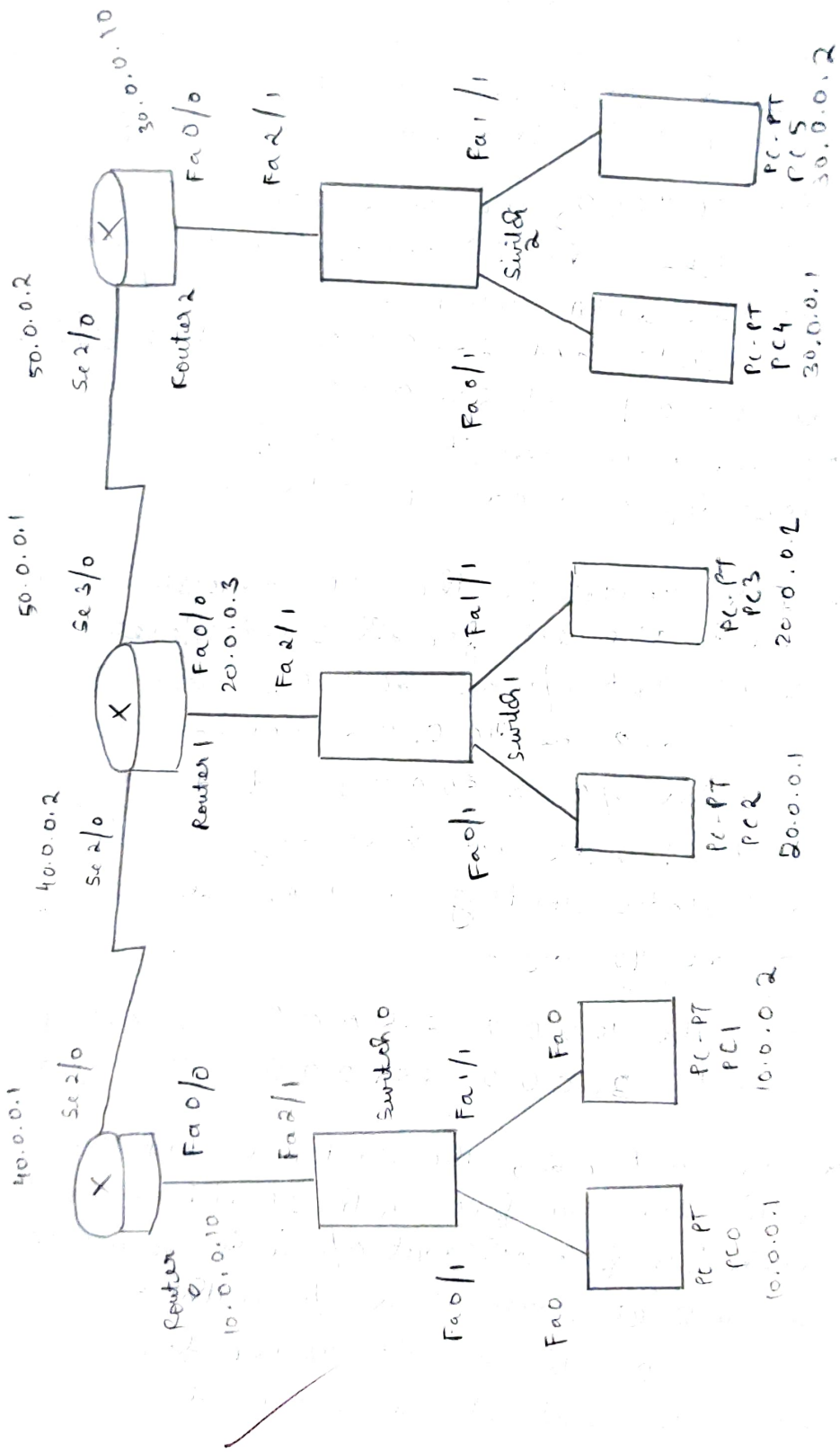
Aim :- Configuring default route to the router.

Topology :-



Procedure:-

→ Place 6 generic PC's, 3 switches and 3 routers and connect 2 PC's to each switch with copper straight wire and each switch is connected to one router with a copper straight wire and 3 routers are connected among themselves by serial DCE cable

PC0 and PC1 gateway - 10.0
PC2 and PC3 gateway - 20.0
PC4 and PC5 gateway - 30.0

→ A PC is clicked to set the attributes for a PC and each PC has 3 attributes which are the IP address, subnet mask and the gateway and all the three are set according to the nodes placed. This process is done for all 6 PC's

→ For router 0, the configuration are done in the CLI. The IP address and subnet mask are set for both interface fastethernet 0/0 as 10.0.0.10 and 255.0.0.0 and serial 2/0 as 40.0.0.1 and 255.0.0.0
Router 1 is default router for Router 0 and done by command ip route 0.0.0.0 0.0.0.0 40.0.0

→ For router 1, the IP addresses and subnet mask are set for all 3 interfaces, fastethernet 0/0 as 20.0.0.3 and 255.0.0.0 serial 2/0 as 40.0.0.2 and 255.0.0.0 and serial 3/0 as 50.0.0.1 and 255.0.0.0.
Router 1 does not have any default routers and static routing is done for network 10 and 40 by:-

ip route 10.0.0.0 255.0.0.0 40.0.0.1
ip route 30.0.0.0 255.0.0.0 50.0.0.2

→ For router 2, the router is configured in both the interface with IP address and subnet mask as fast ethernet 0/0 with 30.0.0.10 and 255.0.0.0 and serial 2/0 with 50.0.0.2 and 255.0.0.0 The default router for router 2 is router 1 and set by command:-

ip route 0.0.0.0 0.0.0.0 50.0.0.1

Ping command is executed from 10.0.0.1 to 20.0.0.1 and from 10.0.0.1 to 30.0.0.2

Observations:-

Learning outcomes:-

→ One router cannot have 2 default routers.
→ The default router for first router is the middle router because any packets which have to delivered will go to the middle router.
→ The default router for third router is the middle router for same reason.
→ The middle router does not have any default router because if one of the router is made default then there is a chance that the packets which are to be sent to the switch and sent to the router.

Result:-

ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data
Request timed out
Reply from 20.0.0.1 bytes = 32, time = 1ms, TTL = 126
Reply from 20.0.0.1 bytes = 32, time = 2 ms, TTL = 126
Reply from 20.0.0.1 bytes = 32, time = 6ms, TTL = 126

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