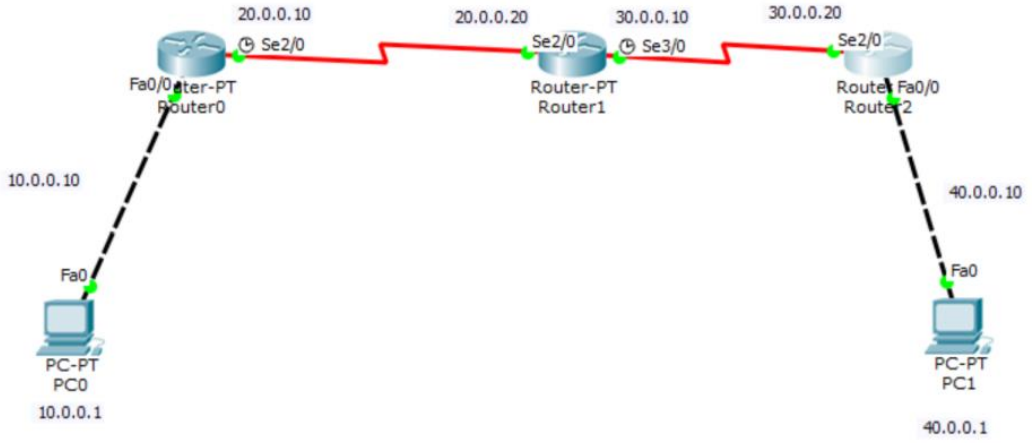
Experiment - 5

Aim: Configure RIP routing Protocol in Routers




```
Router#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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       20.0.0.20/32 is directly connected, Serial2/0
R    30.0.0.0/8 [120/1] via 20.0.0.20, 00:00:18, Serial2/0
R    40.0.0.0/8 [120/2] via 20.0.0.20, 00:00:18, Serial2/0
Router#
```

```
Router#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 20.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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 20.0.0.10, 00:00:20, Serial2/0
     20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial2/0
C       20.0.0.10/32 is directly connected, Serial2/0
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/8 is directly connected, Serial3/0
C       30.0.0.20/32 is directly connected, Serial3/0
R    40.0.0.0/8 [120/1] via 30.0.0.20, 00:00:19, Serial3/0
Router#

Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#network 30.0.0.0
                   ^
% Invalid input detected at '^' marker.

Router(config)#router rip
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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 [120/2] via 30.0.0.10, 00:00:14, Serial2/0
R    20.0.0.0/8 [120/1] via 30.0.0.10, 00:00:14, Serial2/0
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/8 is directly connected, Serial2/0
C       30.0.0.10/32 is directly connected, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

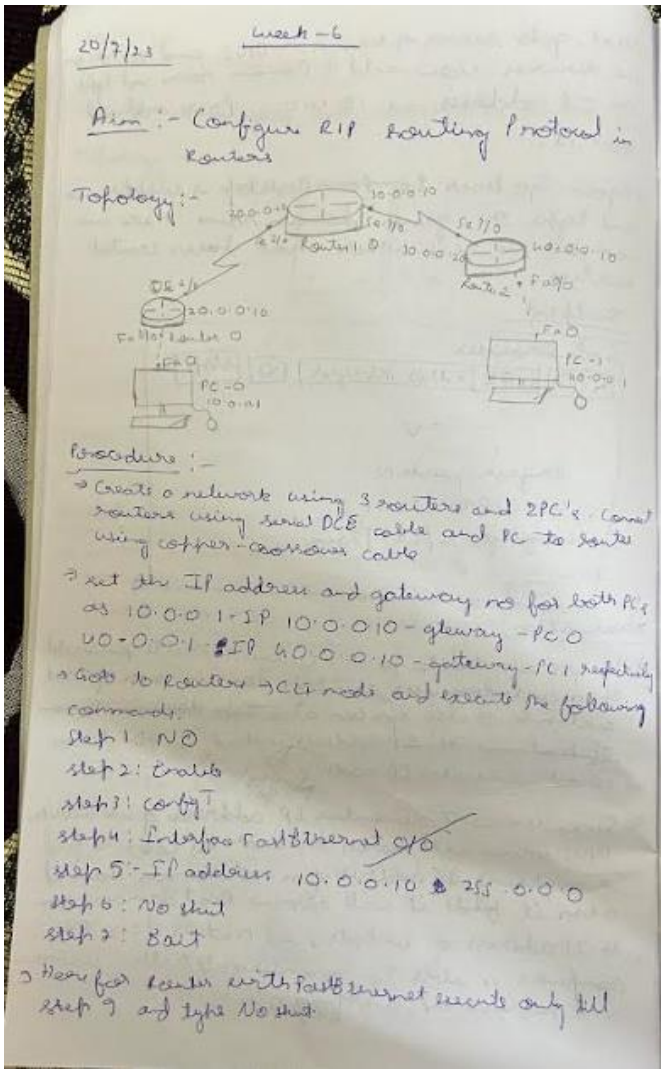
```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.1: bytes=32 time=10ms TTL=125
Reply from 40.0.0.1: bytes=32 time=7ms TTL=125
Reply from 40.0.0.1: bytes=32 time=10ms TTL=125

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 10ms, Average = 9ms

PC>
```



20/7/23 Week-6

Aim :- Configure RIP routing protocol in Routers

Topology :-

Procedure :-

→ Create a network using 3 routers and 2PC's. Connect routers using serial DCE cable and PC to router using copper-crossover cable

→ set the IP address and gateway no for both PC's as 10.0.0.1 - IP 10.0.0.10 - gateway - PC 0
40.0.0.1 - IP 40.0.0.10 - gateway - PC 1 respectively

→ Goto to Routers → CLI mode and execute the following commands:

Step 1: NO
step 2: Enable
step 3: config T
step 4: Interface FastEthernet 0/0
step 5: IP address 10.0.0.10 255.0.0.0
step 6: No shut
step 7: Exit

→ Here for router with FastEthernet inserts only till step 7 and type No shut

→ Now go to Router 0 → CLI mode and type the steps:-

Step 1 :- Config T
Step 2 :- router rip
Step 3 :- Network 10.0.0.0
Step 4 :- Network 20.00.0
Step 5 :- Exit

→ Repeat these steps for all routers

→ At last now go to each router and type show IP route Here the IP addresses associated with the router will be labelled as "C" and other IP addresses are labelled as R.

Final output :-

→ Packet Tracer PC command Line 10
PC > Ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data

Request timed out:-
Reply from 10.0.0.1 : bytes = 32 time: 8ms TTL = 125
Reply from 10.0.0.1 : bytes = 32 time: 5ms TTL = 125
Reply from 10.0.0.1 : bytes = 32 time: 10ms TTL = 125

Observation:-

→ RIP is a dynamic routing protocol that uses hop count a routing metric to find the best path between source and destination.

→ Hop count is the no. of routers coming in between source and destination.

→ Updates of routing information are always broadcasts.

→ Full routing tables are sent in updates

→ Routers always trust routing information received from neighbour routers.

21/8/2023