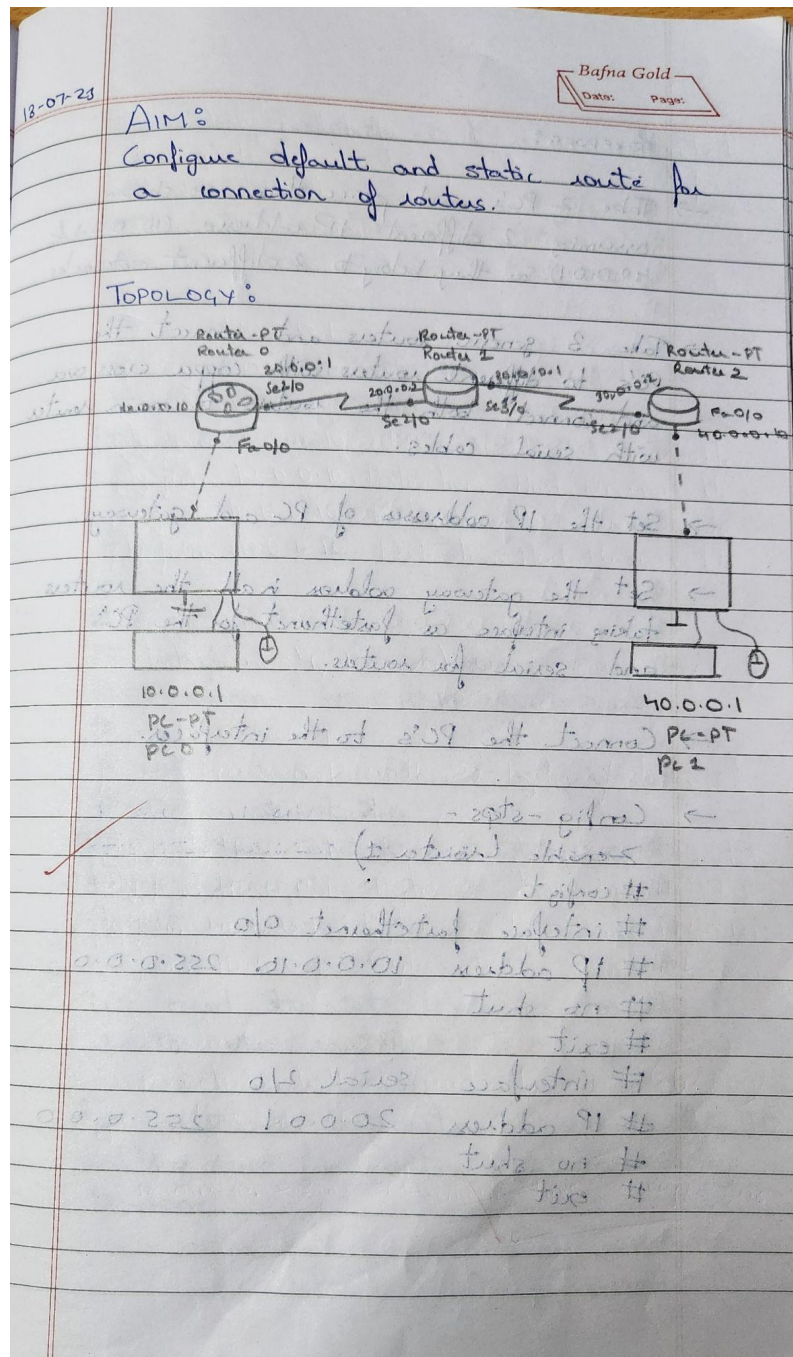# EXPERIMENT 3

AIM:

Configure default route, static route to the Router.

OBSERVATION:

PROCEDURE:

→ Take 2 PC's and place them as shown, assuming 2 different IP addresses (10.0.0.1 & 40.0.0.1) as they belong to 2 different networks.

→ Take 3 generic routers and connect the PC's to different routers with copper cross over and connect both the routers to main router with serial cables.

→ Set the IP addresses of PC and gateways.

→ Set the gateway address in all the routers taking interface as fastethernet for the PC's and serial for routers.

→ Connect the PC's to the interfaces.

→ Config - steps -

> enable (router 1)
config t
interface fastethernet 0/0
IP address   10.0.0.10   255.0.0.0
no shut
exit
interface   serial 2/0
IP address   20.0.0.1   255.0.0.0
no shut
exit

Similarly for router - 0

\> enable
config t
interface serial 2/0
IP address 20.0.0.2 , 255.0.0.0
no shut
exit
interface serial 3/0
IP address 30.0.0.1 , 255.0.0.0
no shut
exit

For router - 2.

\> enable
config t
interface fastethernet 0/0
IP address 40.0.0.10 , 255.0.0.0
no shut
exit
interface serial 2/0
IP address 30.0.0.2 255.0.0.0
no shut
exit

We need to set IP routes for all routes via routers.

For router-1 & router-2, we do default routing and for router-0, static routing is done.

For router - 1

config t
ip route 0.0.0.0 00.0.0.1.20:0.0.2
no shut
exit
show ip route
  C 10.0.0.0/8 is directly connected, Fastethernet0/0
  C 20.0.0.0/8 is directly connected, serial 2/0
  S 0.0.0.0/0 [1/0] via 20.0.0.2

Similarly for router -2

config t
ip route 0.0.0.0 0.0.0.0 + 30.0.0.1
exit
  show ip route

For router - 0 (static routing)

config t
ip route 10.0.0.0 255.0.0.0 +20.0.0.0
ip route 40.0.0.0 255.0.0.0 +30.0.0.0
exit
show ip route
  S 10.0.0.0/8 [1/0] via 20.0.0.0
  C 20.0.0.0/8 is directly connected, serial 2/0
  C 30.0.0.0/8 is directly connected, serial 3/0
  S 40.0.0.0/8 [1/0] via 30.0.0.0

→ Now, we ping 10.0.0.1 from the
command prompt of 40.0.0.1.

RESULT:

> ping 40.0.0.1

pinging 40.0.0.1 with 32 bytes of data.

Reply from 40.0.0.10 : Bytes = 32 time = 2ms TTL = 128
Reply from 40.0.0.1 : Bytes = 32 time = 2ms TTL = 128
Reply from 40.0.0.1 : Bytes = 32 time = 2ms TTL = 128
Reply from 40.0.0.1 : Bytes = 32 time = 2ms TTL = 128.

Ping statistics.
    Packets : sent = 4, Received = 4, Loss = 0 (0% Loss)
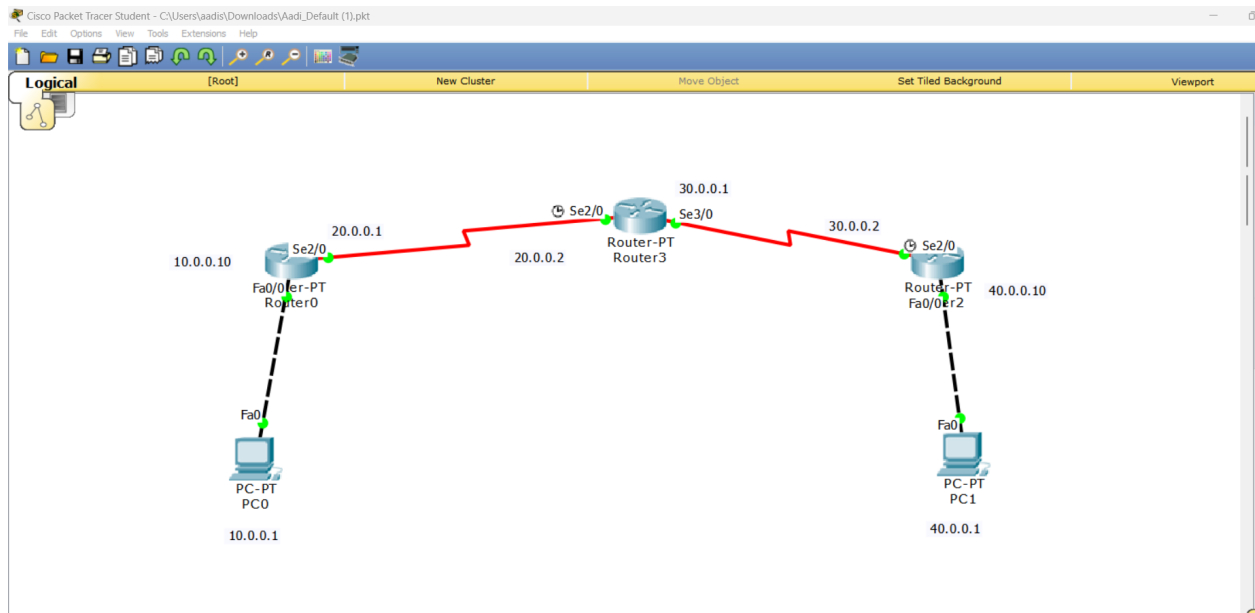Approx time in ms :

    minimum = 2ms   Maximum = 4ms Average = 3ms.

OBSERVATIONS:

If router has only one pathway to go it
can be default routing to send packets
if any destination to its adjacent neighbour.
This was the case with router 0 and
router 1 where in other router, we do
usual static routing.

20/7/23

Result:

Router 0:

Router 1:

```
Router3                                                          —    □    ✕

Physical   Config   CLI
                        IOS Command Line Interface

Press RETURN to get started!

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

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up


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

S    10.0.0.0/8 [1/0] via 20.0.0.1
C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
S    40.0.0.0/8 [1/0] via 30.0.0.2
Router#

                                                    Copy        Paste
```
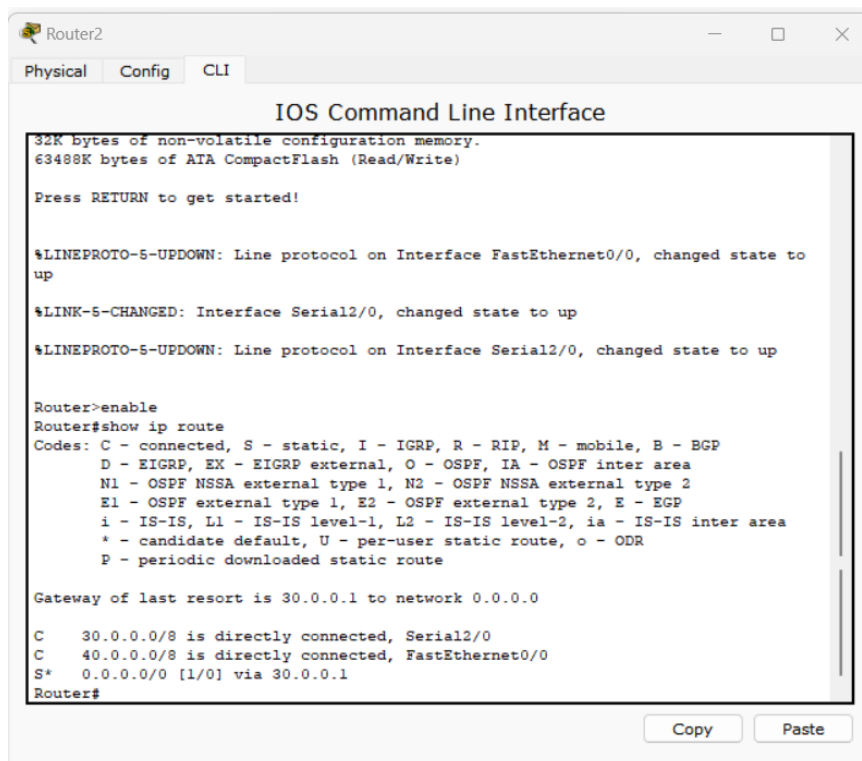
Router 2:

```
Router2                                                         —    □    ✕

Physical   Config   CLI
                        IOS Command Line Interface
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!


%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up


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 30.0.0.1 to network 0.0.0.0

C    30.0.0.0/8 is directly connected, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
S*   0.0.0.0/0 [1/0] via 30.0.0.1
Router#

                                                    Copy        Paste
```
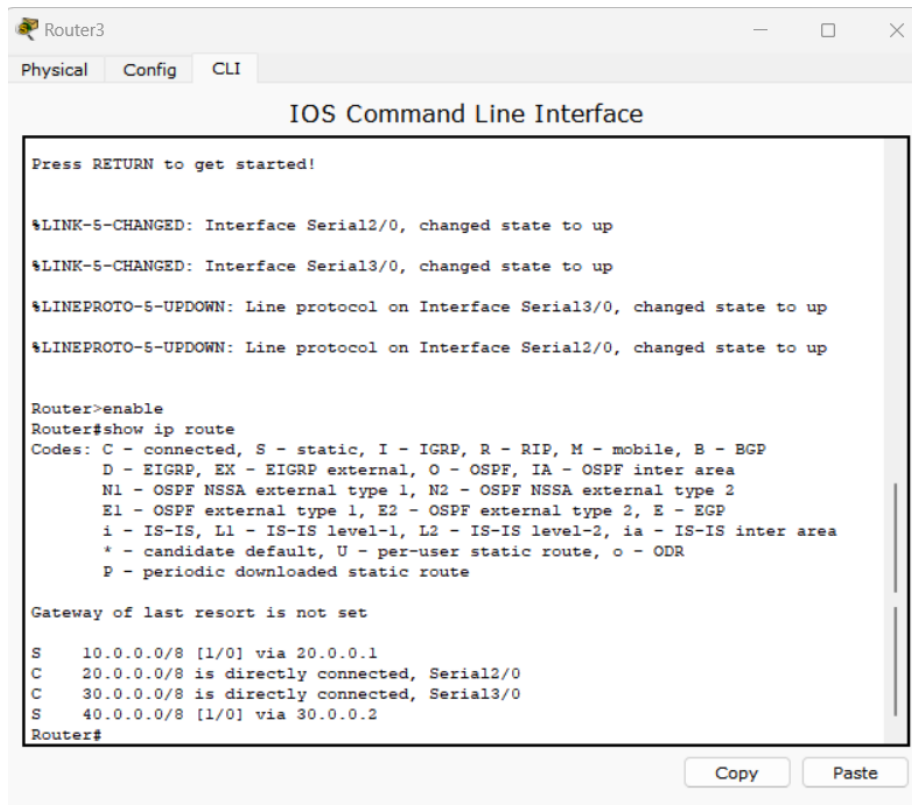
PC0 — □ ✕

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=7ms TTL=128
Reply from 40.0.0.1: bytes=32 time=6ms TTL=128
Reply from 40.0.0.1: bytes=32 time=5ms TTL=128
Reply from 40.0.0.1: bytes=32 time=6ms TTL=128

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 7ms, Average = 6ms

PC>
```