

PART B

(PART B: TO BE COMPLETED BY STUDENTS)

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case there is no Blackboard access available)

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Class: TE-Comps B	Batch: B3
Date of Experiment: 28/09/2020	Date of Submission: 28/09/2020
Grade :	

B.1 Document created by the student:

(Write the answers to the questions given in section 5.1 during the 2 hours of practice in the lab here)

SN O.	NAME OF THE DEVICE	INTERFACE	IP ADDRESS	Subnet Mask	Default Gateway
1.	Router 0	Serial 0/0/0	192.168.30.2	255.255.255.0	-----
2.	Router 0	Fast Ethernet 0/0	192.168.10.1	255.255.255.0	-----
3.	Router 1	Serial 0/0/0	192.168.30.3	255.255.255.0	-----
4.	Router 1	Fast Ethernet 0/0	192.168.20.1	255.255.255.0	-----
5.	PC0	fa0/0	192.168.10.2	255.255.255.0	192.168.10.1
6.	PC1	fa0/0	192.168.10.3	255.255.255.0	192.168.10.1
7.	PC2	fa0/0	192.168.10.4	255.255.255.0	192.168.10.1
8.	PC3	fa0/0	192.168.20.2	255.255.255.0	192.168.20.1
9.	PC4	fa0/0	192.168.20.3	255.255.255.0	192.168.20.1
10.	PC5	fa0/0	192.168.20.4	255.255.255.0	192.168.20.1

PC0

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.10.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.10.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

IPv6 Configuration

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.10.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

PC3

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

PC4

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

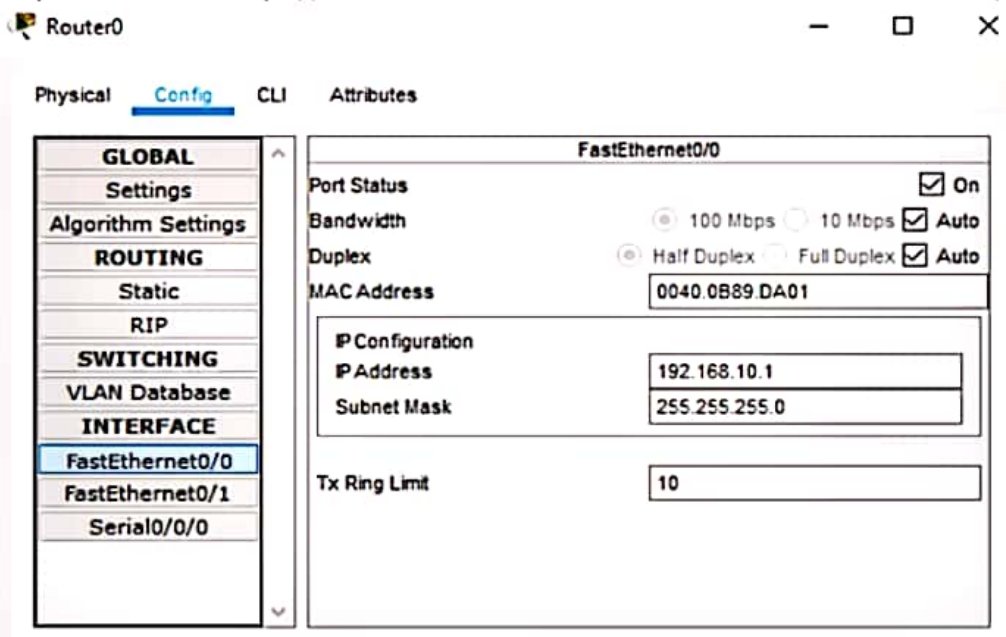
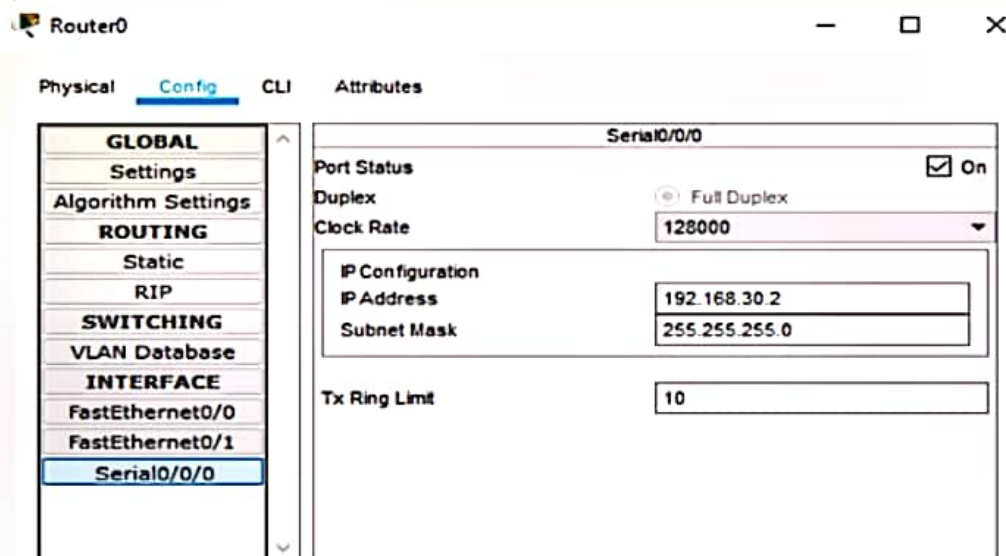
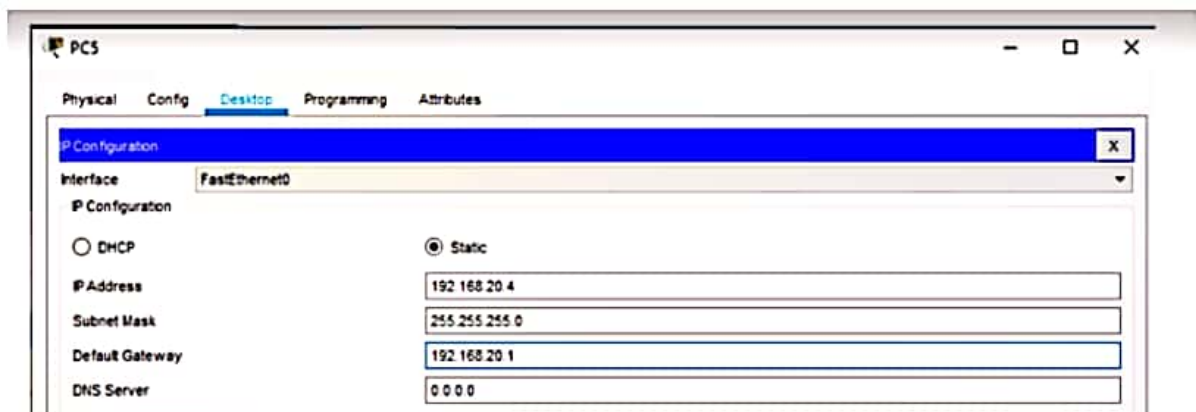
☐ DHCP ☒ Static

IP Address 192.168.20.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0



Router1

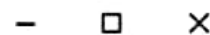


Physical Config CLI Attributes

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0

Serial0/0/0	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	128000
IP Configuration	
IP Address	192.168.30.3
Subnet Mask	255.255.255.0
Tx Ring Limit	
10	

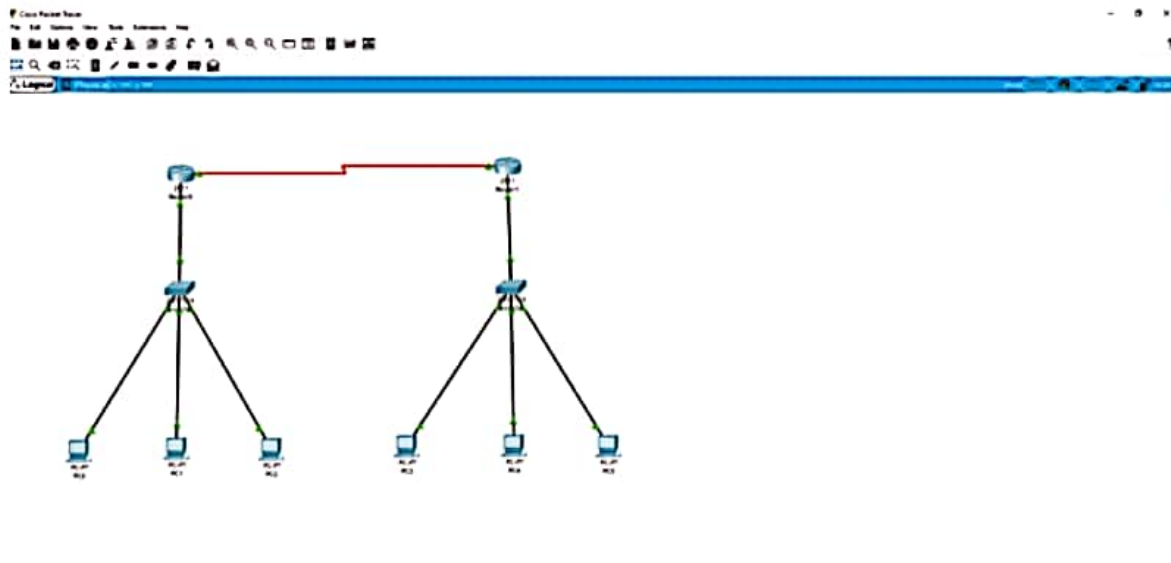
Router1



Physical Config CLI Attributes

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0

FastEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	00E0.8F24.1E01
IP Configuration	
IP Address	192.168.20.1
Subnet Mask	255.255.255.0
Tx Ring Limit	
10	



PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.2: bytes=32 time=10ms TTL=126
Reply from 192.168.20.2: bytes=32 time=10ms TTL=126
Reply from 192.168.20.2: bytes=32 time=10ms TTL=126

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 10ms, Average = 10ms

C:\>
```

PC2

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command line 1.0
C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=1ms TTL=255
Reply from 192.168.30.2: bytes=32 time=1ms TTL=255
Reply from 192.168.30.2: bytes=32 time=2ms TTL=255
Reply from 192.168.30.2: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>
```

B.3 Observations and learning:

(Students are expected to understand the selected topic. Have to list out the components & functionality. Prepare a flow of the algorithm defined in the paper. List the performance metrics that are used)

After the successful completion of the experiment, we have learned about -

- Knowledge about LAN, MAN and WAN and NW Elements.
- Linux NW Commands
- HW and IP Address concepts.
- Concept of Analysis, Design, Simulation and Modelling
- Cisco Packet tracer as simulation tool

B.4 Conclusion:

(Students must write the conclusion as per the attainment of Individual outcome listed above and learning/observation noted in section B.3)

We are now able to design a LAN and establish connection to other networks and understand the basic working of PING (ICMP) and ARP (DLL).

B.5 Question of Curiosity

(To be answered by the student based on the practical performed and learning/observations)

1. What is CISCO Packet tracer? How can one make use of it learning CN?
2. What are all the NW elements you will have in the CISCO Packet Tracer?
3. Define the following and provide the example for each
 - a. IP address
 - b. DNS
 - c. Subnet mask
 - d. Gateway
 - e. RIP
4. What is Ping? It belongs to which protocol family.
5. ARP request is always a broadcast why?
6. What does an ARP reply carry?
7. What is RARP? How is it different from ARP?

Computer Networks Laboratory Experiment - 7

Amey Thakur

D.O.E - 28.09.2020

TE COMPS B-50

D.O.S - 28.09.2020

B3

Q.1. What is cisco packet tracer? How can one use of it learning CN?

Ans1

- Cisco packet tracer is a cross platform visual simulation tool designed by cisco systems that allows users to create network topologies and imitate modern computer networks.
- The software allows user to simulate the configuration of cisco routers and switches using a simulated command line interface.
- Packet tracer allows students to design complex and large networks which is often not feasible with physical hardware due to cost.

Q2 What are all the NW elements you will have in cisco packet tracer?

Ans:

- Network devices, End devices, Components, Connections, Multiuser connection, etc.

These are available elements from cisco packet tracer.

Q.3 Define the following with example

A. IP address

- IP address is a decimal number that defines the routing information of the Internet user. The address is composed of four sets of numbers, each separated by a decimal point.
- Example: 127.0.0.1.

B. DNS

- DNS or Domain Name System translates human readable domain names (Example, www.amey.com) to machine readable IP addresses.
- Example: 192.168.2.33

C. Subnet Mask

- Subnet masks are also expressed in dot-decimal notation like an address. Traffic is exchanged between subnetworks through routers when the routing prefixes of the source addresses and the destination addresses differ.
- Example: 255.255.255.0 is the subnet mask for 192.168.0.1

D. Gateway

- A gateway is a hardware device that acts as a gate between two networks. It may be a router, firewall, server, or other devices that enables traffic to flow in or out of the network.
- Example: A proxy server may only allow local computers to access a list of authorized websites.

E. RIP

- Routing Information Protocol (RIP) is a distance vector protocol that uses hop count as its primary metric. RIP defines how routers should share information when moving traffic among an interconnected group of Local Area Networks.
- Example: RIPv1, RIPv2 and RIPv3.

Q.4. What is Ping? It belongs to which protocol family?

Ans:

- Ping is a computer network administration software utility used to test the reachability of a host on an Internet Protocol (IP) network. It is available for virtually all operating systems that have network capability.
- Ping operates by sending Internet Control Message Protocol (ICMP) echo requests packet to the target host and waiting for an ICMP echo reply.

Q.5. Why ARP request always broadcast?

Ans:

- If the IP address is not found in the ARP table, the system will then send a broadcast packet to the network using the ARP protocol to ask, "Who has 192.168.1.1". Because it is a broadcast packet it is sent to a special MAC address that causes all machines on the network to receive it.

Q.6. What does an ARP reply carry?

Ans:

- The payload of an ARP reply contains the link layer address mapping.

Q.7. What is RARP? How is it different from ARP?

Ans:

RARP

- Short for Reverse Address Resolution Protocol.
- A TCP/IP protocol that permits a physical address, such as ethernet address to be translated into an IP address.
- Hosts such as diskless workstations often only know their hardware interface addresses or MAC address, when booted but not their IP addresses.
- They must discover their IP addresses from external source usually a RARP server.

Difference

- Through ARP, (32-bit) IP address mapped into (48-bit) MAC address.
- Whereas, In RARP, IP address is fetched through server.