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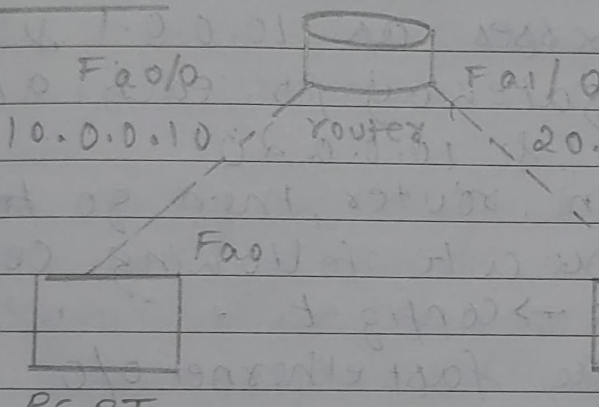
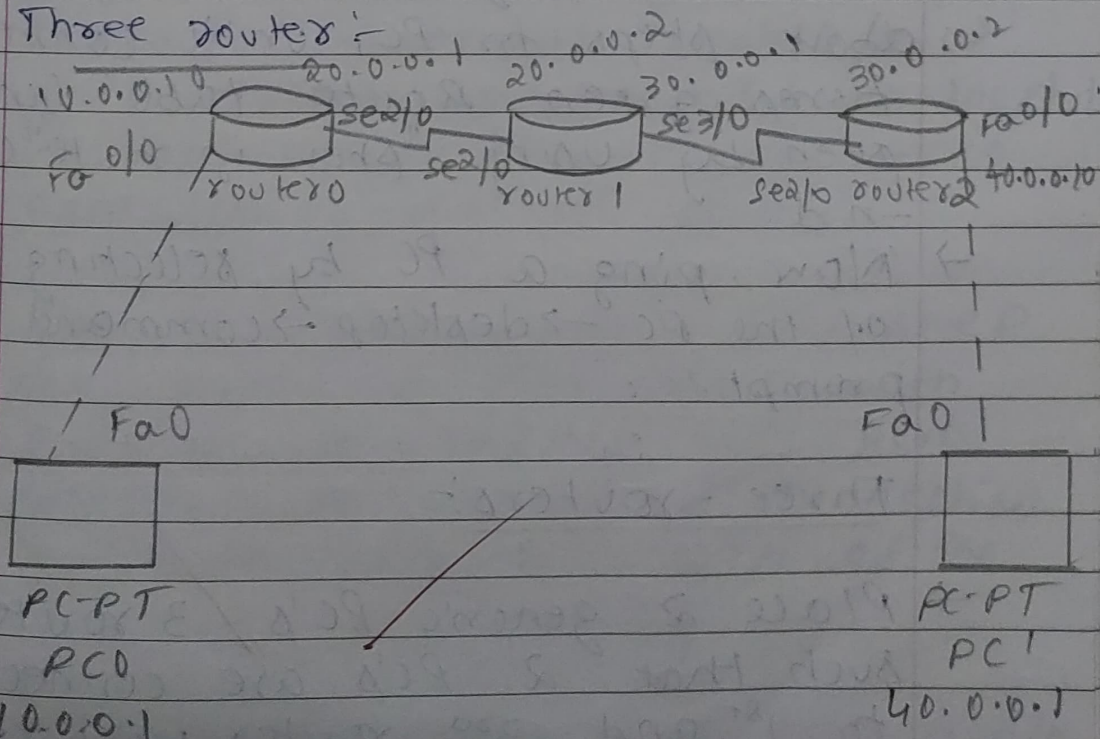
Aim:- Configuring IP address to routers in packet tracer Explore the following messages: Ping responses, destination unreachable, request timed out, reply.

Topology:-

One-router:-




Three router:-



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## Procedure:

### One-router:

→ Place 2 generic PC, a generic router and notep with IP addresses and connect using copper cross wire.

→ Click on both PC's and set IP addresses as 10.0.0.1 & 10.0.0.2 with gateway for each as 10.0.0.10 & 10.0.0.20

→ Click on router, then go to CLI and execute following commands
→enable → config t
→interface fastethernet 0/0
→ip address 10.0.0.10 255.0.0.0
→no shut

now connection between PC0 & router turns green and repeat above steps for PC1 until connection turns green. Route table can be seen by using "show ip route" command.

→ Now ping a PC by selecting one of the PC → desktop → command prompt.

### Three-routers:

→ Place 2 generic PC's, 3 routers such that 2 PC's are connected to 1st and 3rd router using copper

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Create and 3 routers are connected with sequence 1st ↔ 2nd ↔ 3rd using serial DCE cable

→ Place notes to indicate IP addresses and ports of fastethernet & serial ports.

→ Set IP address, gateway, subnet mask for both the PC's.

→ Now configure router 1 :-
→ click → cli → enable → config t
→ interface fastethernet 0/0
→ ip address 10.0.0.10 255.0.0.0
→ no shut
by this first PC and left half of router connection is establ-ished.
→ config t → interface serial 2/0 → ip address 20.0.0.1 255.0.0.0 → no shu
now right side connection is established for 1st router.

→ Do the same above done step for router 2 and three with correct IP address and port selection to establish connection on both sides of each of the routers successfully

→ After all connections, green lights

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are shown as a result of successfull completion, now if we ping, we get "destination unreachable"

→ If we ping to other routers, we get "request timed out" as routers are not trained for indirect connected IP's

→ Train router 1 by :-
ip route 30.0.0.0 255.0.0.0 20.0.0.2
ip route 40.0.0.0 255.0.0.0 20.0.0.2

→ Train router 2 by :-
ip route 10.0.0.0 255.0.0.0 20.0.0.1
ip route 40.0.0.0 255.0.0.0 30.0.0.2

→ Train router 3 by :-
ip route 10.0.0.0 255.0.0.0 30.0.0.1
ip route 20.0.0.0 255.0.0.0 30.0.0.1

→ Now pinging from PC0 to PC1 is successfull.

Observations :-

One-router :-
Pinging output for first time

ping 20.0.0.1

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pinging 20.0.0.1 with 32 bytes of data:
request timed out
Reply from 20.0.0.1: bytes = 32
Reply from 20.0.0.1 : bytes = 32
Reply from 20.0.0.1 : bytes = 32

ping statistics for 20.0.0.1:
packets sent = 4, received = 3, lost = 1

But when PC0 pings PC1 again or if reverse ping happens, we get reply all 4 times

3 routers:-

* Output when PC0 is pinged by PC1 or vice versa before routers are trained of unknown IP's.

ping 40.0.0.1

pinging 40.0.0.1 with 32 bytes of data

reply from 10.0.0.10: destination host unreachable
reply from 10.0.0.10: destination host unreachable
reply from 10.0.0.10: destination host unreachable
reply from 10.0.0.10: destination host unreachable

pinging statistics 40.0.0.1
packets sent = 4 received = 0 lost = 4

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ping 20.0.0.2

request timed out
request timed out
request timed out
request timed out.

pinging statistics 20.0.0.2
packets sent = 4, received = 0, lost = 40

→ once routes are trained.

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 = 2ms
reply from 40.0.0.1 : bytes = 32 time = 2ms
reply from 40.0.0.1 : bytes = 32 time = 2ms

pinging statistics for 40.0.0.1
packets : sent = 4, received = 3, loss = 1

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