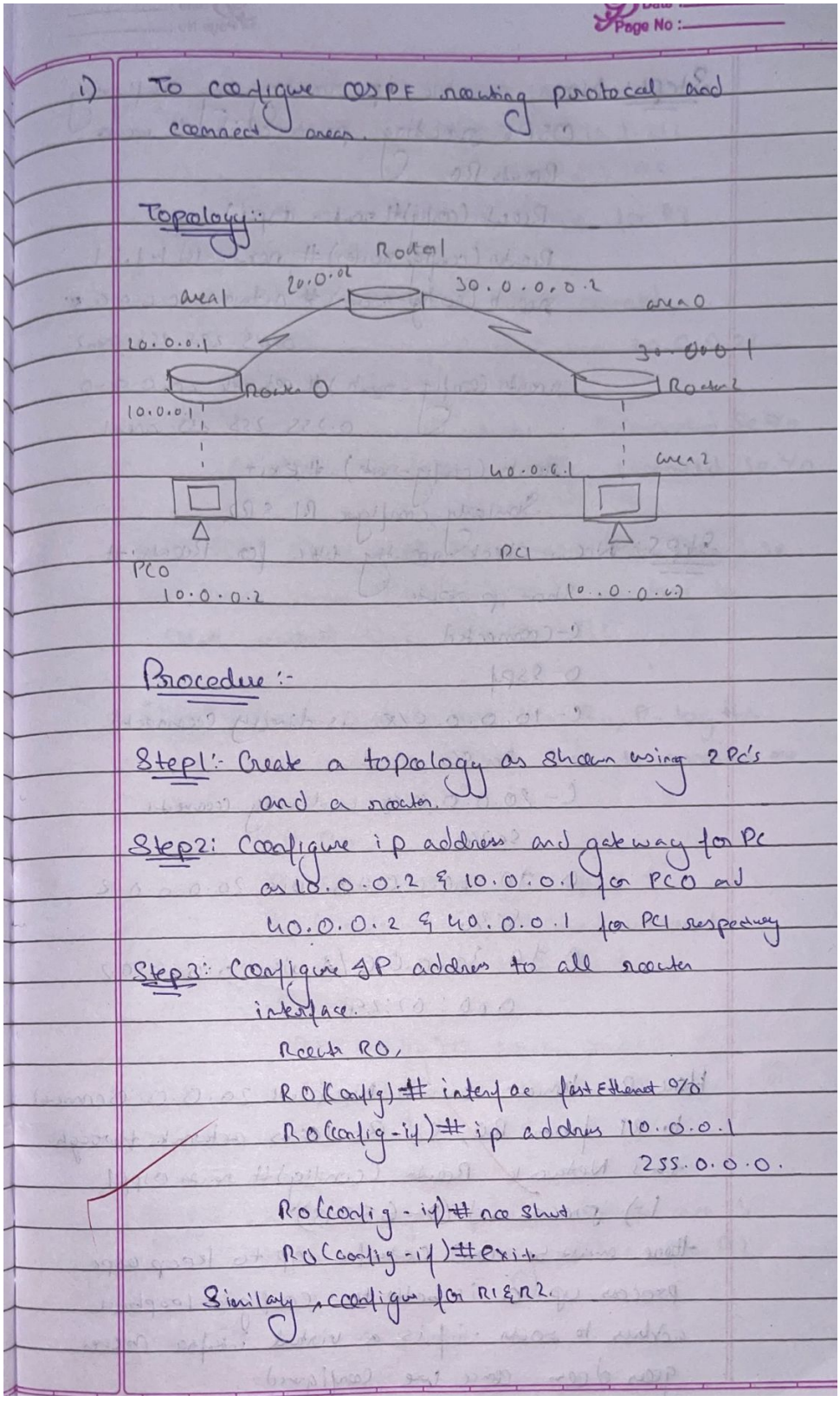
EXPERIMENT-7

Q) Configure OSPF routing protocol



1) To configure OSPF routing protocol and connect areas.

Topology:-

Procedure:-

Step1:- Create a topology as shown using 2 PC's and a router.

Step2: Configure ip address and gateway for Pc as 10.0.0.2 & 10.0.0.1 for PC0 and 40.0.0.2 & 40.0.0.1 for PC1 respectively

Step3: Configure IP addres to all router interface.

Router R0,

R0(config)# interface fastEthernet 0/0

R0(config-if)# ip address 10.0.0.1 255.0.0.0.

R0(config-if)# no shut

R0(config-if)# exit.

Similarly, configure for R1 & R2.

Step4: Now, enable ip routing by configuring OSPF routing protocol in all routers Routers R0.

Router(config)# router ospf 1

Router(config-router)# router-id 1.1.1.1

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)# exit

Similarly configure R1 & R2

Step5: Now check routing table for Routers #

show ip route

C-Connected

O-OSPF

C- 10.0.0.0/8 is directly connected Fa 0/0

C- 20.0.0.0/8 is directly connected Se2/0

O IA 40.0.0.0/8 via 20.0.0.0.2 Se2/0

O IA 30.0.0.0/8 via 20.0.0.0.2 00:07:29

Here R1 knows area 0 Network 20.0.0.0 connected to R1 from R0, So R0 learns network through this Network Router(config)# router ospf 1

1-) process id (2-65535)

there must be one interface up to keep ospf process up. 0 is better to configure loopback address to router. if is a virtual interface never goes down some time configured.

R0(config-if)# ip address 172.16.1.252
255.255.00

Step6: Now check routing table for R3

R3# show ip route

Codes: O - OSPF C - Connected

O IA 20.0.0.0/8 via 30.0.0.02, 00:18:58, se2/0

C 40.0.0.0/8 directly connected se4/0

C 30.0.0.0/8 directly connect se2/0

Here R3 does not know about the area 3 so we know about the area 3 so we have to create virtual link b/w R0 & R1

Step7: Create virtual link b/w R0, R1 by this we create a virtual link to connect are 3/0.

In R0

R0(config)# config ospf 1

R0(config-router)# area 1 virtual link 2.2.2.2

In R1

R1(config)# route ospf 1

R1(config router)# area 1 virtual link 1.1.1.1

Step8: R1 & R2 get updates about area 3

Now check routing table for R2.

C 40.0.0.0/8 is directly connected
fastEthernet 0/0.
O IA 10.0.0.0/8 via 30.0.0.2
00:01:56 se2/0

Step 4: Ping PC1 from PC0.

Result:

In PC0

PC>ping 40.0.0.2

Pinging 40.0.0.2 with 32 bytes of data

Reply from 40.0.0.2 bytes=32 time = 2ms
" " " " = 10ms
" " " " = 14ms
" " " " = 2ms

Ping stats for 40.0.0.2

Packets sent: 4, received = 4, lost = 0, approx round trip in ms: 2ms max = 14ms, avg = 7ms

6/10

2/9/23

TOPOLOGY & OUTPUT