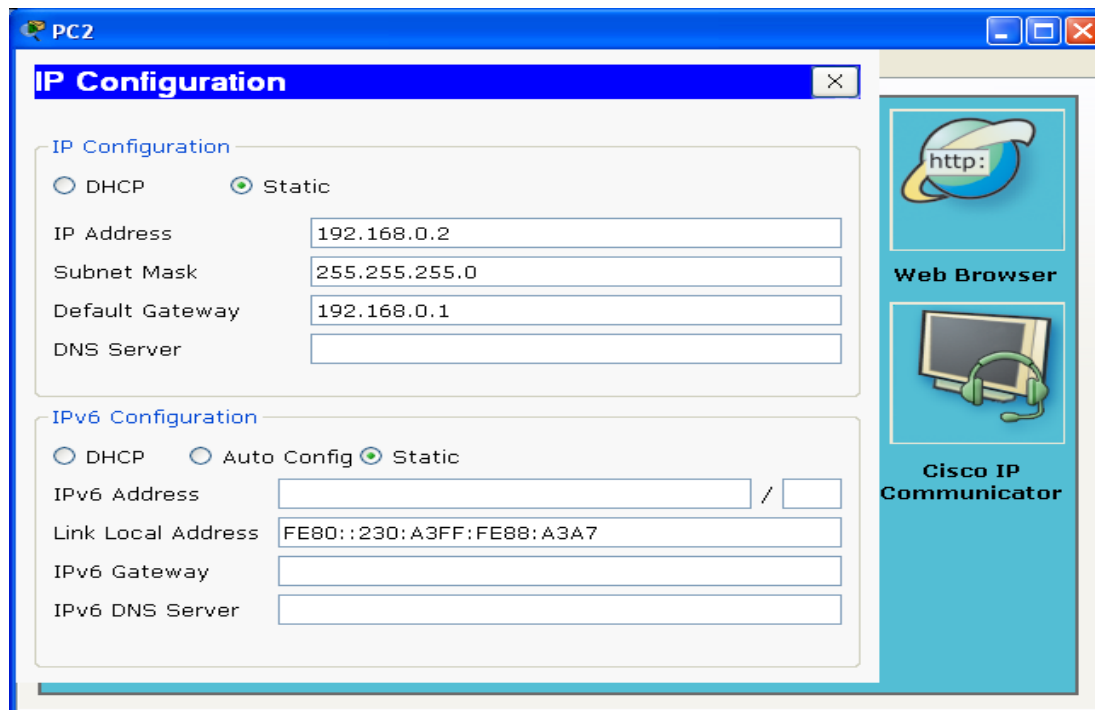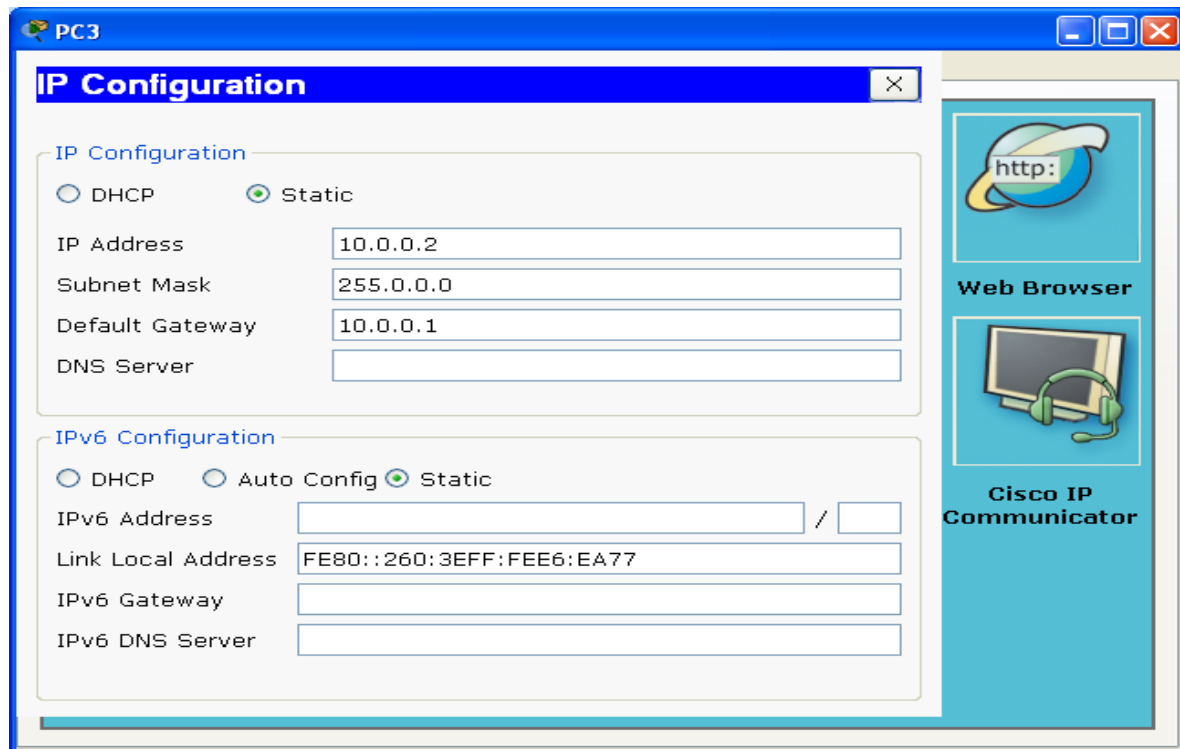## PRACTICAL NO 3
STATIC ROUTING

TOPOLOGY DIAGRAM:-
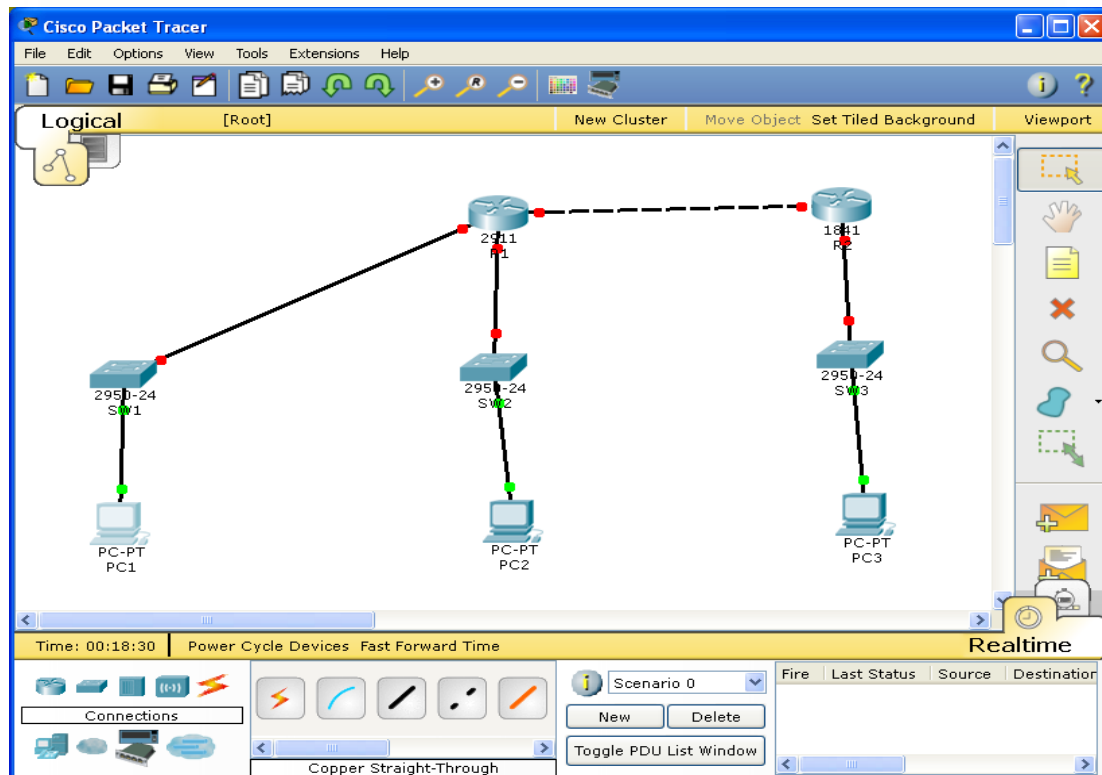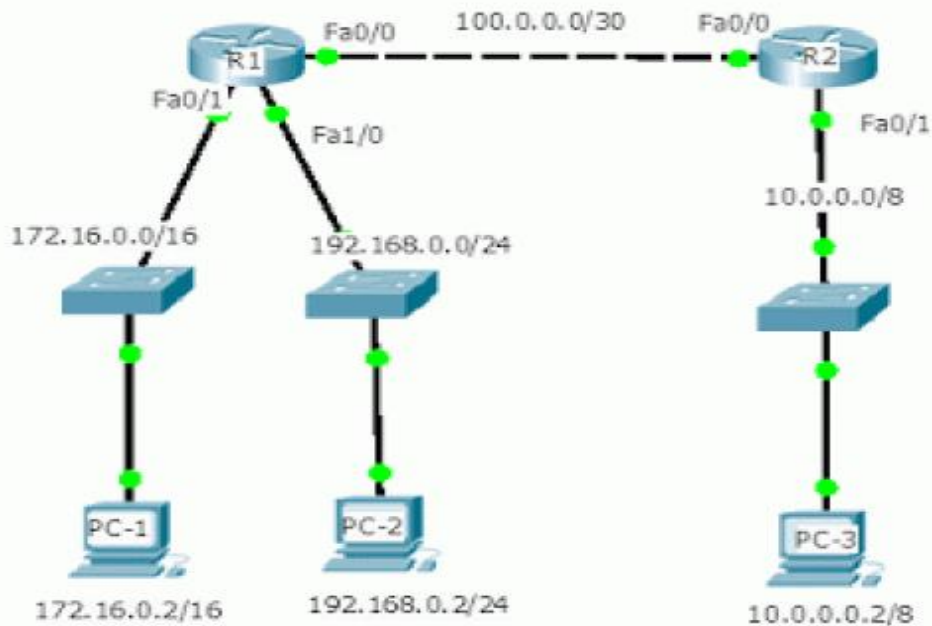
ASSIGNING IP ADDRESSES TO PC1:-

ASSIGNING IP ADDRESSES TO PC2:-

ASSIGNING IP ADDRESSES TO PC3:-

ASSIGNING IP ADDRESSES TO R1:-
Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 100.0.0.1 255.255.255.252
R1(config-if)#no shut
R1(config)#interface GigabitEthernet0/1
R1(config-if)#ip address 172.16.0.1 255.255.0.0
R1(config-if)#no shut
R1(config)#interface GigabitEthernet0/2
R1(config-if)#ip address 192.168.0.1 255.255.255.0
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

ASSIGNING IP ADDRESSES TO R2:-

Router>en
Router#conf t
Router(config)#host R2
R2(config)#interface GigabitEthernet0/0
R2(config-if)#ip address 100.0.0.2 255.255.255.252
R2(config-if)#no shut
R2(config)#interface GigabitEthernet0/1
R2(config-if)#ip address 10.0.0.1 255.0.0.0
R2(config-if)#no shut
R2(config-if)#^Z
R2#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-

R1>show ip interface brief

Interface	IP-Address	OK?	Method Status	Protocol
GigabitEthernet0/0	100.0.0.1	YES	manual up	up
GigabitEthernet0/1	172.16.0.1	YES	manual up	up
GigabitEthernet0/2	192.168.0.1	YES	manual up	up
Vlan1	unassigned	YES	unset administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R2:-

R2>show ip interface brief

Interface	IP-Address	OK?	Method Status	Protocol
GigabitEthernet0/0	100.0.0.2	YES	manual up	up
GigabitEthernet0/1	10.0.0.1	YES	manual up	up
Vlan1	unassigned	YES	unset administratively down	down

CONFIGURING STATIC ROUTING ON R1:-

R1>en
R1#conf t
R1(config)#ip route 10.0.0.0 255.0.0.0 100.0.0.2
R1(config)#^Z
R1#exit

CONFIGURING STATIC ROUTING ON R2:-

R2>en

R2#conf t

R2(config)#ip route 172.16.0.0 255.255.0.0 100.0.0.1

R2(config)#ip route 192.168.0.0 255.255.255.0 100.0.0.1

R2(config)#^Z

R2#exit

DISPLAYING ROUTING TABLE OF R1:-

R1>show 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

S   10.0.0.0/8 [1/0] via 100.0.0.2

    100.0.0.0/8 is variably subnetted, 2 subnets, 2 masks

C   100.0.0.0/30 is directly connected, GigabitEthernet0/0

L   100.0.0.1/32 is directly connected, GigabitEthernet0/0

    172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

C   172.16.0.0/16 is directly connected, GigabitEthernet0/1

L   172.16.0.1/32 is directly connected, GigabitEthernet0/1

    192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks

C   192.168.0.0/24 is directly connected, GigabitEthernet0/2

L   192.168.0.1/32 is directly connected, GigabitEthernet0/2

DISPLAYING ROUTING TABLE OF R2:-

R2>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

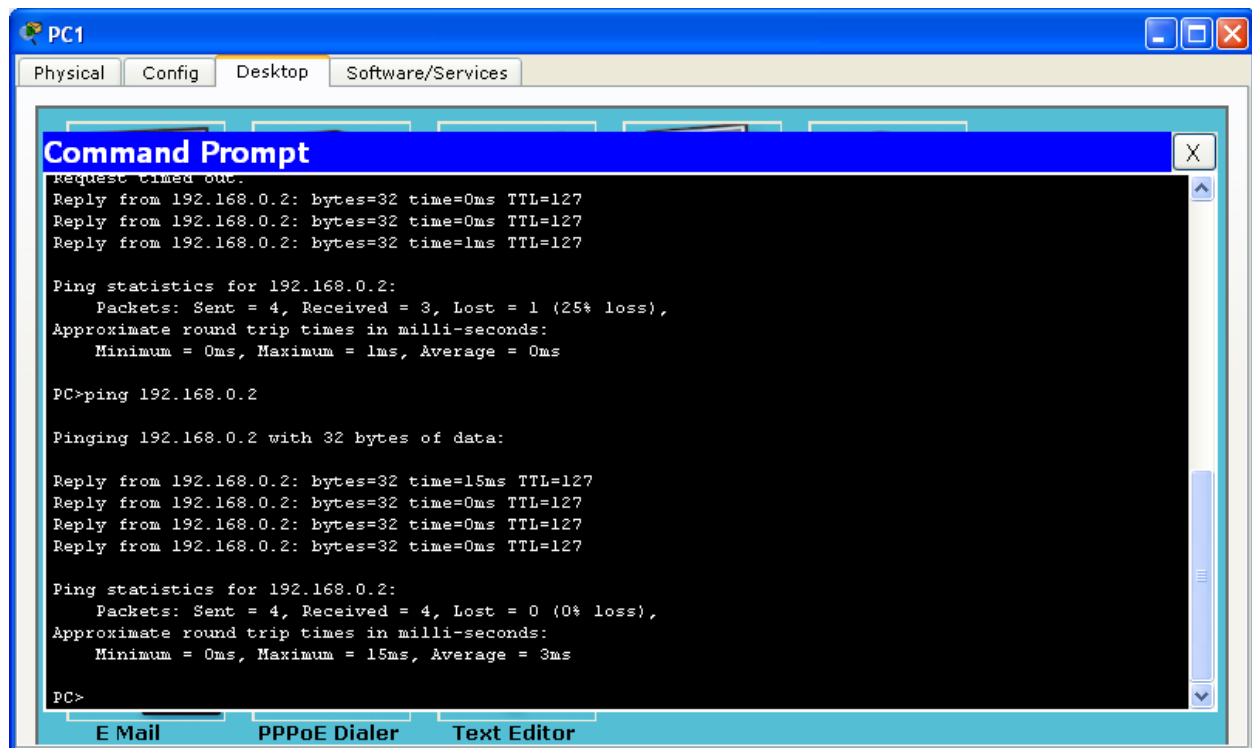C   10.0.0.0/8 is directly connected, GigabitEthernet0/1
     100.0.0.0/30 is subnetted, 1 subnets
C   100.0.0.0 is directly connected, GigabitEthernet0/0
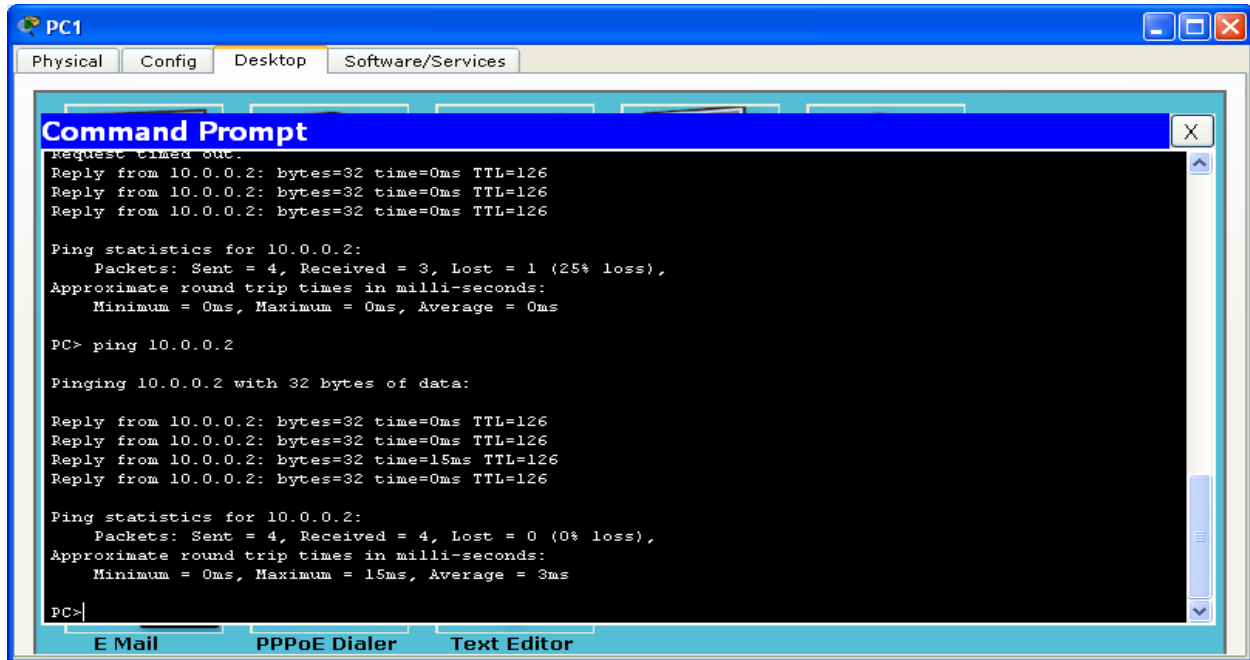S   172.16.0.0/16 [1/0] via 100.0.0.1
S   192.168.0.0/24 [1/0] via 100.0.0.1

PINGING PC2 FROM PC1:-

PINGING PC3 FROM PC1:-

```
PC1                                                          _ □ X
Physical    Config    Desktop    Software/Services

Command Prompt                                                  X
Request timed out.
Reply from 10.0.0.2: bytes=32 time=0ms TTL=126
Reply from 10.0.0.2: bytes=32 time=0ms TTL=126
Reply from 10.0.0.2: bytes=32 time=0ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC> ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=0ms TTL=126
Reply from 10.0.0.2: bytes=32 time=0ms TTL=126
Reply from 10.0.0.2: bytes=32 time=15ms TTL=126
Reply from 10.0.0.2: bytes=32 time=0ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 15ms, Average = 3ms

PC>

    E Mail        PPPoE Dialer      Text Editor
```
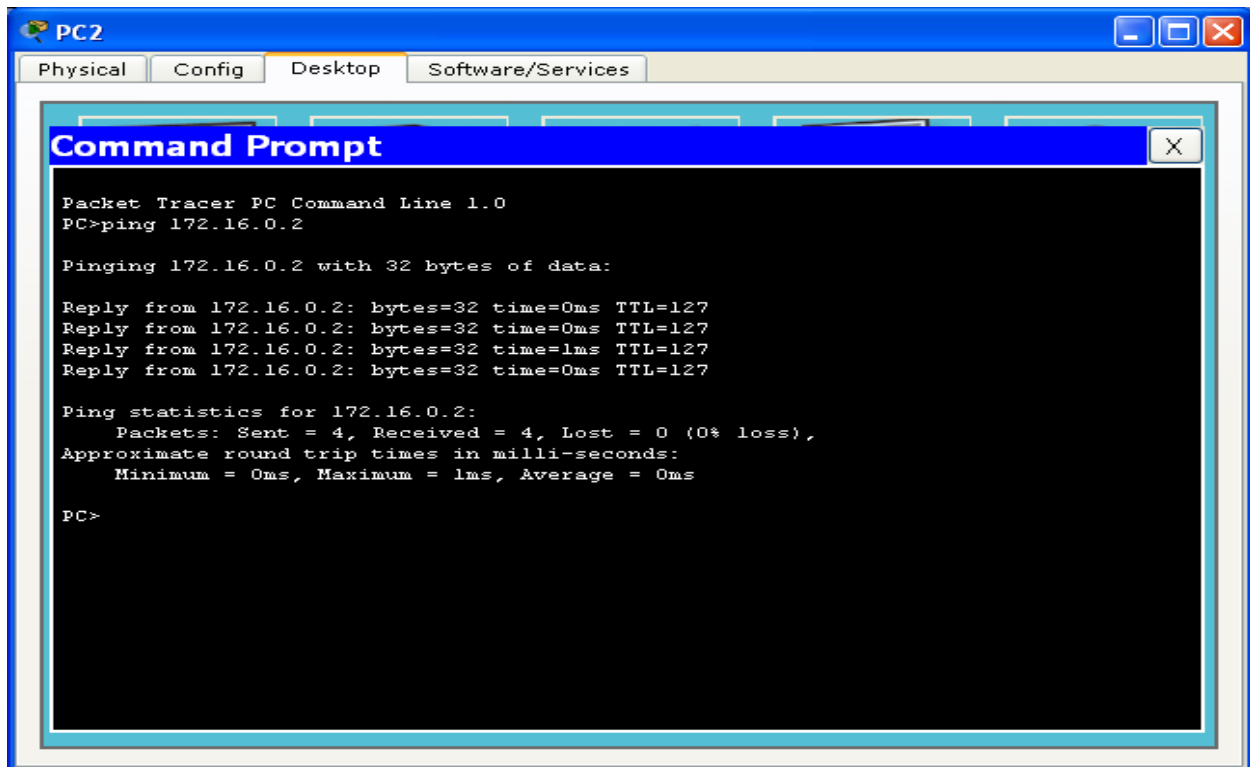
PINGING PC1 FROM PC2:-
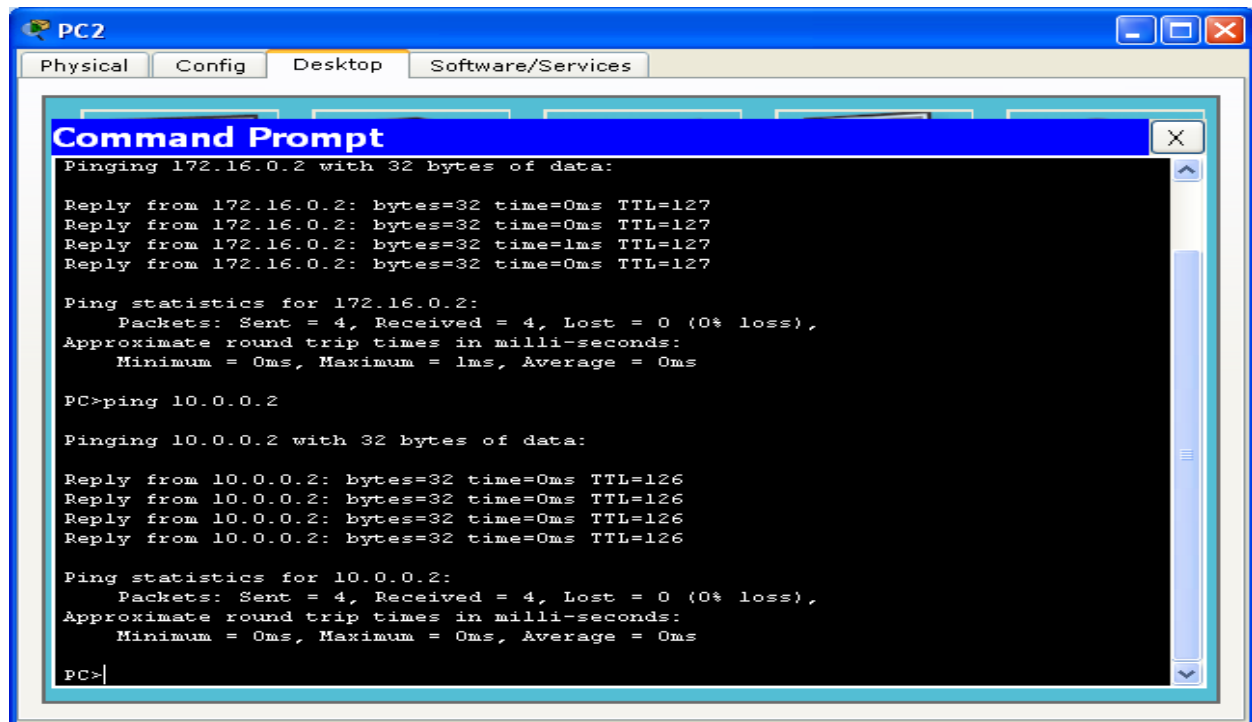
```
PC2                                                          _ □ X
Physical    Config    Desktop    Software/Services

Command Prompt                                                  X

Packet Tracer PC Command Line 1.0
PC>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time=0ms TTL=127
Reply from 172.16.0.2: bytes=32 time=0ms TTL=127
Reply from 172.16.0.2: bytes=32 time=1ms TTL=127
Reply from 172.16.0.2: bytes=32 time=0ms TTL=127

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```

PINGING PC3 FROM PC2:-

PINGING PC1 FROM PC3:-

PINGING PC2 FROM PC3:-

```
PC3                                                    _ □ X
Physical   Config   Desktop   Software/Services

Command Prompt                                              X
Reply from 172.16.0.2: bytes=32 time=0ms TTL=126
Reply from 172.16.0.2: bytes=32 time=0ms TTL=126
Reply from 172.16.0.2: bytes=32 time=0ms TTL=126

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>ing 192.168.0.2
Invalid Command.

PC>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=16ms TTL=126
Reply from 192.168.0.2: bytes=32 time=0ms TTL=126
Reply from 192.168.0.2: bytes=32 time=15ms TTL=126
Reply from 192.168.0.2: bytes=32 time=0ms TTL=126

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 16ms, Average = 7ms

PC>
```
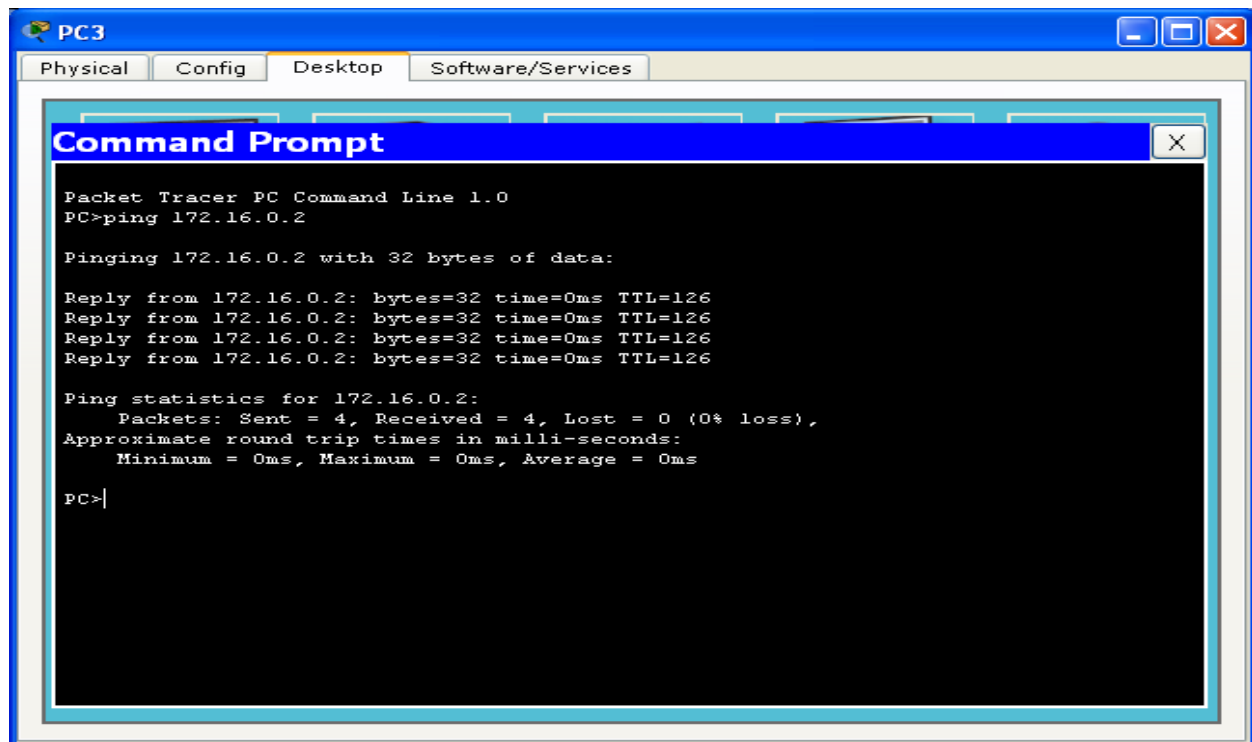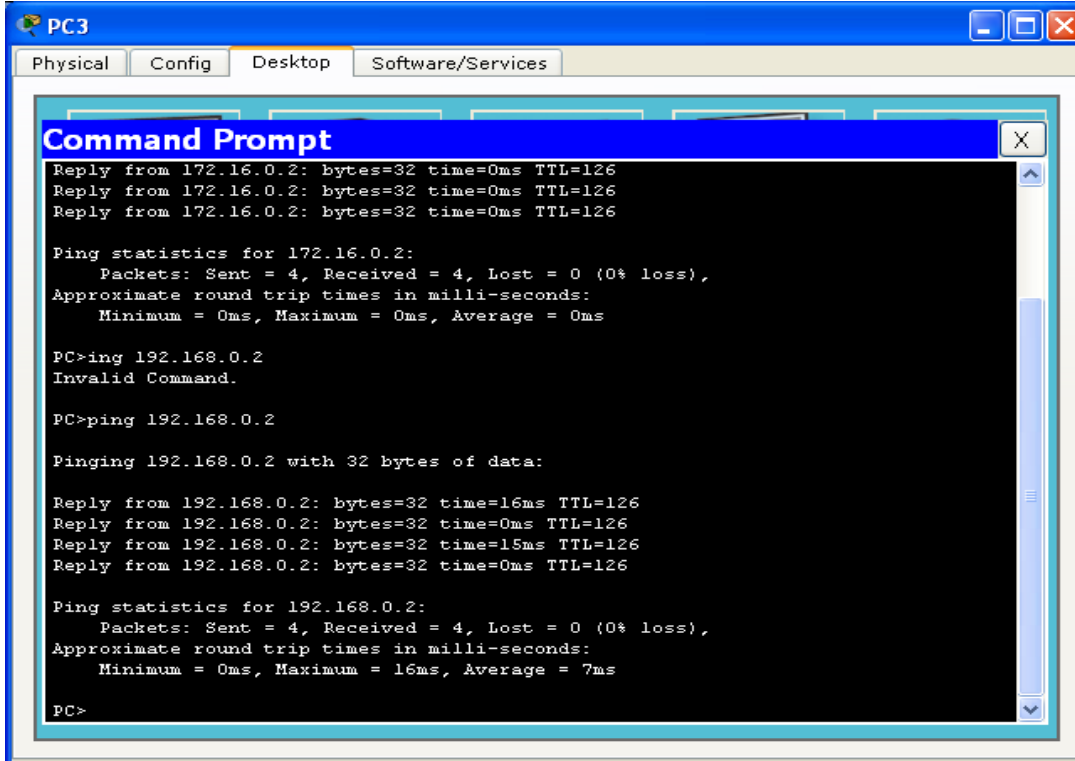
_____

PRACTICAL NO 4
RIP

TOPOLOGY DIAGRAM:-

ASSIGNING IP ADDRESSES TO PC1:-

PC1

IP Configuration   X

IP Configuration

○ DHCP   ◉ Static

IP Address	10.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	10.0.0.1
DNS Server	

IPv6 Configuration

○ DHCP   ○ Auto Config ◉ Static

IPv6 Address		/
Link Local Address	FE80::250:FFF:FEBC:E427	
IPv6 Gateway		
IPv6 DNS Server		

Web Browser

Cisco IP Communicator

ASSIGNING IP ADDRESSES TO PC2:-

PC2

IP Configuration   X

IP Configuration

○ DHCP   ◉ Static

IP Address	30.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	30.0.0.1
DNS Server	

IPv6 Configuration

○ DHCP   ○ Auto Config ◉ Static

IPv6 Address		/
Link Local Address	FE80::2E0:F9FF:FE19:E873	
IPv6 Gateway		
IPv6 DNS Server		

Web Browser

Cisco IP Communicator

ASSIGNING IP ADDRESSES TO R1:-
Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config)#interface Serial0/0/0
R1(config-if)#ip address 20.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

ASSIGNING IP ADDRESSES TO R2:-
Router>en
Router#conf t
Router(config)#host R2
R2(config)#interface GigabitEthernet0/0
R2(config-if)#ip address 30.0.0.1 255.0.0.0
R2(config-if)#no shut
R2(config)#interface Serial0/0/0
R2(config-if)#ip address 20.0.0.2 255.0.0.0
R2(config-if)#no shut
R2(config-if)#^Z
R2#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-
R1>show ip interface brief

Interface	IP-Address	OK? Method Status	Protocol
GigabitEthernet0/0	10.0.0.1	YES manual up	up
GigabitEthernet0/1	unassigned	YES unset administratively down	down
Serial0/0/0	20.0.0.1	YES manual up	up
Serial0/0/1	unassigned	YES unset administratively down	down
Vlan1	unassigned	YES unset administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R2:-
R2>show ip interface brief

Interface	IP-Address	OK? Method Status	Protocol
GigabitEthernet0/0	30.0.0.1	YES manual up	up

GigabitEthernet0/1   unassigned   YES unset administratively down down
Serial0/0/0   20.0.0.2   YES manual up   up
Serial0/0/1   unassigned   YES unset administratively down down
Vlan1   unassigned   YES unset administratively down down

CONFIGURING RIP ON R1:-
R1>en
R1#conf t
R1(config)#router rip
R1(config-router)#network 10.0.0.0
R1(config-router)#network 20.0.0.0
R1(config-router)#^Z
R1#exit

CONFIGURING RIP ON R2:-
R2>en
R2#conf t
R2(config)#router rip
R2(config-router)#network 20.0.0.0
R2(config-router)#network 30.0.0.0
R2(config-router)#^Z
R2#exit

DISPLAYING ROUTING TABLE OF R1:-
R1>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, GigabitEthernet0/0
C   20.0.0.0/8 is directly connected, Serial0/0/0
R   30.0.0.0/8 [120/1] via 20.0.0.2, 00:00:18, Serial0/0/0

DISPLAYING ROUTING TABLE OF R2:-

R2>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
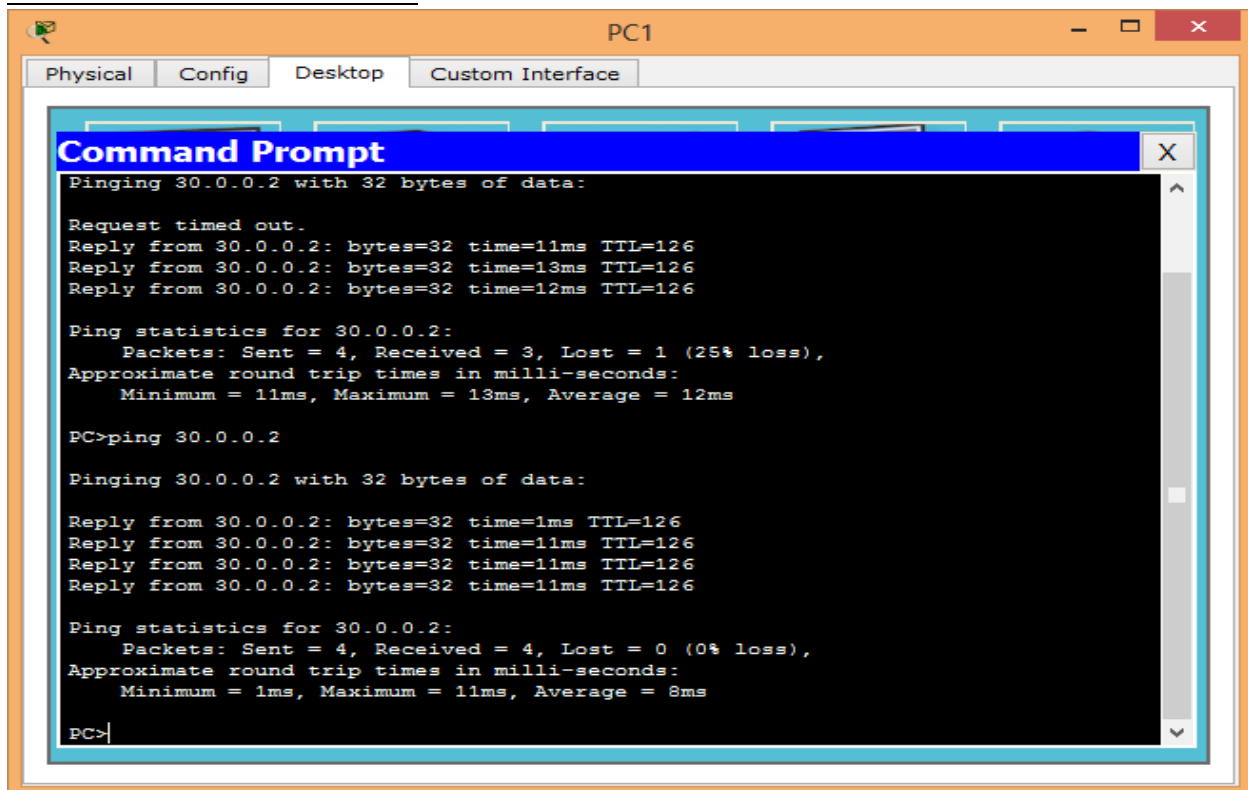
Gateway of last resort is not set

R   10.0.0.0/8 [120/1] via 20.0.0.1, 00:00:13, Serial0/0/0
C   20.0.0.0/8 is directly connected, Serial0/0/0
C   30.0.0.0/8 is directly connected, GigabitEthernet0/0

PINGING PC2 FROM PC1:-

PINGING PC1 FROM PC2:-


```
Command Prompt                                                    X

Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=5ms TTL=126
Reply from 10.0.0.2: bytes=32 time=1ms TTL=126
Reply from 10.0.0.2: bytes=32 time=11ms TTL=126
Reply from 10.0.0.2: bytes=32 time=1ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 11ms, Average = 4ms

PC>
```

PRACTICAL NO 5(A)
OSPF

TOPOLOGY DIAGRAM:-
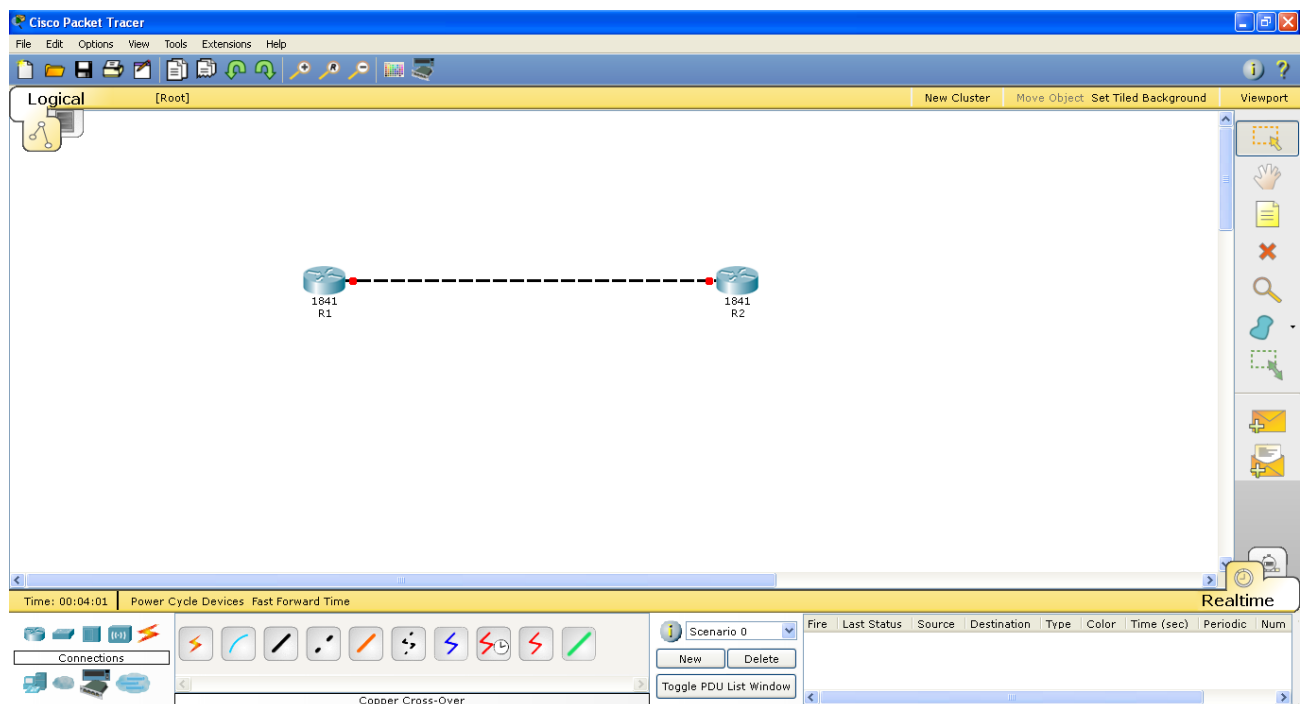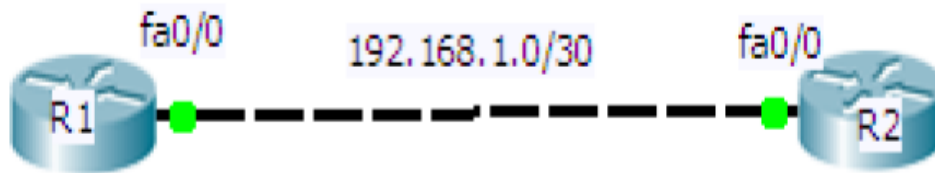
ASSIGNING IP ADDRESSES TO R1:-
Router>en
Router#conf t
Router(config)#host R1
R1(config)#ip address 192.168.1.1 255.255.255.252
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.252
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

ASSIGNING IP ADDRESSES TO R2:-

Router>en
Router#conf t
Router(config)#host R2
R2(config)#interface GigabitEthernet0/0
R2(config-if)#ip address 192.168.1.2 255.255.255.252
R2(config-if)#no shut
R2(config-if)#^Z
R2#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-

R1>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.1.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R2:-

R2>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.1.2	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

CONFIGURING OSPF ON R1:-

R1>en
R1#conf t
R1(config)#router ospf 1
R1(config-router)#network 192.168.1.0 0.0.0.3 area 0
R1(config-router)#^Z
R1#exit

CONFIGURING OSPF ON R2:-

R2>en
R2#conf t
R2(config)#router ospf 1
R2(config-router)#network 192.168.1.0 0.0.0.3 area 0
R2(config-router)#^Z
R2#exit

DISPLAYING OSPF DETAILS OF R1:-

R1>show ipospf interface GigabitEthernet0/0

GigabitEthernet0/0 is up, line protocol is up

  Internet address is 192.168.1.1/30, Area 0

  Process ID 1, Router ID 192.168.1.1, Network Type BROADCAST, Cost: 1

  Transmit Delay is 1 sec, State DR, Priority 1

  Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

  Backup Designated Router (ID) 192.168.1.2, Interface address 192.168.1.2

  Timer intervals configured, **Hello 10, Dead 40**, Wait 40, Retransmit 5

    Hello due in 00:00:08

  Index 1/1, flood queue length 0

  Next 0x0(0)/0x0(0)

  Last flood scan length is 1, maximum is 1

  Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacentneighbor count is 1

    Adjacent with neighbor192.168.1.2 (Backup Designated Router)

  Suppress hello for 0 neighbor(s)

DISPLAYING OSPF DETAILS OF R2:-

R2>show ipospf interface GigabitEthernet0/0

GigabitEthernet0/0 is up, line protocol is up

  Internet address is 192.168.1.2/30, Area 0

  Process ID 1, Router ID 192.168.1.2, Network Type BROADCAST, Cost: 1

  Transmit Delay is 1 sec, State BDR, Priority 1

  Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

  Backup Designated Router (ID) 192.168.1.2, Interface address 192.168.1.2

  Timer intervals configured, **Hello 10, Dead 40**, Wait 40, Retransmit 5

    Hello due in 00:00:05

  Index 1/1, flood queue length 0

  Next 0x0(0)/0x0(0)

  Last flood scan length is 1, maximum is 1

  Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacentneighbor count is 1

    Adjacent with neighbor192.168.1.1 (Designated Router)

  Suppress hello for 0 neighbor(s)

CHANGING THE HELLO AND DEAD INTERVAL OF R1:-

R1>en

R1#conf t

R1(config)#interface GigabitEthernet0/0

R1(config-if)#ipospf hello-interval 20

R1(config-if)#ipospf dead-interval 80

R1(config-if)#^Z

R1#exit

CHANGING THE HELLO AND DEAD INTERVAL OF R2:-

R2>en

R2#conf t

R2(config)#interface GigabitEthernet0/0

R2(config-if)#ipospf hello-interval 20

R2(config-if)#ipospf dead-interval 80

R2(config-if)#^Z

R2#exit

DISPLAYING OSPF DETAILS OF R1 AFTER CHANGING HELLO AND DEAD INTERVAL:-

R1>show ipospfint fa0/0

GigabitEthernet0/0 is up, line protocol is up

  Internet address is 192.168.1.1/30, Area 0

  Process ID 1, Router ID 192.168.1.1, Network Type BROADCAST, Cost: 1

  Transmit Delay is 1 sec, State BDR, Priority 1

  Designated Router (ID) 192.168.1.2, Interface address 192.168.1.2

  Backup Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

  Timer intervals configured, **Hello 20, Dead 80**, Wait 80, Retransmit 5

   Hello due in 00:00:15

  Index 1/1, flood queue length 0

  Next 0x0(0)/0x0(0)

  Last flood scan length is 1, maximum is 1

  Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacentneighbor count is 1

  Adjacent with neighbor192.168.1.2 (Designated Router)

  Suppress hello for 0 neighbor(s)

DISPLAYING OSPF DETAILS OF R2 AFTER CHANGING HELLO AND DEAD INTERVAL:-

R2>show ipospfint fa0/0

GigabitEthernet0/0 is up, line protocol is up

  Internet address is 192.168.1.2/30, Area 0

  Process ID 1, Router ID 192.168.1.2, Network Type BROADCAST, Cost: 1

  Transmit Delay is 1 sec, State DR, Priority 1

  Designated Router (ID) 192.168.1.2, Interface address 192.168.1.2

  Backup Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

  Timer intervals configured, **Hello 20, Dead 80**, Wait 80, Retransmit 5

    Hello due in 00:00:16

  Index 1/1, flood queue length 0

  Next 0x0(0)/0x0(0)

  Last flood scan length is 1, maximum is 1

  Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacentneighbor count is 1

    Adjacent with neighbor192.168.1.1 (Backup Designated Router)

  Suppress hello for 0 neighbor(s)

DISPLAYING OSPF NEIGHBOURS OF R1:-

R1>show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.1.2	1	FULL/DR	00:01:05	192.168.1.2	GigabitEthernet0/0

DISPLAYING OSPF NEIGHBOURS OF R2:-

R2>show ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.1.1	1	FULL/BDR	00:01:00	192.168.1.1	GigabitEthernet0/0

PRACTICAL NO 5(B)

TOPOLOGY DIAGRAM:-
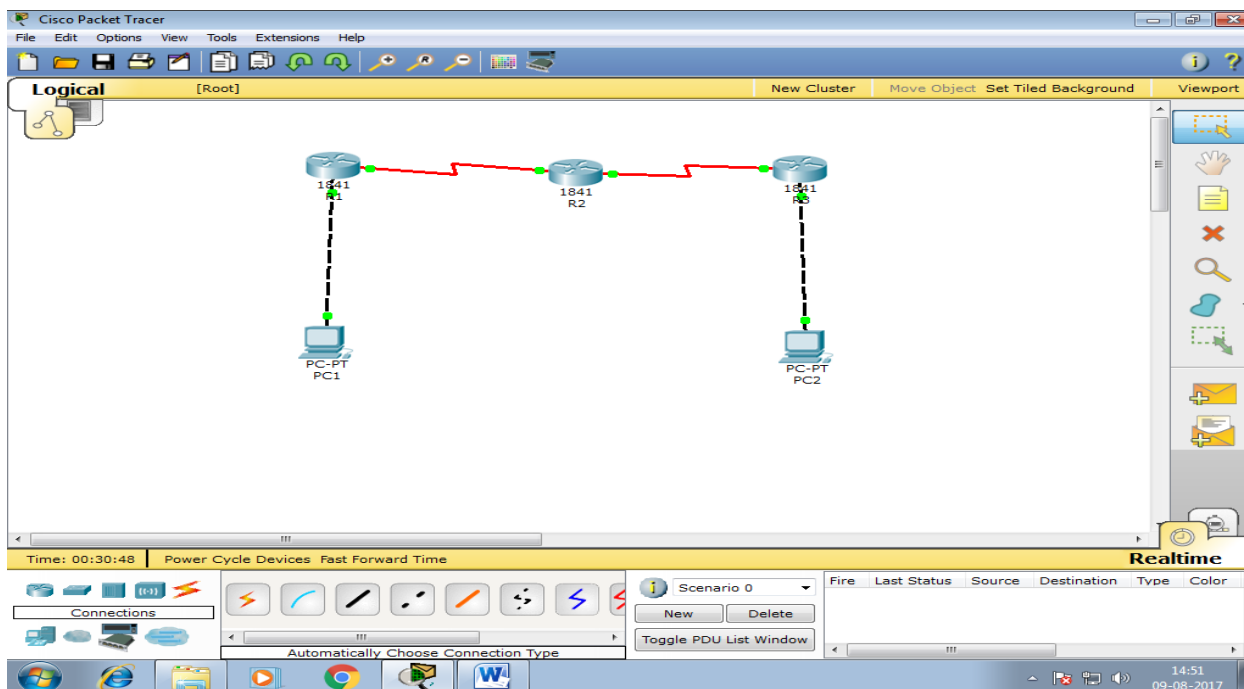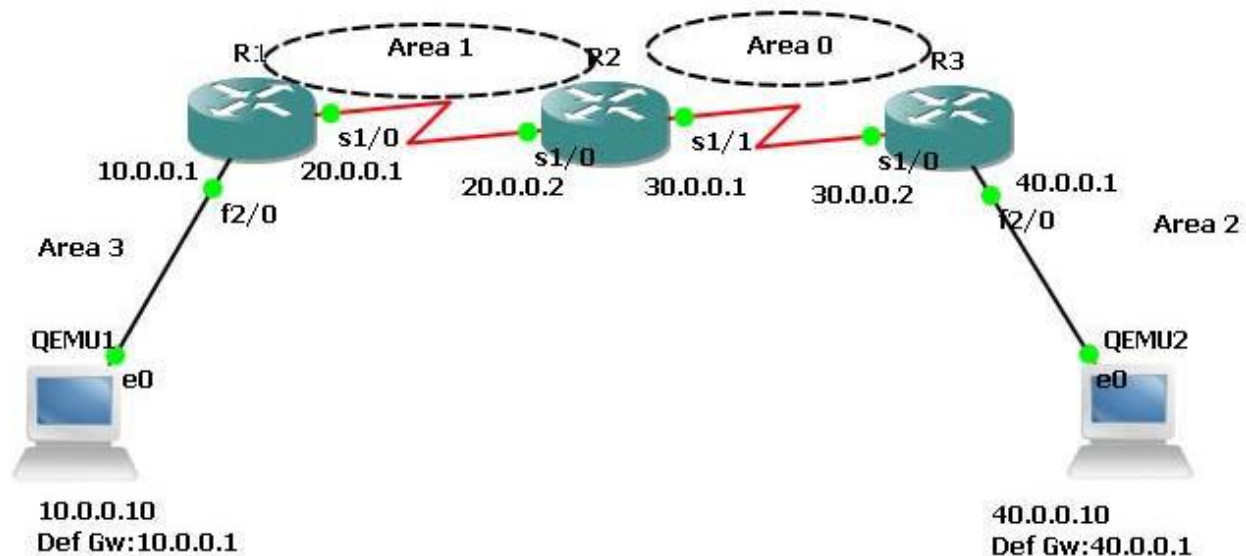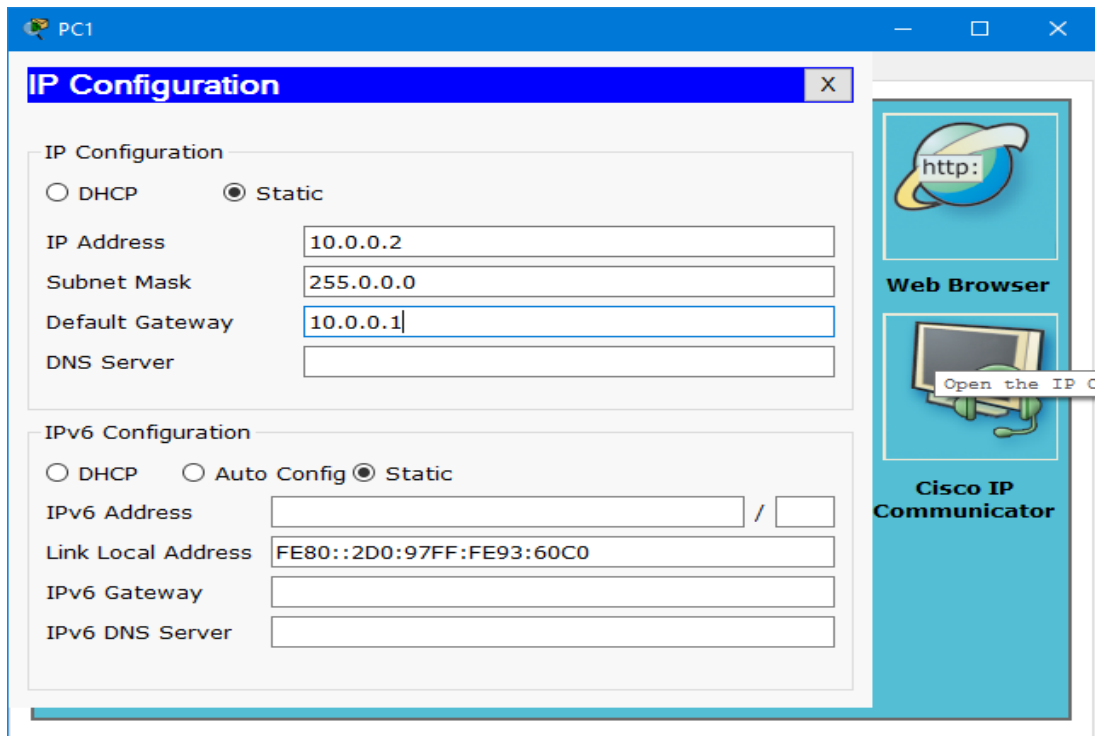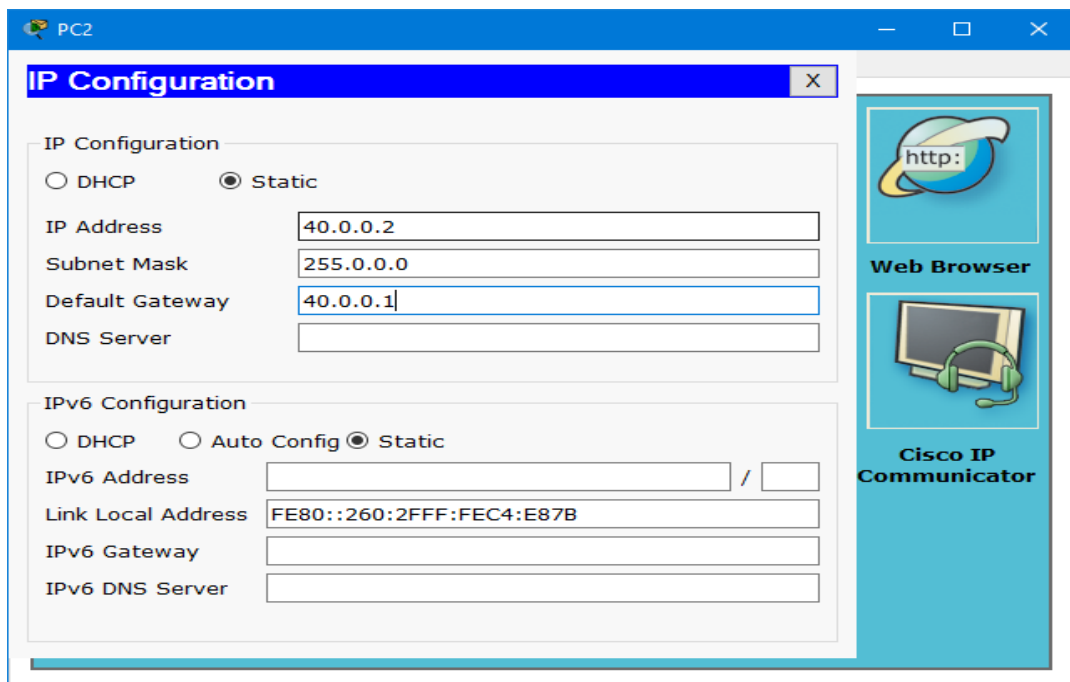
ASSIGNING IP ADDRESSES TO PC1:-

ASSIGNING IP ADDRESSES TO PC2:-

ASSIGNING IP ADDRESSES TO R1:-
Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/0
R1(config-if)#exit
R1(config)#interface Serial0/0/0
R1(config-if)#ip address 20.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

ASSIGNING IP ADDRESSES TO R2:-
Router>en
Router#conf t
Router(config)#host R2
R2(config)#interface Serial0/0/0
R2(config-if)#ip address 20.0.0.2 255.0.0.0
R2(config-if)#no shut
R2(config-if)#exit
R2(config)#interface Serial0/0/0
R2(config-if)#exit
R2(config)#interface Serial0/0/1
R2(config-if)#ip address 30.0.0.1 255.0.0.0
R2(config-if)#no shut
R2(config-if)#^Z
R2#exit

ASSIGNING IP ADDRESSES TO R3:-
Router>en
Router# conf t
Router(config)#host R3
R3(config)#interface GigabitEthernet0/0
R3(config-if)#ip address 40.0.0.1 255.0.0.0
R3(config-if)#no shut

R3(config-if)#exit
R3(config)#interface GigabitEthernet0/0
R3(config-if)#exit
R3(config)#interface Serial0/0/0
R3(config-if)#ip address 30.0.0.2 255.0.0.0
R3(config-if)#no shut
R3(config-if)#^Z
R3#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-

R1>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	10.0.0.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	20.0.0.1	YES	manual	up	up
Serial0/0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R2:-

R2>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	administratively down	down
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	20.0.0.2	YES	manual	up	up
Serial0/0/1	30.0.0.1	YES	manual	up	up
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R3:-

R3>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	40.0.0.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	30.0.0.2	YES	manual	up	up
Serial0/0/1	unassigned	YES	unset	administratively	downdown
Vlan1	unassigned	YES	unset	administratively	downdown

CONFIGURING OSPF ON R1:-
R1>en
R1#conf t
R1(config)#router ospf 1
R1(config-router)#network 10.0.0.0 0.255.255.255 area 0
R1(config-router)#network 20.0.0.0 0.255.255.255 area 0
R1(config-router)#^Z
R1#exit

CONFIGURING OSPF ON R2:-
R2>en
R2#conf t
R2(config)#router ospf 1
R2(config-router)#network 20.0.0.0 0.255.255.255 area 0
R2(config-router)#network 30.0.0.0 0.255.255.255 area 0
R2(config-router)#^Z
R2#exit

CONFIGURING OSPF ON R3:-
R3>en
R3#conf t
R3(config)#router ospf 1
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 0
R3(config-router)#^Z
R3#exit

DISPLAYING ROUTING TABLE OF R1:-
R1>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, GigabitEthernet0/0
C   20.0.0.0/8 is directly connected, Serial0/0/0

O   30.0.0.0/8 [110/128] via 20.0.0.2, 00:10:05, Serial0/0/0

O   40.0.0.0/8 [110/129] via 20.0.0.2, 00:10:05, Serial0/0/0

DISPLAYING ROUTING TABLE OF R2:-

R2>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

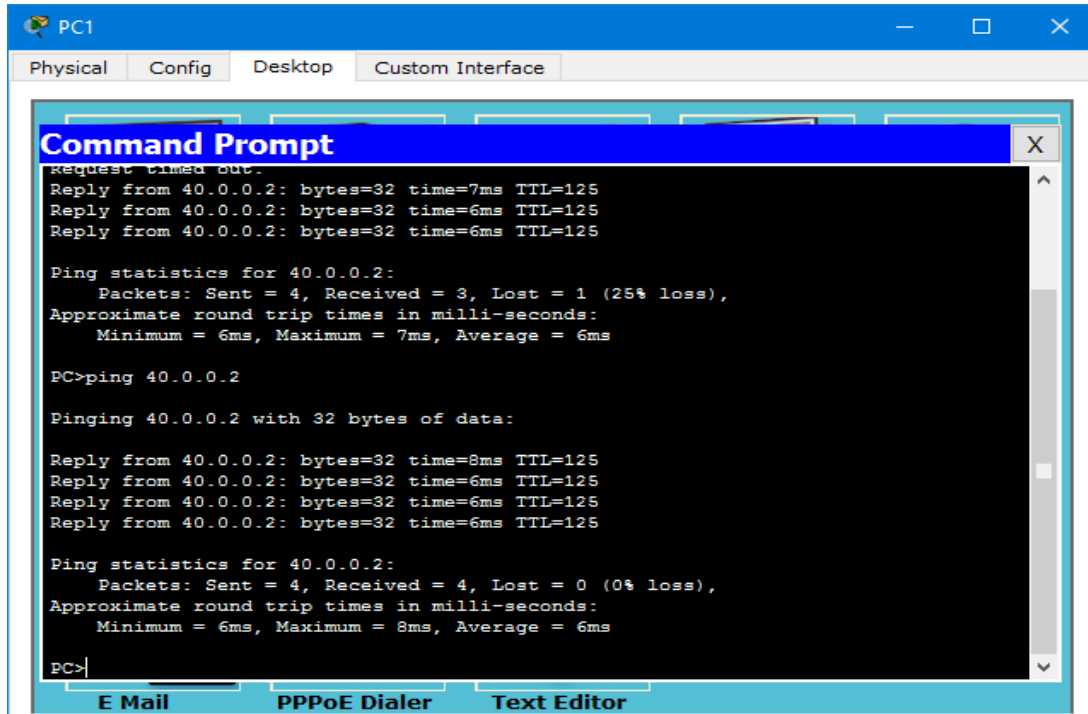   E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

    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

O   10.0.0.0/8 [110/65] via 20.0.0.1, 00:10:46, Serial0/0/0

C   20.0.0.0/8 is directly connected, Serial0/0/0

C   30.0.0.0/8 is directly connected, Serial0/0/1

O   40.0.0.0/8 [110/65] via 30.0.0.2, 00:10:46, Serial0/0/1

DISPLAYING ROUTING TABLE OF R3:-

R3>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

O   10.0.0.0/8 [110/129] via 30.0.0.1, 00:10:24, Serial0/0/0

O   20.0.0.0/8 [110/128] via 30.0.0.1, 00:10:34, Serial0/0/0

C   30.0.0.0/8 is directly connected, Serial0/0/0

C   40.0.0.0/8 is directly connected, GigabitEthernet0/0

PINGING PC2 FROM PC1:-

PINGING PC1 FROM PC2:-

PRACTICAL NO 6
DHCP

TOPOLOGY DIAGRAM:-
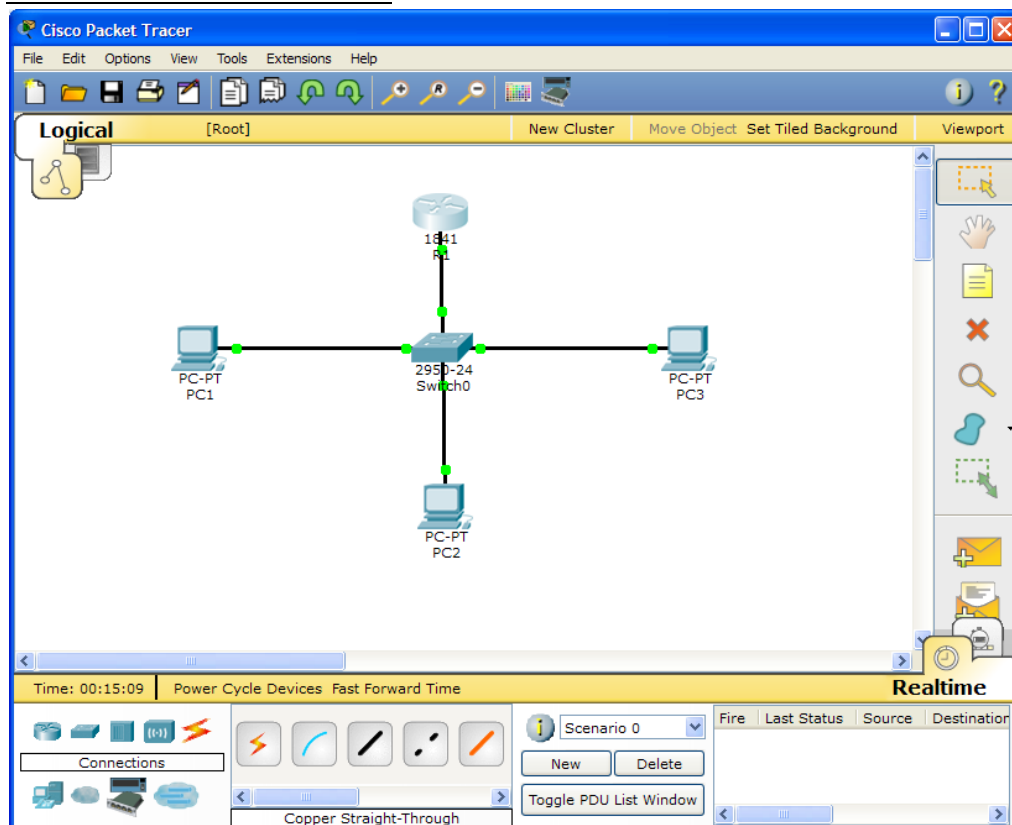
ASSIGNING IP ADDRESSES TO R1:-

Router>en

Router#conf t

Router(config)#host R1

R1(config)#interface GigabitEthernet0/0

R1(config-if)#ip address 192.168.10.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#^Z

R1#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-

R1>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.10.1	YES	manual	up	down
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

CONFIGURING DHCP ON R1:-

R1>en

R1#conf t

R1(config)#ip dhcp pool sybscit

R1(dhcp-config)#network 192.168.10.0 255.255.255.0

R1(dhcp-config)#default-router 192.168.10.1

R1(dhcp-config)#dns-server 4.2.2.2

R1(dhcp-config)#ip dhcp excluded-address 192.168.10.3 192.168.10.10

R1(config)#^Z

R1#exit

ASSIGNING IP ADDRESSES TO PC1 THROUGH DHCP:-

Click PC1>Desktop>IP Configuration

Select DHCP
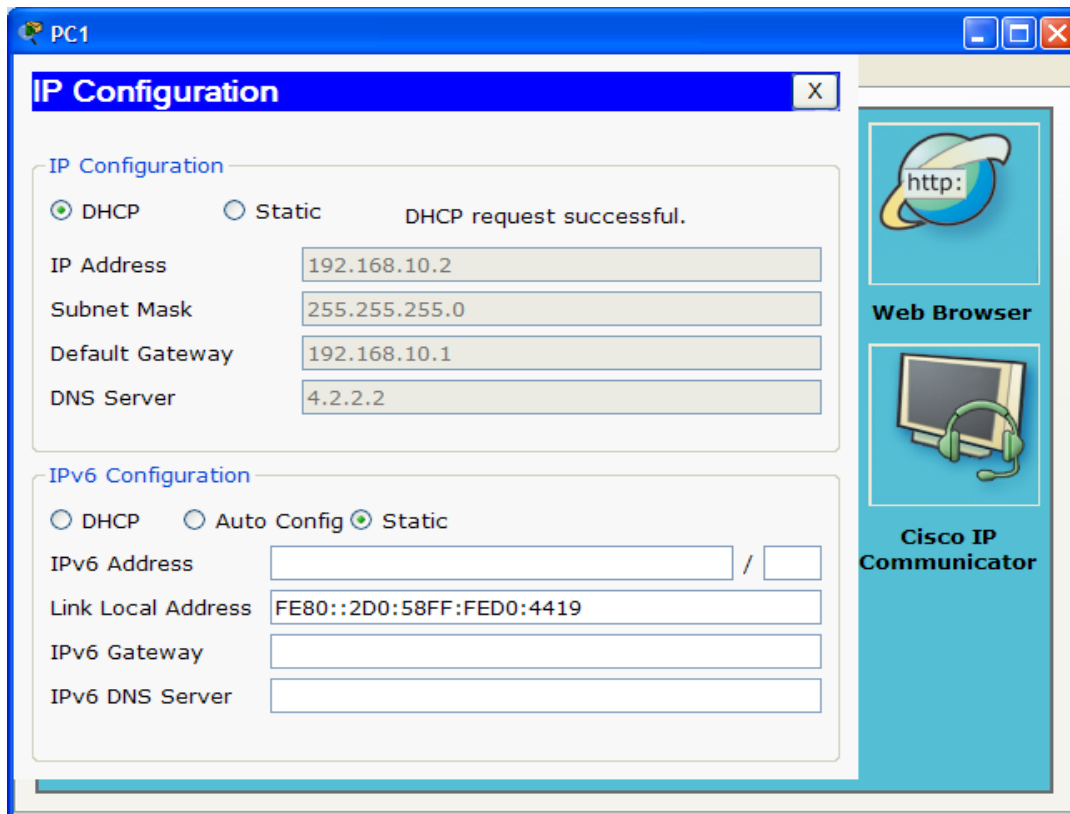
ASSIGNING IP ADDRESSES TO PC2 THROUGH DHCP:-
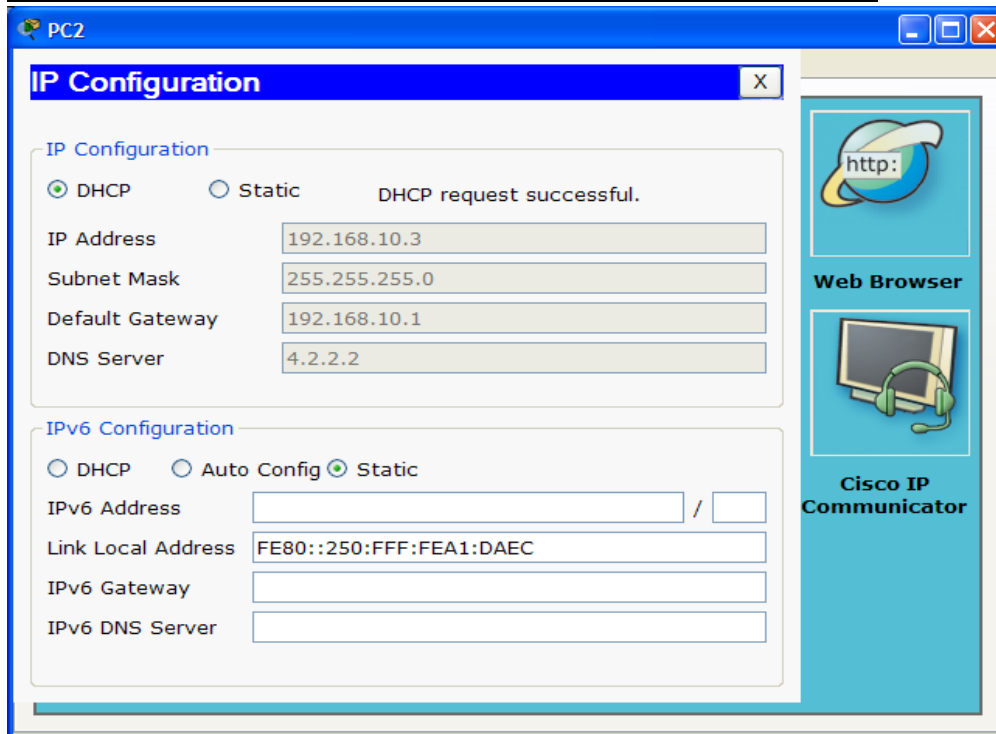
ASSIGNING IP ADDRESSES TO PC3 THROUGH DHCP:-
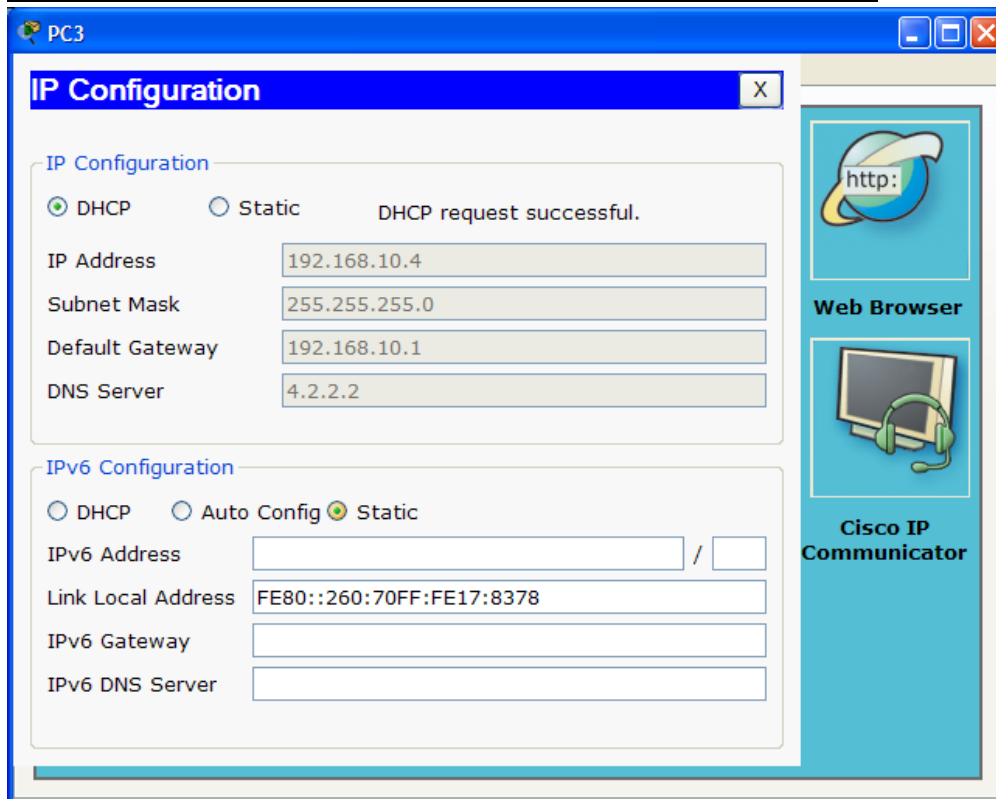
DISPLAYING DHCP BINDINGS OF R1:-

R1>show ip dhcp binding

IP address	Client-ID/ Hardware address	Lease expiration	Type
192.168.10.2	0050.0FA1.DAEC	--	Automatic
192.168.10.4	0060.7017.8378	--	Automatic
192.168.10.3	00D0.58D0.4419	--	Automatic

_____

PRACTICAL NO 7
DNS

TOPOLOGY DIAGRAM:-

ASSIGNING IP ADDRESSES TO R1:-

Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-

R1>show ip interface brief
Interface   IP-Address   OK? Method Status   Protocol
GigabitEthernet0/0   192.168.1.1   YES manual up   up
GigabitEthernet0/1   unassigned   YES unset administratively down down
Vlan1   unassigned   YES unset administratively down down

ASSIGNING IP ADDRESS TO SERVER0:-
(Click SERVER0/Desktop/IP Configuration)
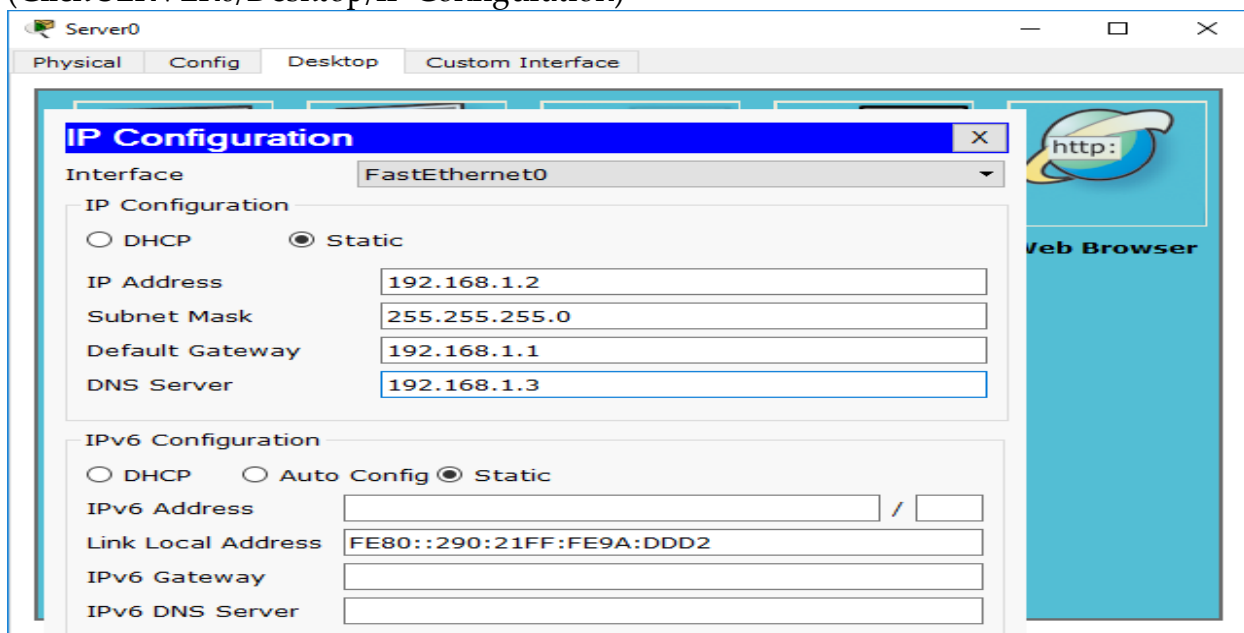
CONFIGURING DHCP ON SERVER0:-
(Click SERVER0/CONFIG/DHCP)
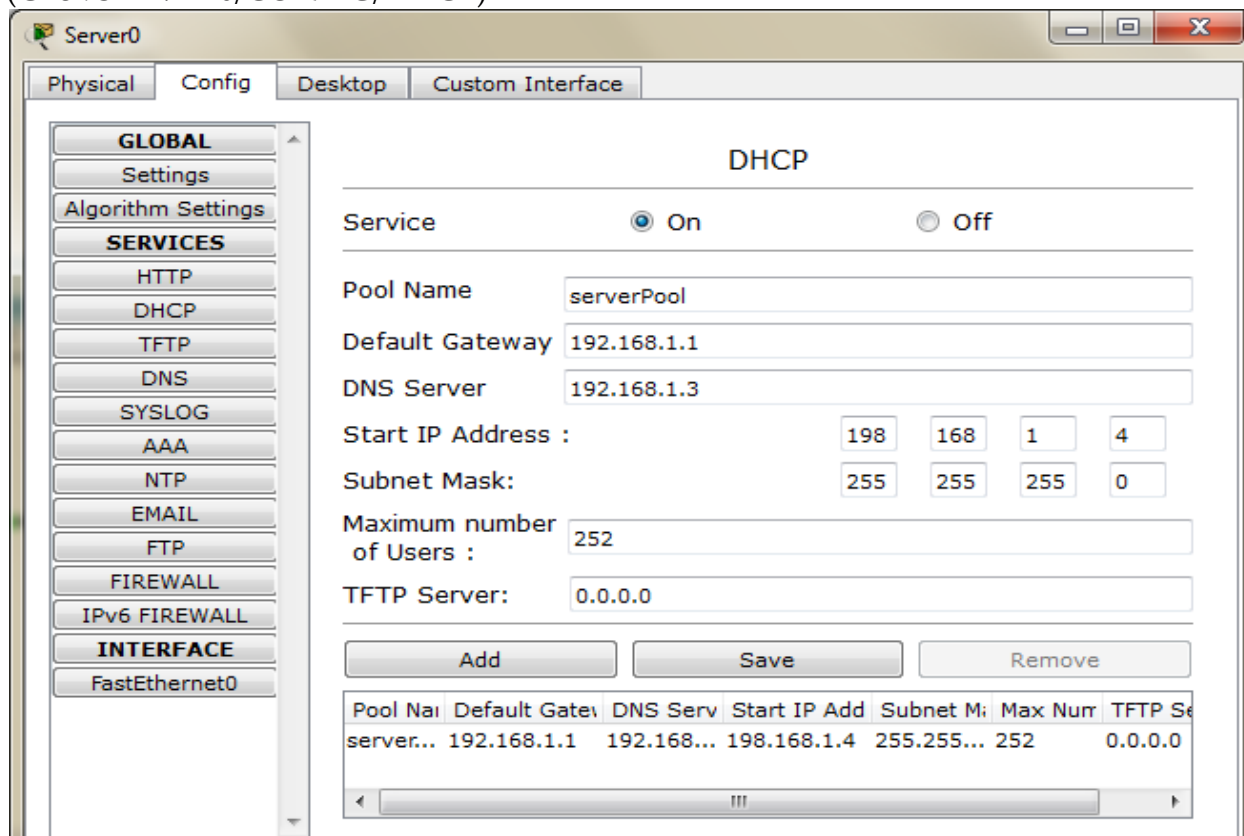
ASSIGNING IP ADDRESSES TO SERVER1:-

ASSIGNING IP ADDRESSES TO PC1 THROUGH DHCP:-

PC1 — □ ×

IP Configuration [X]

IP Configuration
- ◉ DHCP   ○ Static   DHCP request successful.

IP Address	192.168.1.5
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	192.168.1.3

http: **Web Browser**

IPv6 Configuration
- ○ DHCP   ○ Auto Config ◉ Static

IPv6 Address		/
Link Local Address	FE80::20B:BEFF:FEC4:668D
IPv6 Gateway	
IPv6 DNS Server	

Cisco IP Communicator
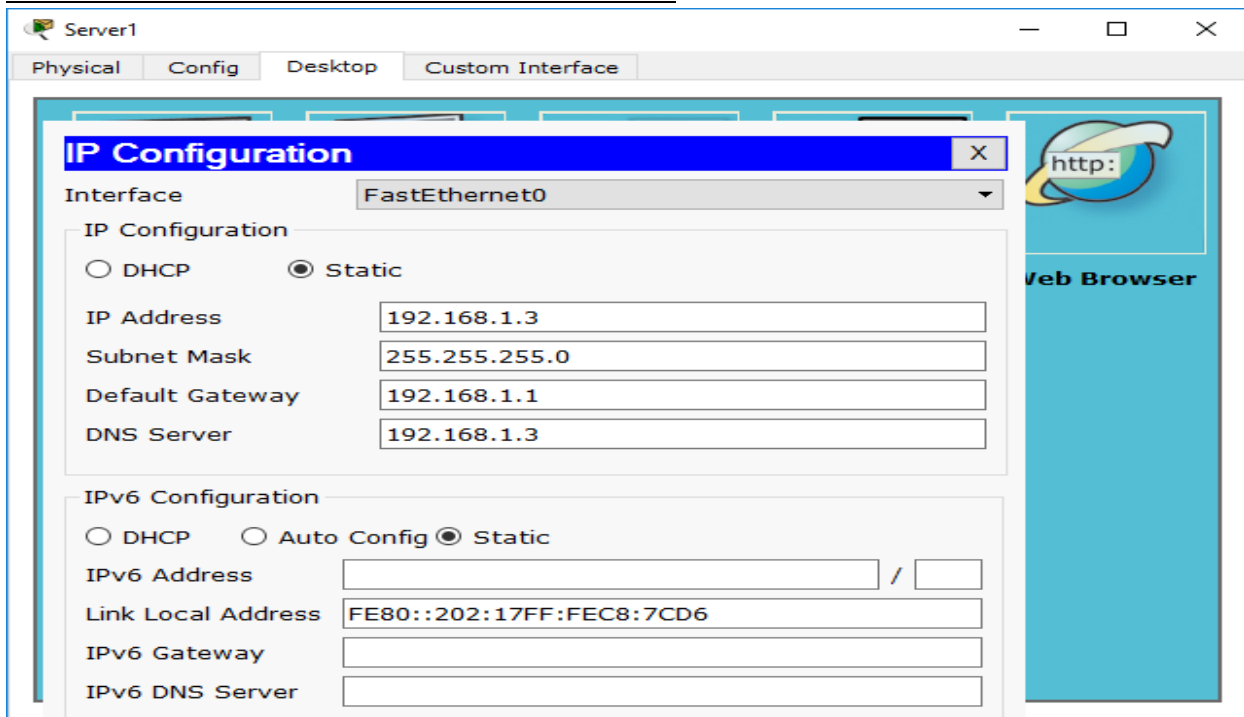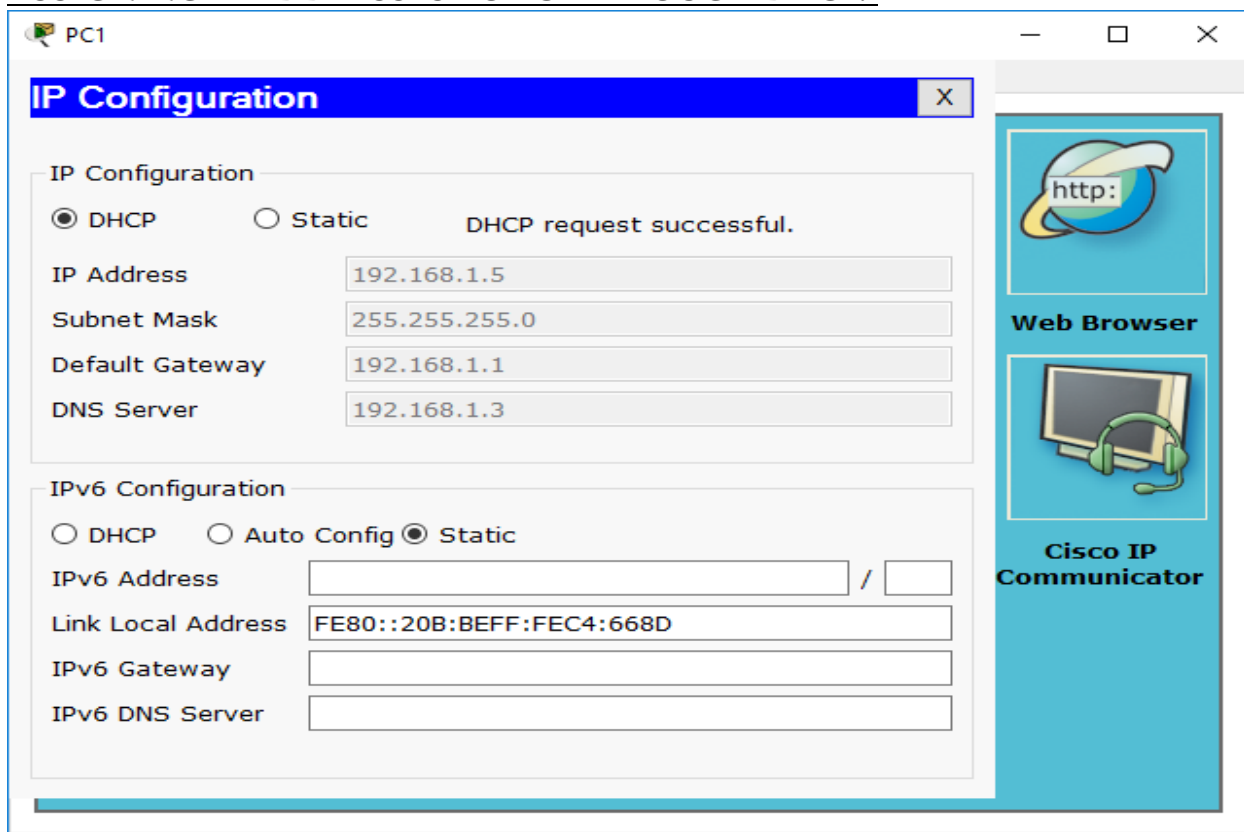
ACCESSING THE WEBSITE OF SERVER0 FROM PC1:-
(Click PC1/Desktop/Web Browser)

PC1 — □ ×

Physical   Config   Desktop   Custom Interface

Web Browser [X]

< | > | URL http://192.168.1.2 | Go | Stop

Cisco Packet Tracer

Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image

E Mail   PPPoE Dialer   Text Editor
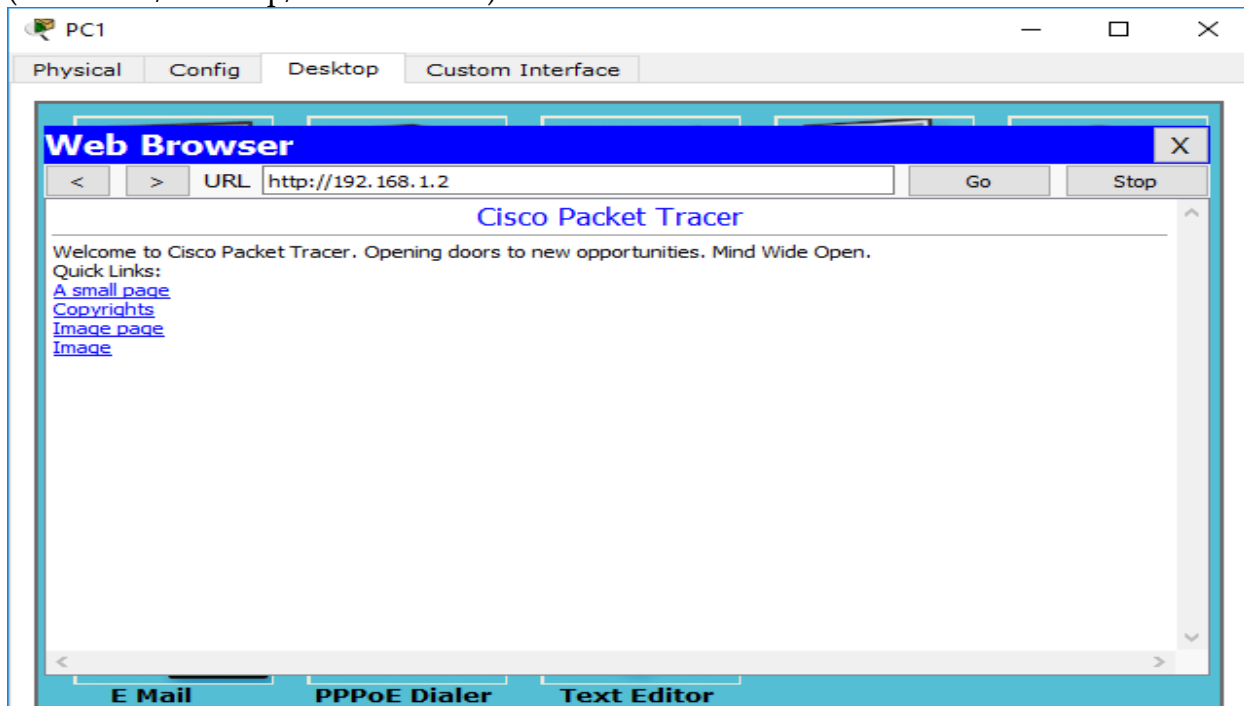
CONFIGURING DNS ON SERVER1:-

(Click SERVER1/CONFIG/DNS)
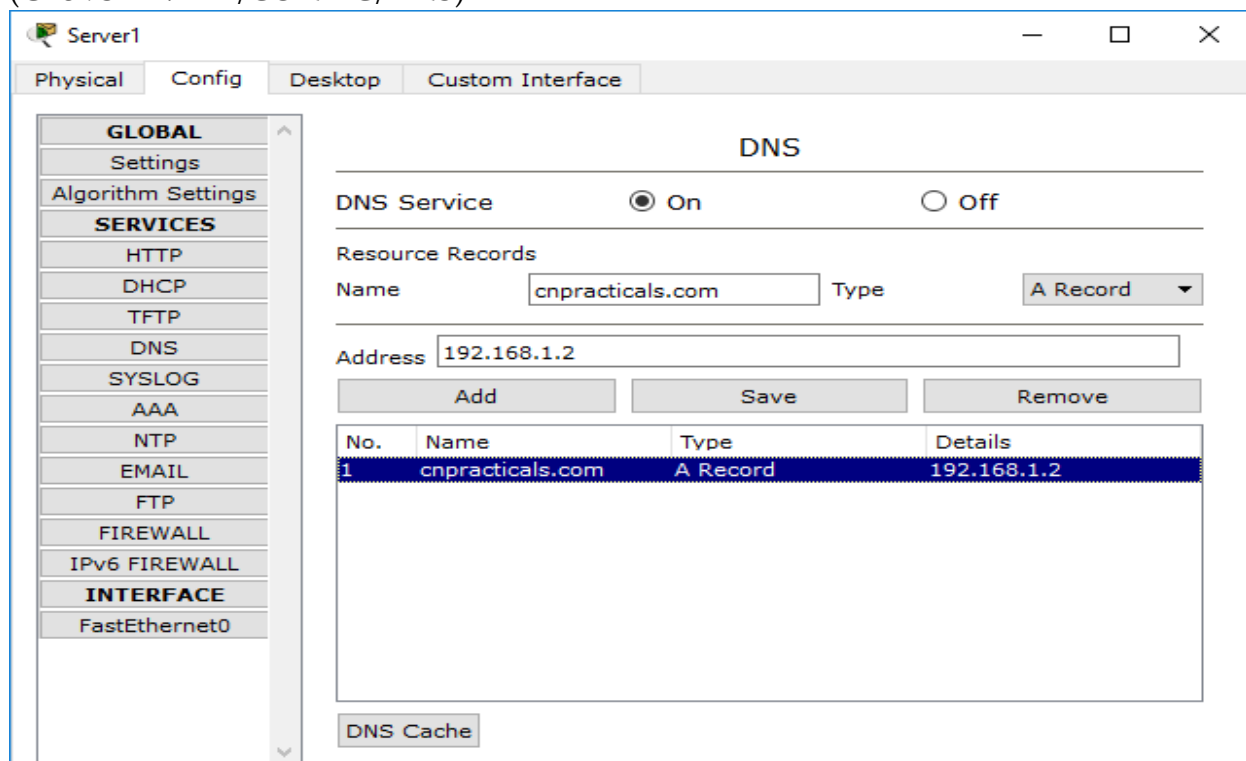
ACCESSING THE WEBSITE OF SERVER0 FROM PC1 DNS NAME:-
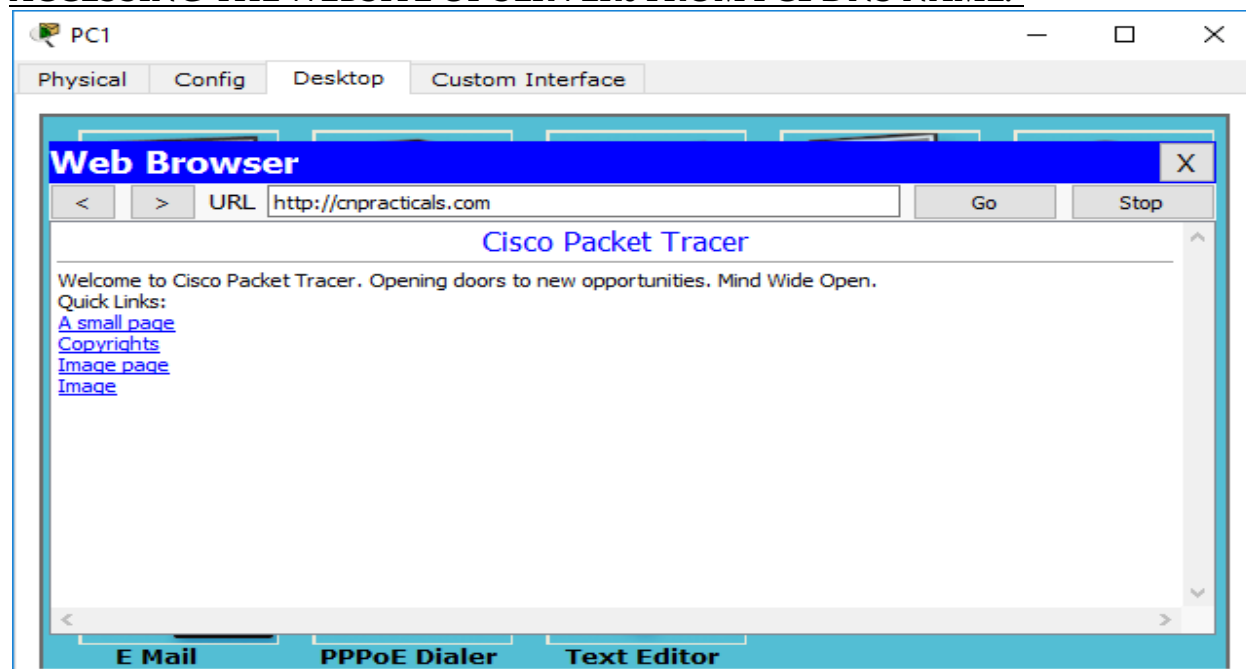
CONFIGURING EMAIL ON SERVER0:-
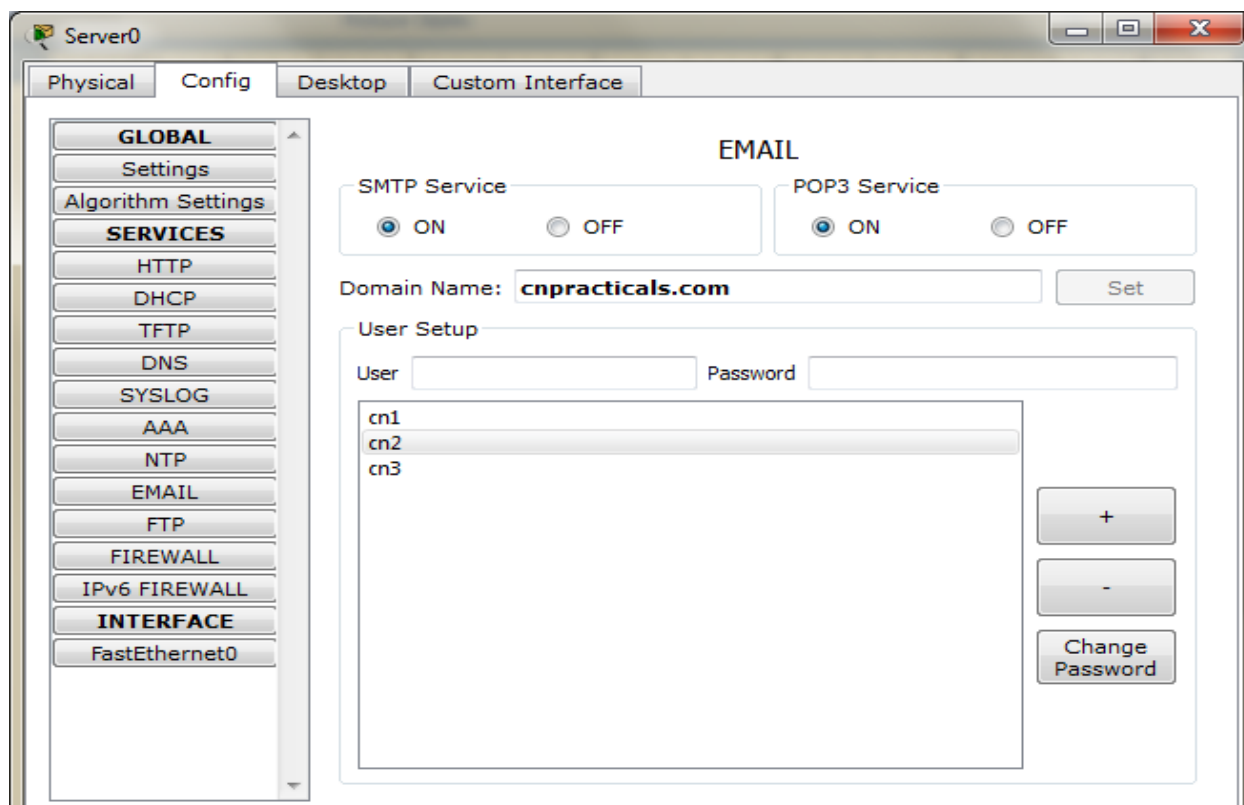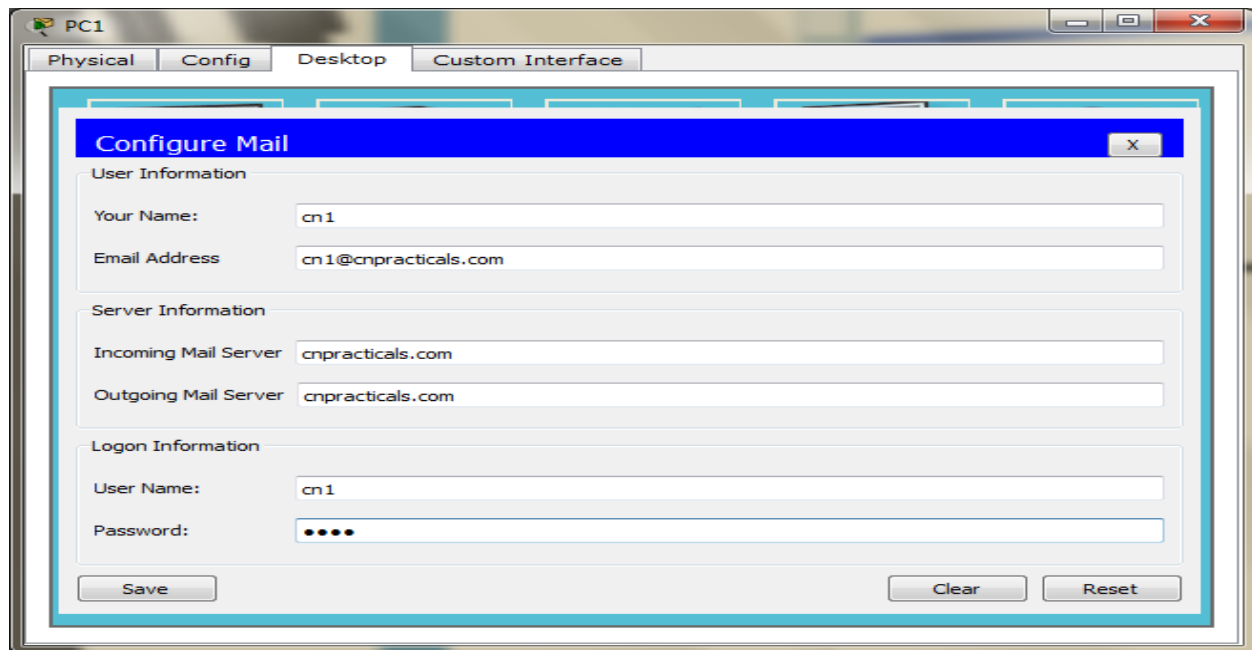
ADDING USERS IN EMAIL SERVER:-
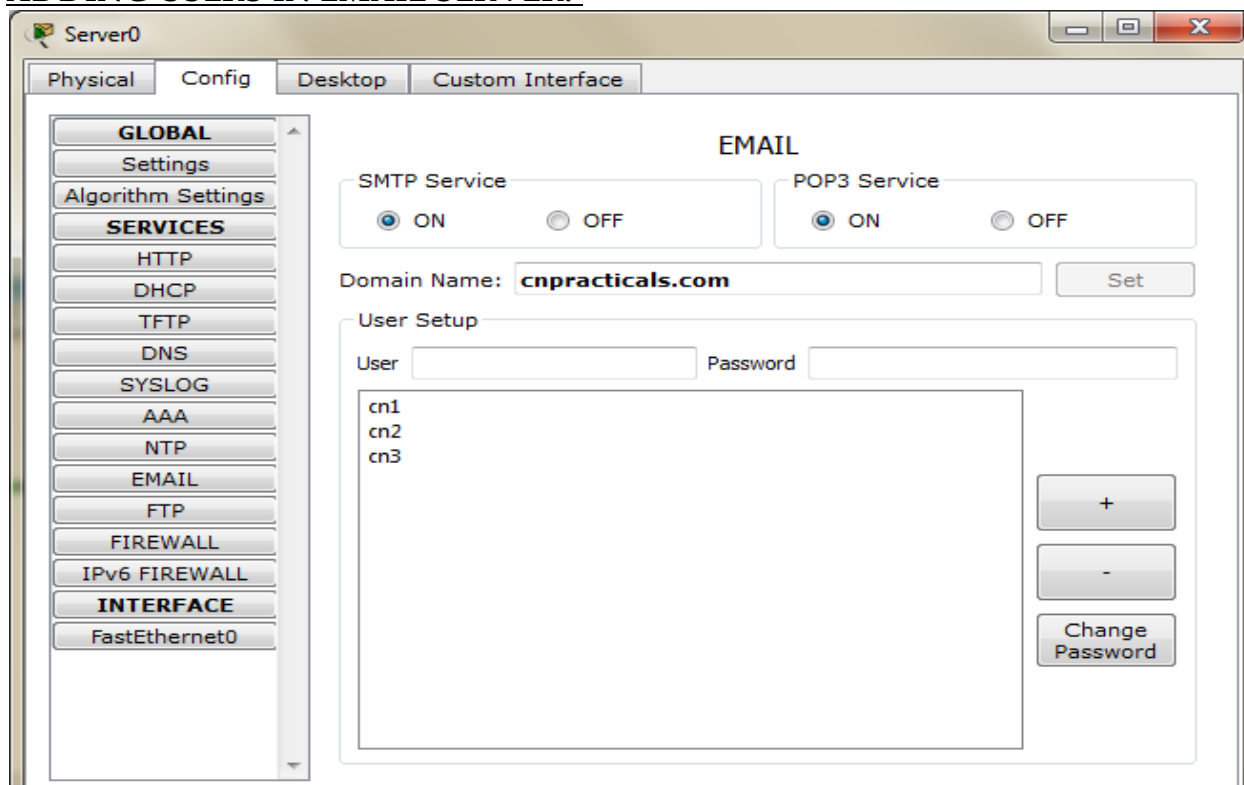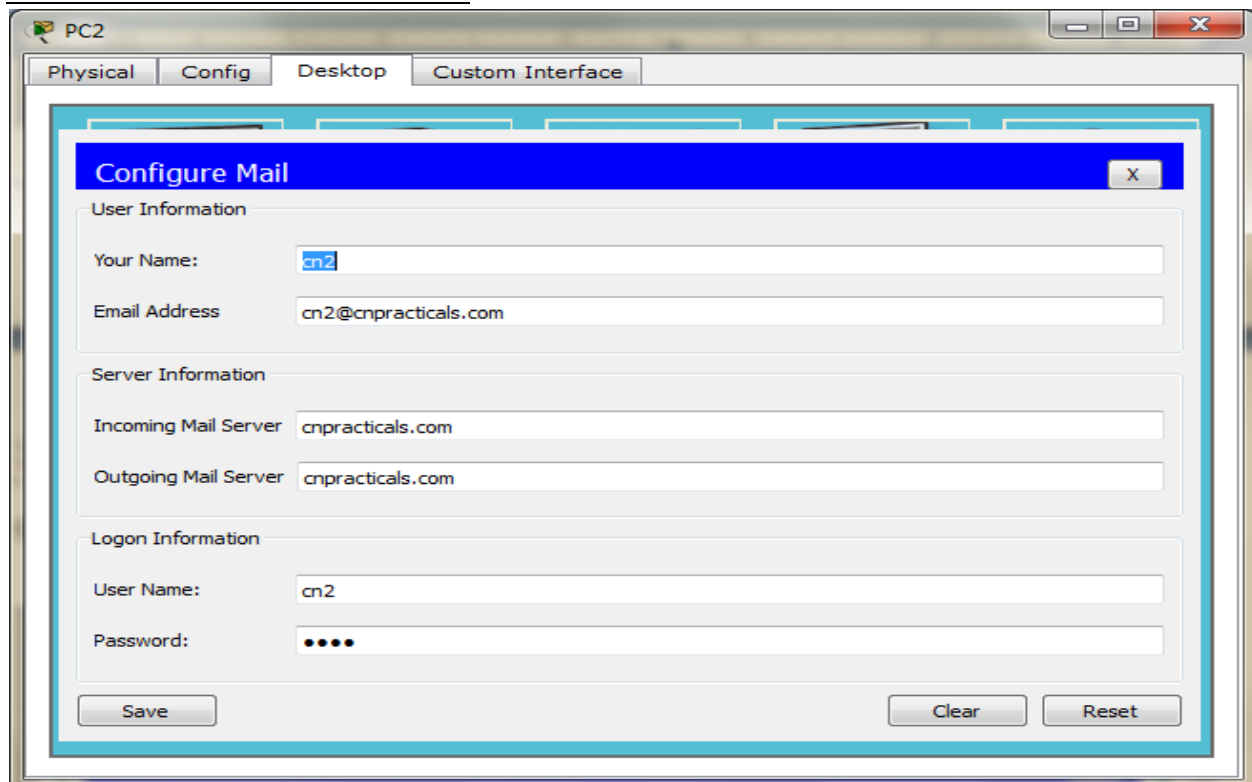
CONFIGURE EMAIL ON PC1:-

(Click PC1/Desktop/Email)

Configure Mail

User Information

Your Name: cn1

Email Address   cn1@cnpracticals.com

Server Information

Incoming Mail Server   cnpracticals.com

Outgoing Mail Server   cnpracticals.com

Logon Information

User Name: cn1

Password: ••••

Save   Clear   Reset

CONFIGURE EMAIL ON PC2:-

Configure Mail

User Information

Your Name: cn2

Email Address   cn2@cnpracticals.com

Server Information

Incoming Mail Server   cnpracticals.com

Outgoing Mail Server   cnpracticals.com

Logon Information

User Name: cn2

Password: ••••

Save   Clear   Reset

COMPOSING MAIL FROM PC1 TO PC2:-

PC1

Physical | Config | Desktop | Custom Interface

MAIL BROWSER   X

Mails

| Compose | Reply | Receive | Delete | Configure Mail |

| From | Subject | Received | |

Cancel
Send/Receive

PC1

Physical | Config | Desktop | Custom Interface

Compose Mail   X

Send

To: cn2@cnpracticals.com

Subject: CN Notes

Hello Aarti,

I need the notes of Chapter 4 of CN. Please Email me quickly

Regards,
Sunaina.
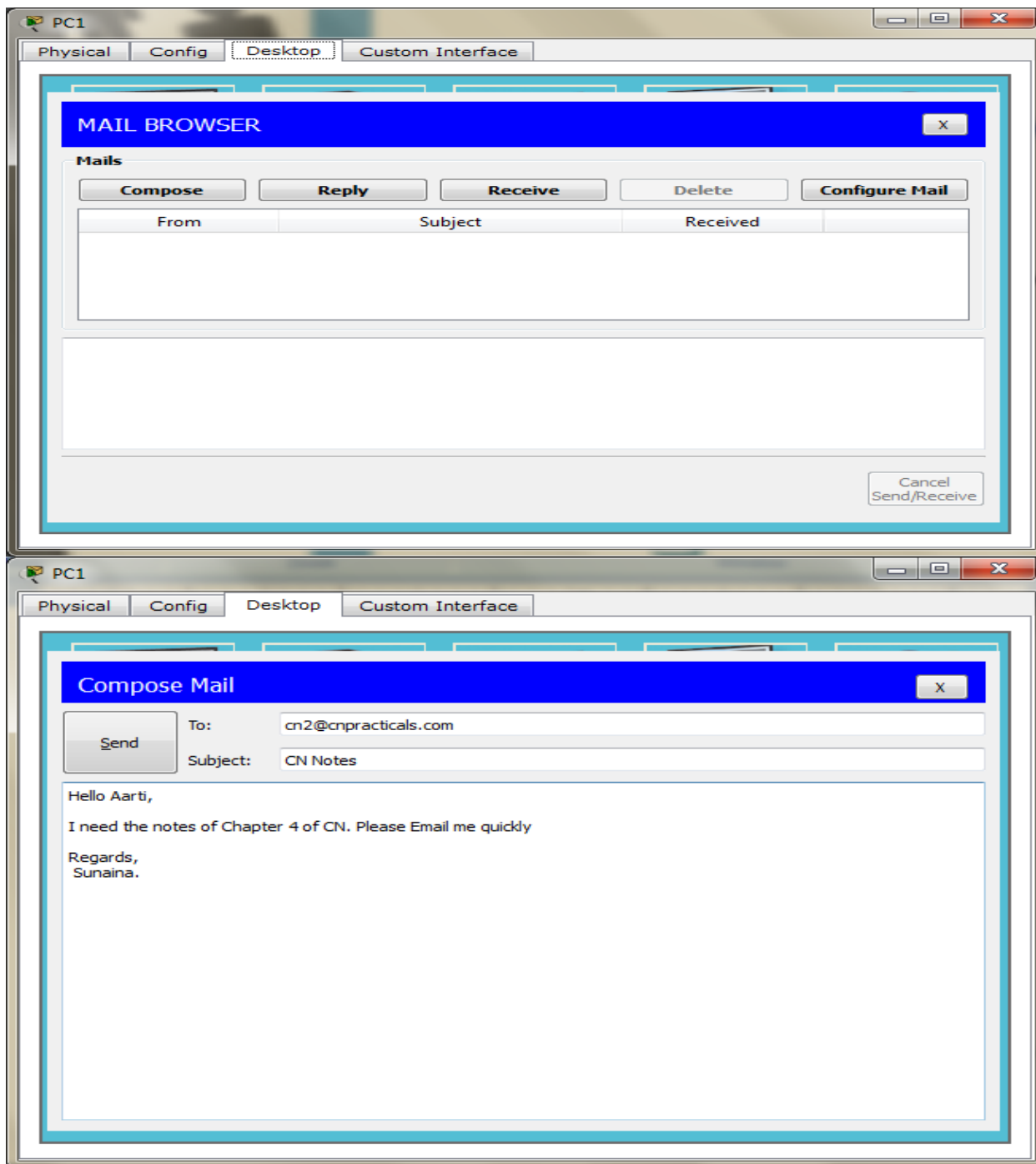
ACCESSING THE MAIL OF PC1 FROM PC2:-

_____
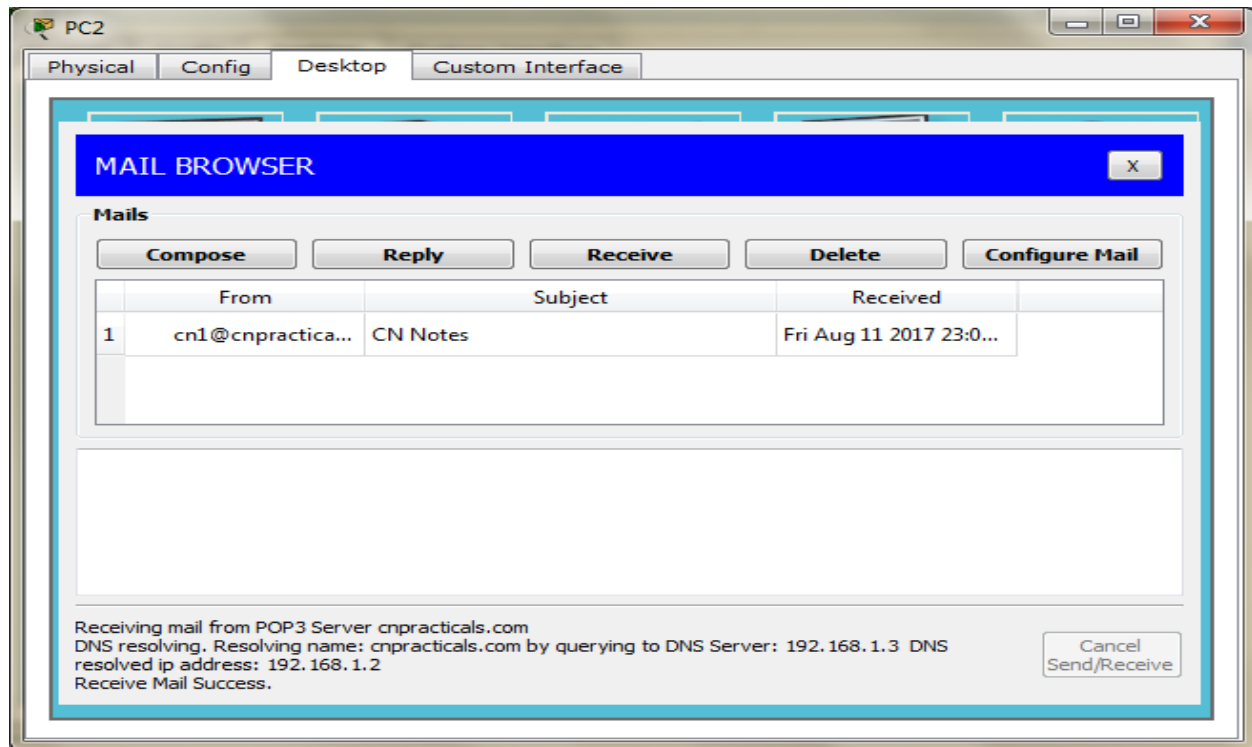
PRACTICAL NO 8
OSPF WITH MULTIPLE AREAS

TOPOLOGY DIAGRAM:-
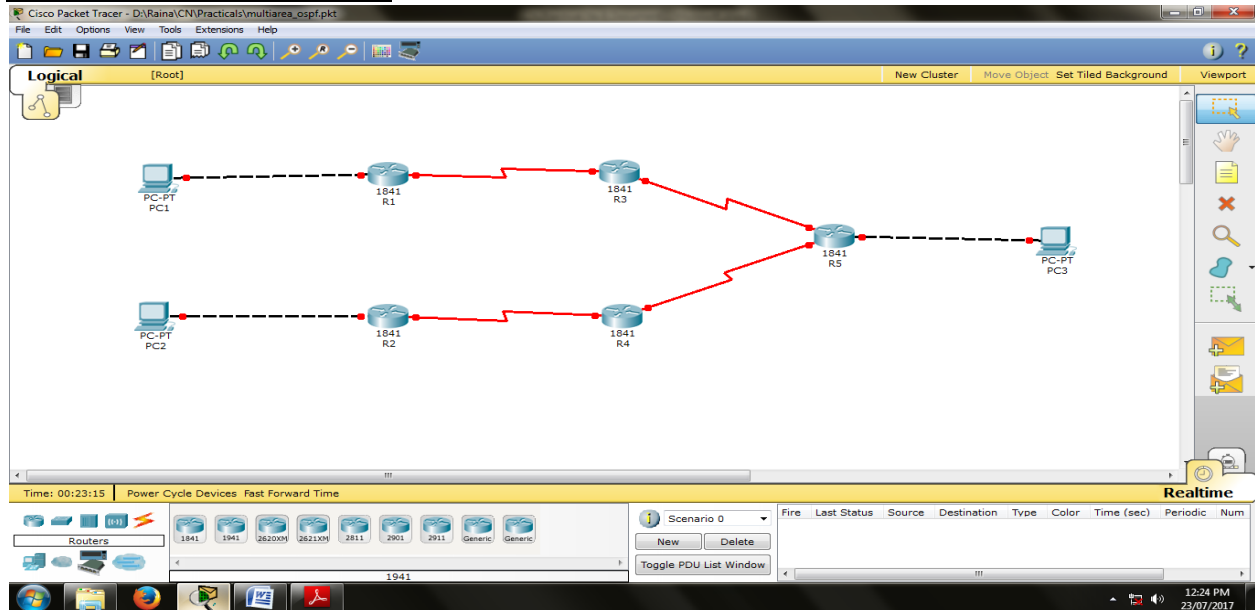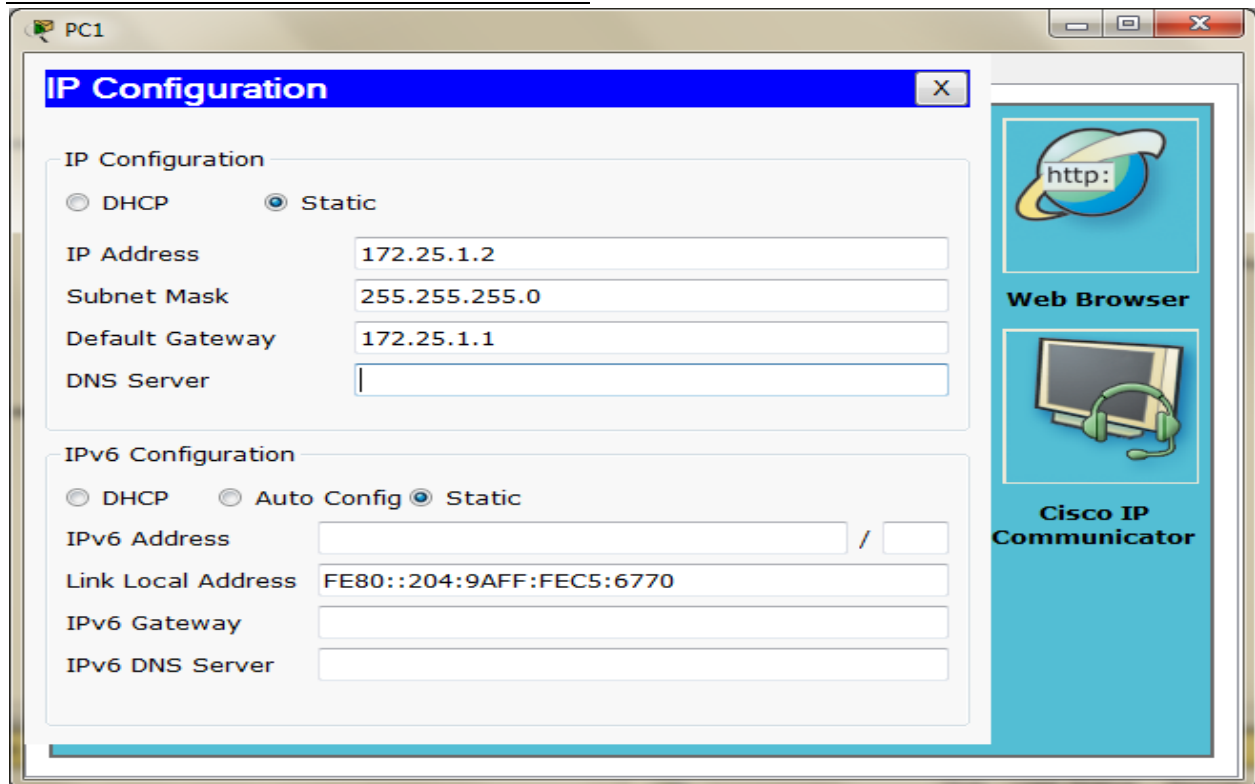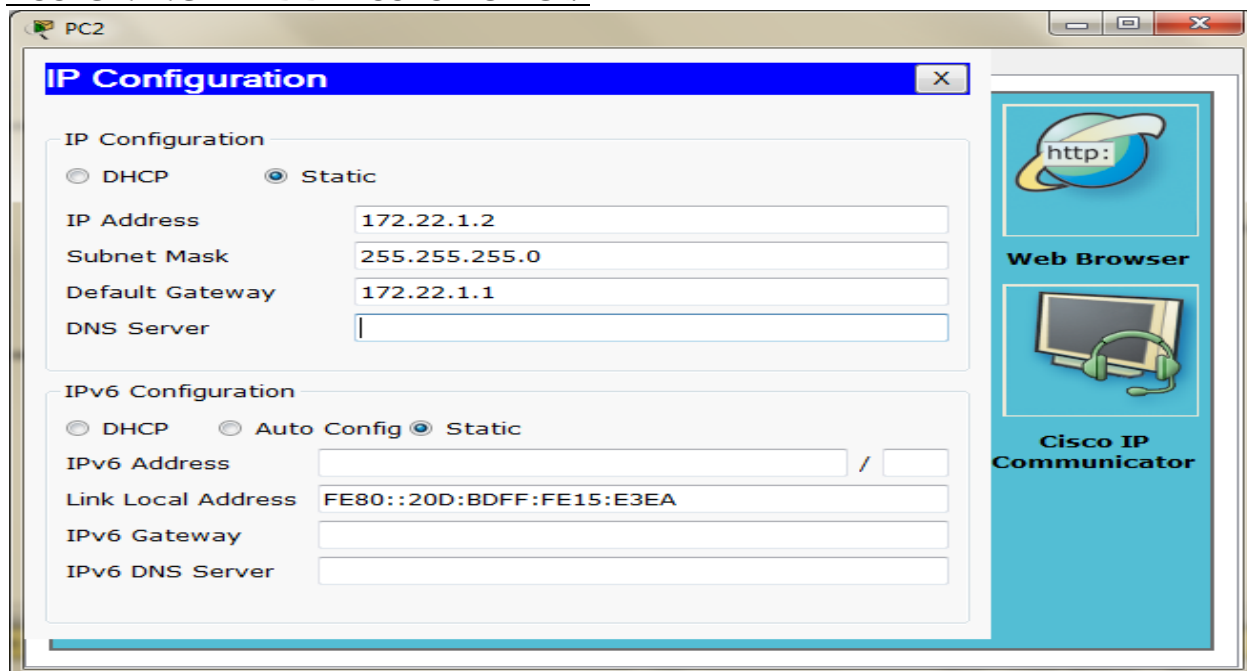
ASSIGNING IP ADDRESSES TO PC1:-

ASSIGNING IP ADDRESSES TO PC2:-

ASSIGNING IP ADDRESSES TO PC3:-
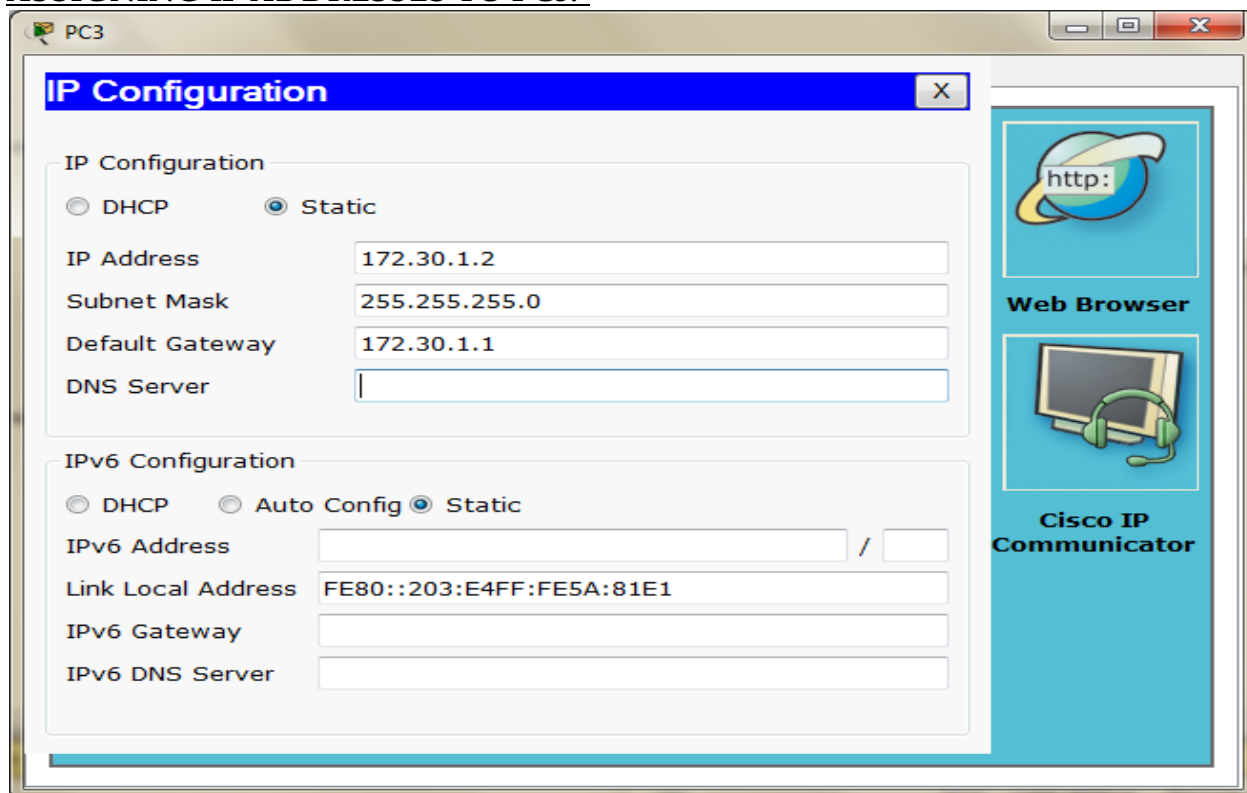
ASSIGNING IP ADDRESSES TO R1:-

Router>en
Router#conf t
Router(config)#host R1
R1(config)#interface GigabitEthernet0/0
R1(config-if)#ip address 172.25.1.1 255.255.255.0
R1(config-if)#no shut
R1(config)#interface Serial0/0/0
R1(config-if)#ip address 10.1.1.1 255.255.255.0
R1(config-if)#no shut
R1(config-if)#^Z
R1#exit

ASSIGNING IP ADDRESSES TO R2:-

Router>en
Router#conf t
Router(config)#host R2
R2(config)#interface GigabitEthernet0/0
R2(config-if)#ip address 172.22.1.2 255.255.255.0
R2(config-if)#no shut
R2(config)#interface Serial0/0/0
R2(config-if)#ip address 10.1.2.1 255.255.255.0
R2(config-if)#no shut
R2(config-if)#^Z
R2#exit

ASSIGNING IP ADDRESSES TO R3:-

Router>en
Router#conf t
Router(config)#host R3
R3(config)#interface Serial0/0/0
R3(config-if)#ip address 10.1.1.2 255.255.255.0
R3(config-if)#no shut
R3(config)#interface Serial0/0/1
R3(config-if)#ip address 192.168.1.1 255.255.255.0
R3(config-if)#no shut
R3(config-if)#^Z
R3#exit

ASSIGNING IP ADDRESSES TO R4:-
Router>en
Router#conf t
Router(config)#host R4
R4(config)#interface Serial0/0/0
R4(config-if)#ip address 10.1.2.2 255.255.255.0
R4(config-if)#no shut
R4(config)#interface Serial0/0/1
R4(config-if)#ip address 192.168.2.1 255.255.255.0
R4(config-if)#no shut
R4(config-if)#^Z
R4#exit

ASSIGNING IP ADDRESSES TO R5:-
Router>en
Router#conf t
Router(config)#host R5
R5(config)#interface Serial0/0/0
R5(config-if)#ip address 192.168.1.2 255.255.255.0
R5(config-if)#no shut
R5(config)#interface Serial0/0/1
R5(config-if)#ip address 192.168.2.2 255.255.255.0
R5(config-if)#no shut
R5(config)#interface GigabitEthernet0/0
R5(config-if)#ip address 172.30.1.1 255.255.255.0
R5(config-if)#no shut
R5(config-if)#^Z
R5#exit

DISPLAYING IP ADDRESS DETAILS OF R1:-
R1>show ip interface brief

Interface	IP-Address	OK? Method	Status	Protocol
GigabitEthernet0/0	172.25.1.1	YES manual	up	up
GigabitEthernet0/1	unassigned	YES unset	administratively down	down
Serial0/0/0	10.1.1.1	YES manual	up	up
Serial0/0/1	unassigned	YES unset	administratively down	down
Vlan1	unassigned	YES unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R2:-

R2>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	172.22.1.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	10.1.2.1	YES	manual	down	down
Serial0/0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R3:-

R3>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	administratively down	down
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	10.1.1.2	YES	manual	up	up
Serial0/0/1	192.168.1.1	YES	manual	down	down
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R4:-

R4>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	administratively down	down
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	10.1.2.2	YES	manual	up	up
Serial0/0/1	192.168.2.1	YES	manual	down	down
Vlan1	unassigned	YES	unset	administratively down	down

DISPLAYING IP ADDRESS DETAILS OF R5:-

R5>show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	172.30.1.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	192.168.1.2	YES	manual	up	up
Serial0/0/1	192.168.2.2	YES	manual	up	up
Vlan1	unassigned	YES	unset	administratively down	down

CONFIGURING OSPF ON R1:-

R1>en
R1#conf t
R1(config)#router ospf 1
R1(config-router)#network 172.25.1.0 0.0.0.255 area 1
R1(config-router)#network 10.1.1.0 0.0.0.255 area 1
R1(config-router)#^Z
R1#exit

CONFIGURING OSPF ON R2:-

R2>en
R2#conf t
R2(config)#router ospf 1
R2(config-router)#network 172.22.1.0 0.0.0.255 area 2
R2(config-router)#network 10.1.2.0 0.0.0.255 area 2
R2(config-router)#^Z
R2#exit

CONFIGURING OSPF ON R3:-

R3>en
R3#conf t
R3(config)#router ospf 1
R3(config-router)#network 192.168.1.0 0.0.0.255 area 0
R3(config-router)#network 10.1.1.0 0.0.0.255 area 1
R3(config-router)#^Z
R3#exit

CONFIGURING OSPF ON R4:-

R4>en
R4#conf t
R4(config)#router ospf 1
R4(config-router)#network 192.168.2.0 0.0.0.255 area 0
R4(config-router)#network 10.1.2.0 0.0.0.255 area 2
R4(config-router)#^Z
R4#exit

CONFIGURING OSPF ON R5:-

R5>en

R5#conf t

R5(config)#router ospf 1

R5(config-router)#network 192.168.1.0 0.0.0.255 area 0

R5(config-router)#network 192.168.2.0 0.0.0.255 area 0

R5(config-router)#network 172.30.1.0 0.0.0.255 area 0

R5(config-router)#^Z

R5#exit

DISPLAYING ROUTING TABLE OF R1:-

R1>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

    10.0.0.0/24 is subnetted, 2 subnets

C   10.1.1.0 is directly connected, Serial0/0/0

O IA   10.1.2.0 [110/256] via 10.1.1.2, 00:10:21, Serial0/0/0

    172.22.0.0/24 is subnetted, 1 subnets

O IA   172.22.1.0 [110/257] via 10.1.1.2, 00:10:21, Serial0/0/0

    172.25.0.0/24 is subnetted, 1 subnets

C   172.25.1.0 is directly connected, GigabitEthernet0/0

    172.30.0.0/24 is subnetted, 1 subnets

O IA   172.30.1.0 [110/129] via 10.1.1.2, 00:03:02, Serial0/0/0

O IA 192.168.1.0/24 [110/128] via 10.1.1.2, 00:11:56, Serial0/0/0

O IA 192.168.2.0/24 [110/192] via 10.1.1.2, 00:10:21, Serial0/0/0

DISPLAYING ROUTING TABLE OF R2:-

R2>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

    10.0.0.0/24 is subnetted, 2 subnets

O IA   10.1.1.0 [110/256] via 10.1.2.2, 00:09:44, Serial0/0/0

C   10.1.2.0 is directly connected, Serial0/0/0

    172.22.0.0/24 is subnetted, 1 subnets

C   172.22.1.0 is directly connected, GigabitEthernet0/0

    172.25.0.0/24 is subnetted, 1 subnets

O IA   172.25.1.0 [110/257] via 10.1.2.2, 00:09:44, Serial0/0/0

    172.30.0.0/24 is subnetted, 1 subnets

O IA   172.30.1.0 [110/129] via 10.1.2.2, 00:02:27, Serial0/0/0

O IA 192.168.1.0/24 [110/192] via 10.1.2.2, 00:09:54, Serial0/0/0

O IA 192.168.2.0/24 [110/128] via 10.1.2.2, 00:12:39, Serial0/0/0

DISPLAYING ROUTING TABLE OF R3:-

R3>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

    10.0.0.0/24 is subnetted, 2 subnets

C   10.1.1.0 is directly connected, Serial0/0/0

O IA   10.1.2.0 [110/192] via 192.168.1.2, 00:08:43, Serial0/0/1

    172.22.0.0/24 is subnetted, 1 subnets

O IA   172.22.1.0 [110/193] via 192.168.1.2, 00:08:43, Serial0/0/1

    172.25.0.0/24 is subnetted, 1 subnets

O   172.25.1.0 [110/65] via 10.1.1.1, 00:10:14, Serial0/0/0

    172.30.0.0/24 is subnetted, 1 subnets

O   172.30.1.0 [110/65] via 192.168.1.2, 00:01:24, Serial0/0/1
C   192.168.1.0/24 is directly connected, Serial0/0/1
O   192.168.2.0/24 [110/128] via 192.168.1.2, 00:08:43, Serial0/0/1

DISPLAYING ROUTING TABLE OF R4:-

R4>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
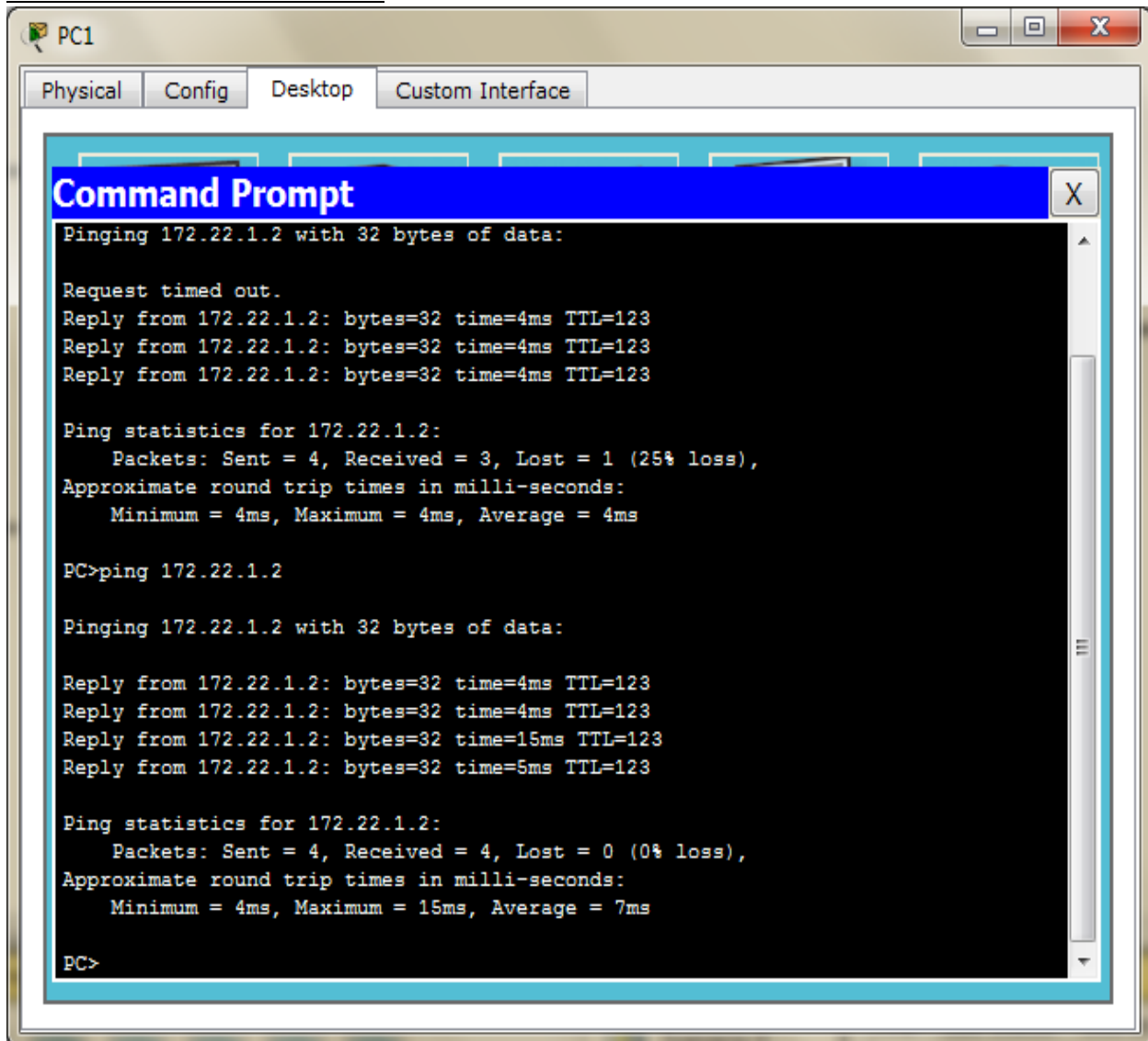   * - candidate default, U - per-user static route, o - ODR
    P - periodic downloaded static route

Gateway of last resort is not set

    10.0.0.0/24 is subnetted, 2 subnets
O IA   10.1.1.0 [110/192] via 192.168.2.2, 00:07:53, Serial0/0/1
C   10.1.2.0 is directly connected, Serial0/0/0
    172.22.0.0/24 is subnetted, 1 subnets
O   172.22.1.0 [110/65] via 10.1.2.1, 00:10:43, Serial0/0/0
    172.25.0.0/24 is subnetted, 1 subnets
O IA   172.25.1.0 [110/193] via 192.168.2.2, 00:07:53, Serial0/0/1
    172.30.0.0/24 is subnetted, 1 subnets
O   172.30.1.0 [110/65] via 192.168.2.2, 00:00:36, Serial0/0/1
O   192.168.1.0/24 [110/128] via 192.168.2.2, 00:08:03, Serial0/0/1
C   192.168.2.0/24 is directly connected, Serial0/0/1

DISPLAYING ROUTING TABLE OF R5:-

R5>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

    10.0.0.0/24 is subnetted, 2 subnets

O IA   10.1.1.0 [110/128] via 192.168.1.1, 00:01:48, Serial0/0/0
O IA   10.1.2.0 [110/128] via 192.168.2.1, 00:01:58, Serial0/0/1
      172.22.0.0/24 is subnetted, 1 subnets
O IA   172.22.1.0 [110/129] via 192.168.2.1, 00:01:58, Serial0/0/1
      172.25.0.0/24 is subnetted, 1 subnets
O IA   172.25.1.0 [110/129] via 192.168.1.1, 00:01:48, Serial0/0/0
      172.30.0.0/24 is subnetted, 1 subnets
C   172.30.1.0 is directly connected, GigabitEthernet0/0
C   192.168.1.0/24 is directly connected, Serial0/0/0
C   192.168.2.0/24 is directly connected, Serial0/0/1

PINGING PC2 FROM PC1:-


```
PC1                                                          _ □ X

  Physical    Config    Desktop    Custom Interface

  Command Prompt                                              X
   Pinging 172.22.1.2 with 32 bytes of data:

   Request timed out.
   Reply from 172.22.1.2: bytes=32 time=4ms TTL=123
   Reply from 172.22.1.2: bytes=32 time=4ms TTL=123
   Reply from 172.22.1.2: bytes=32 time=4ms TTL=123

   Ping statistics for 172.22.1.2:
       Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
   Approximate round trip times in milli-seconds:
       Minimum = 4ms, Maximum = 4ms, Average = 4ms

   PC>ping 172.22.1.2

   Pinging 172.22.1.2 with 32 bytes of data:

   Reply from 172.22.1.2: bytes=32 time=4ms TTL=123
   Reply from 172.22.1.2: bytes=32 time=4ms TTL=123
   Reply from 172.22.1.2: bytes=32 time=15ms TTL=123
   Reply from 172.22.1.2: bytes=32 time=5ms TTL=123

   Ping statistics for 172.22.1.2:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
   Approximate round trip times in milli-seconds:
       Minimum = 4ms, Maximum = 15ms, Average = 7ms

   PC>
```
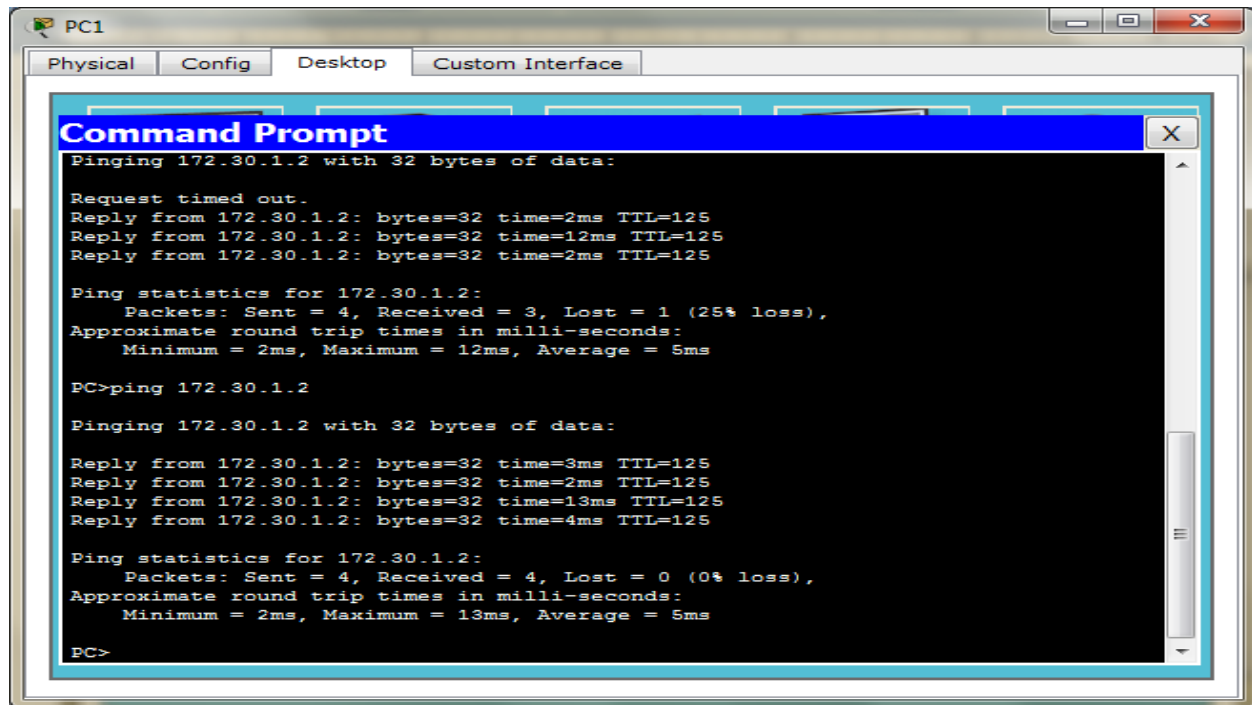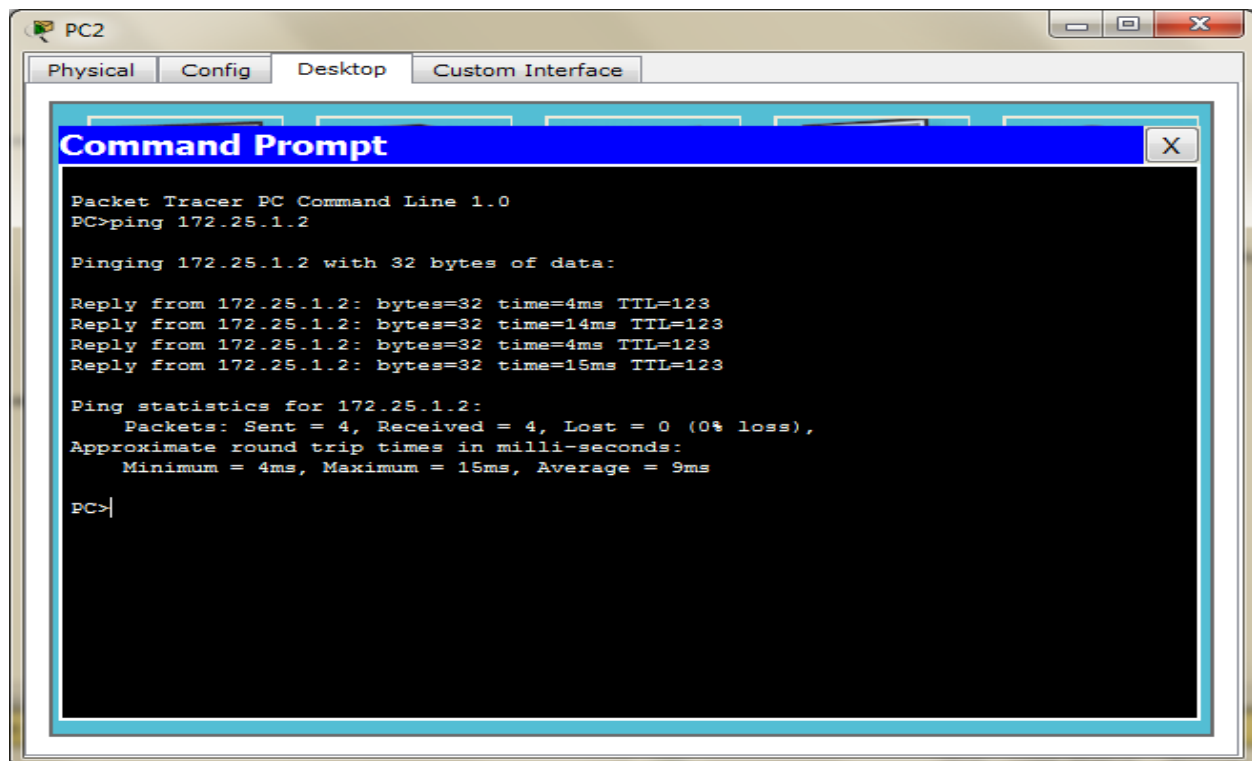
PINGING PC3 FROM PC1:-

```
PC1                                                        _  □  X

Physical   Config   Desktop   Custom Interface

Command Prompt                                               X
Pinging 172.30.1.2 with 32 bytes of data:

Request timed out.
Reply from 172.30.1.2: bytes=32 time=2ms TTL=125
Reply from 172.30.1.2: bytes=32 time=12ms TTL=125
Reply from 172.30.1.2: bytes=32 time=2ms TTL=125

Ping statistics for 172.30.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 5ms

PC>ping 172.30.1.2

Pinging 172.30.1.2 with 32 bytes of data:

Reply from 172.30.1.2: bytes=32 time=3ms TTL=125
Reply from 172.30.1.2: bytes=32 time=2ms TTL=125
Reply from 172.30.1.2: bytes=32 time=13ms TTL=125
Reply from 172.30.1.2: bytes=32 time=4ms TTL=125

Ping statistics for 172.30.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 13ms, Average = 5ms

PC>
```

PINGING PC1FROM PC2:-
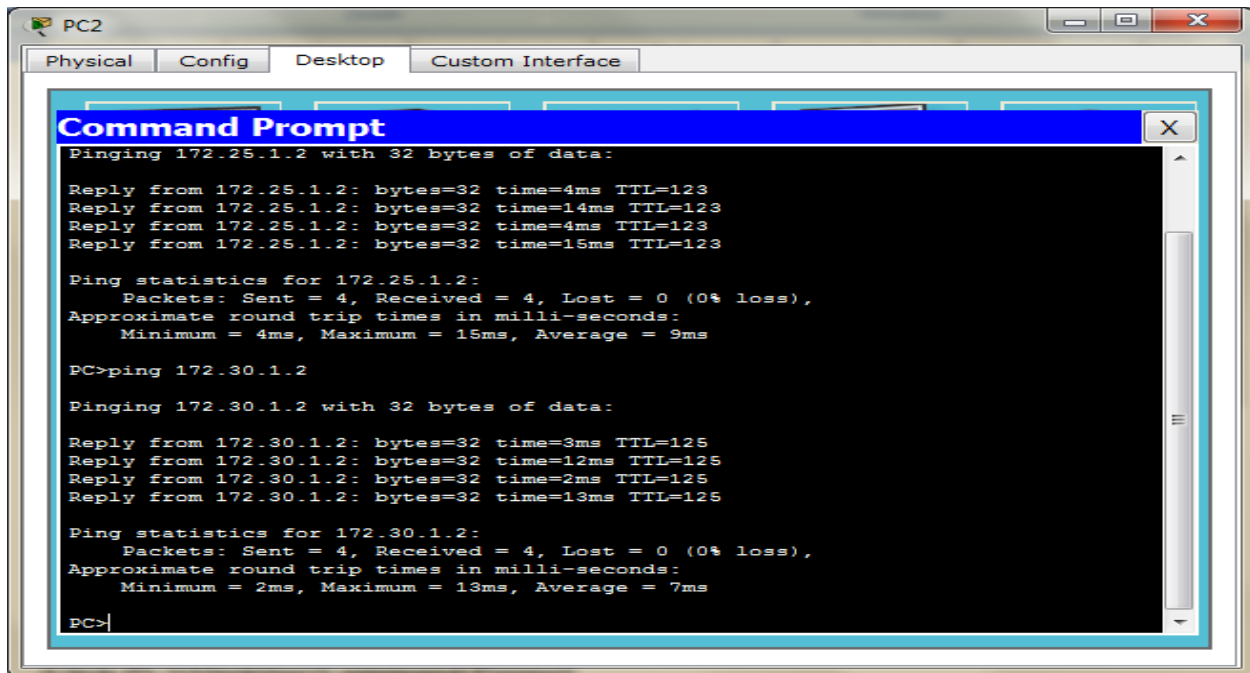
```
PC2                                                        _  □  X

Physical   Config   Desktop   Custom Interface

Command Prompt                                               X

Packet Tracer PC Command Line 1.0
PC>ping 172.25.1.2

Pinging 172.25.1.2 with 32 bytes of data:

Reply from 172.25.1.2: bytes=32 time=4ms TTL=123
Reply from 172.25.1.2: bytes=32 time=14ms TTL=123
Reply from 172.25.1.2: bytes=32 time=4ms TTL=123
Reply from 172.25.1.2: bytes=32 time=15ms TTL=123

Ping statistics for 172.25.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 15ms, Average = 9ms

PC>
```
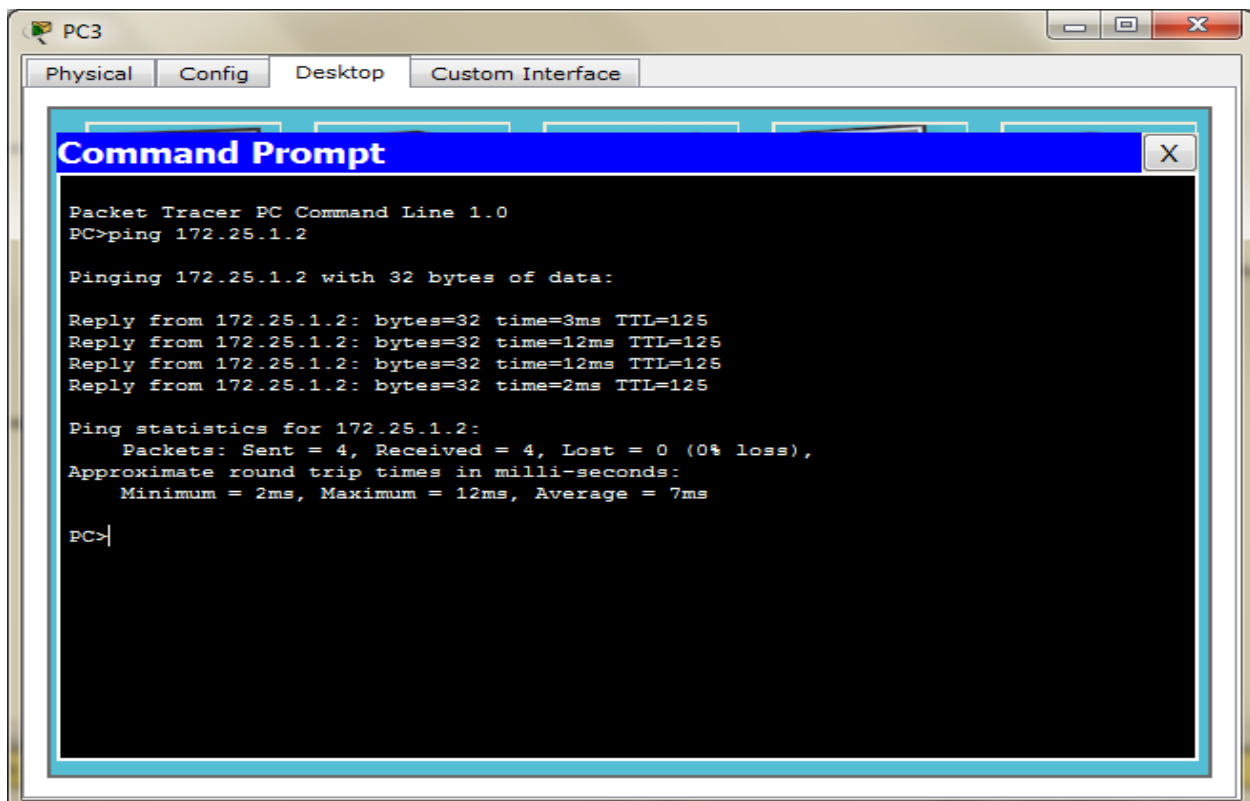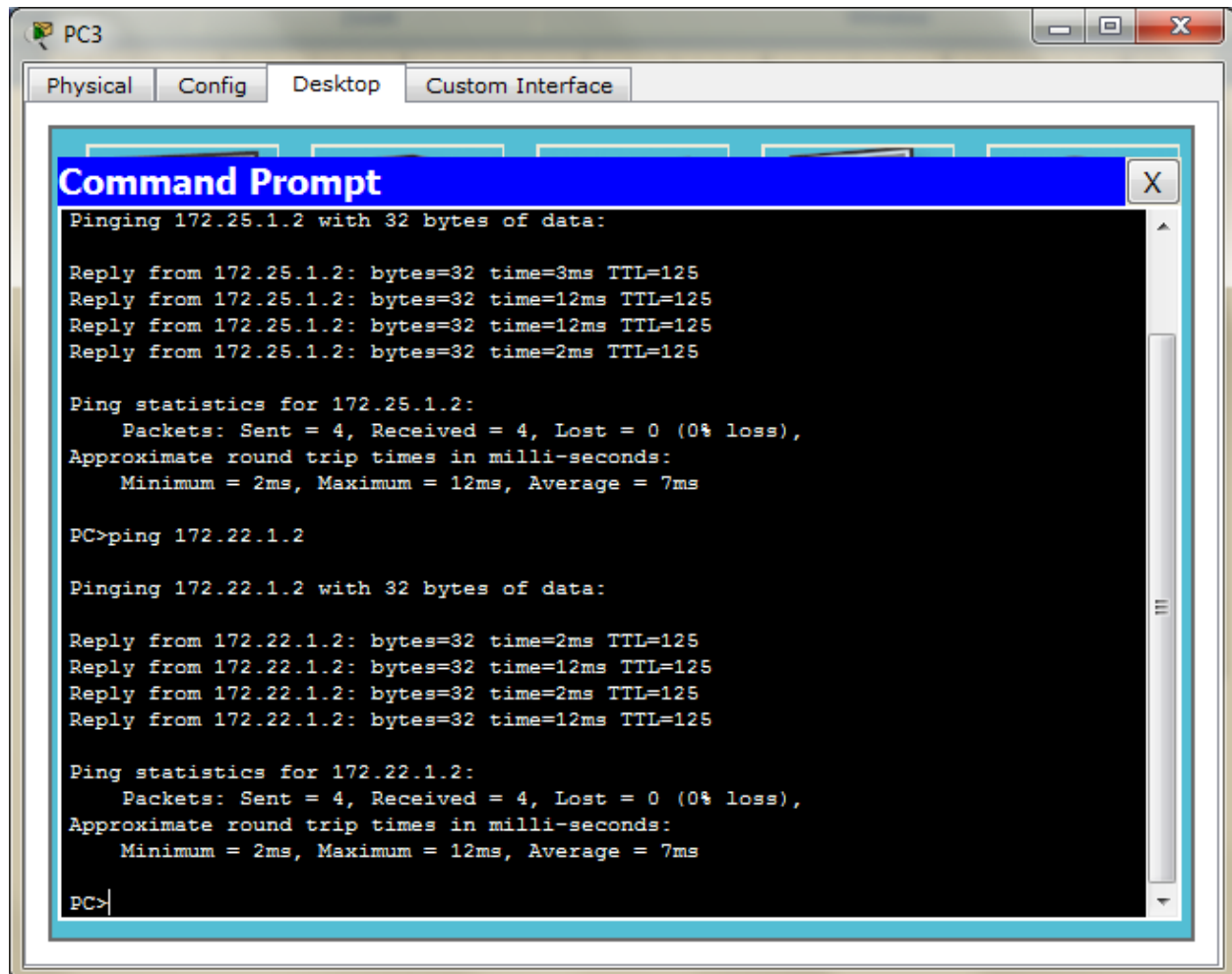
PINGING PC3 FROM PC2:-

PINGING PC1 FROM PC3:-

PINGING PC2 FROM PC3:-

PC3

Physical | Config | Desktop | Custom Interface

Command Prompt   X

```
Pinging 172.25.1.2 with 32 bytes of data:

Reply from 172.25.1.2: bytes=32 time=3ms TTL=125
Reply from 172.25.1.2: bytes=32 time=12ms TTL=125
Reply from 172.25.1.2: bytes=32 time=12ms TTL=125
Reply from 172.25.1.2: bytes=32 time=2ms TTL=125

Ping statistics for 172.25.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 7ms

PC>ping 172.22.1.2

Pinging 172.22.1.2 with 32 bytes of data:

Reply from 172.22.1.2: bytes=32 time=2ms TTL=125
Reply from 172.22.1.2: bytes=32 time=12ms TTL=125
Reply from 172.22.1.2: bytes=32 time=2ms TTL=125
Reply from 172.22.1.2: bytes=32 time=12ms TTL=125

Ping statistics for 172.22.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 12ms, Average = 7ms

PC>
```

_____