Department of Electronics and Telecommunication Engineering

Semester	T.E. Semester VI – EXTC Engineering
Subject	Computer Communication Network (CCN)
Laboratory Teacher:	Prof. Beena R Ballal

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Grade and Subject Teacher's Signature		

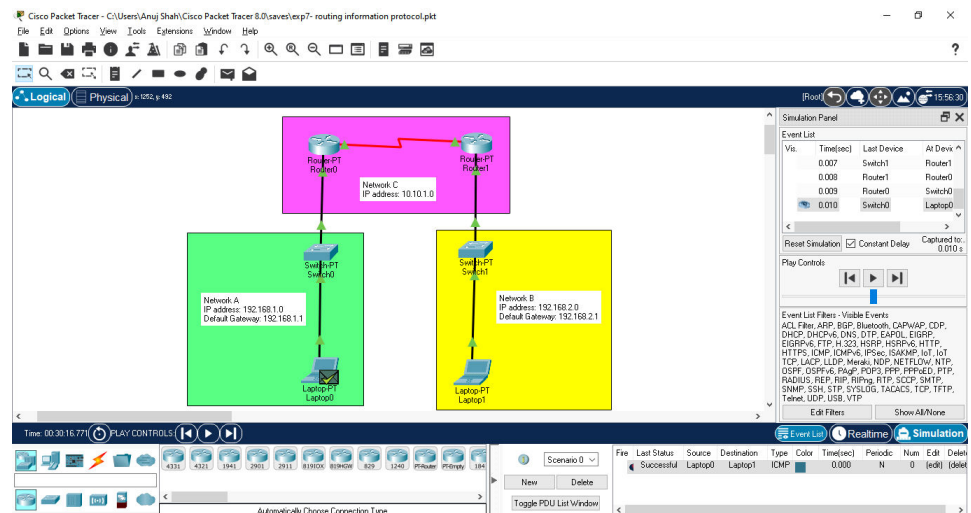| Experiment Number	07
Experiment Title	Configuration of Network with Routers using Routing Information Protocol(RIP) in CISCO packet tracer
Aim	To set up and configure a network using using Routing Information Protocol(RIP) in CISCO packet tracer .Establish transmission of packets from one network to the other network and verify its successful transmission
Resources / Apparatus Required	Hardware: Internet Connected PC Software: Cisco Packet Tracer
Theory:	Routing Information Protocol (RIP) is a dynamic routing protocol which uses hop count as a routing metric to find the best path between the source and the destination network. It is a distance vector routing protocol which has AD value 120 and works on the application layer of OSI model. RIP uses port number 520. Features of RIP are as follows 1. Updates of the network are exchanged periodically. 2. Updates (routing information) are always broadcast. 3. Full routing tables are sent in updates. 4. Routers always trust on routing information received from neighbor routers. This is also known as Routing on rumours.
Procedure :	1. Open cisco packet tracer. 2. Select the required end devices such as PC, Laptop, router,switches from the end devices and Network devices 3. Connect Network using automatic connections 4. Configure the end devices(PC's) using the suitable IP addresses 5.Configure the routers in their fast Ethernet port and turn them on 6.Configure the network between the 2 routers on serial port.Select the clock speed as 64000 7. Using RIP on both the routers add the required networks and save the settings on NVRAM 7.Observe that the entire network has turned from red to green 7. Choose the packet from tools and select its source and destination..

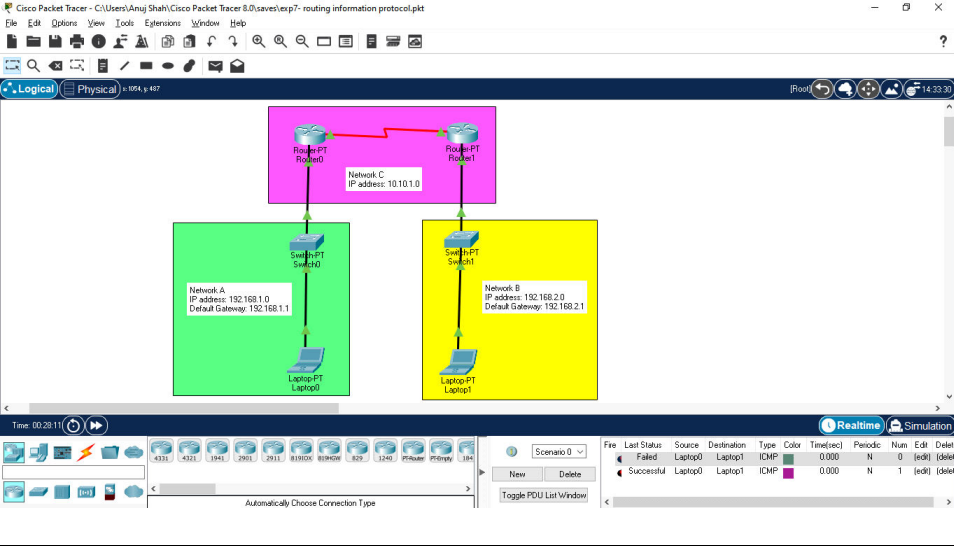|	
	8. Click Start simulation. Observe the successful delivery of packet through tick mark(Acknowledgement) 9. Packet will be transmitted from source to destination and response will be shown as successful
Screenshots of the Output(Response)	**Network with two Routers and connections active** **Successful transmission of packet from source to destination with acknowledgment received in simulation mode(Tick mark)** **In real time mode message of successful tranmission of packet between two networks**
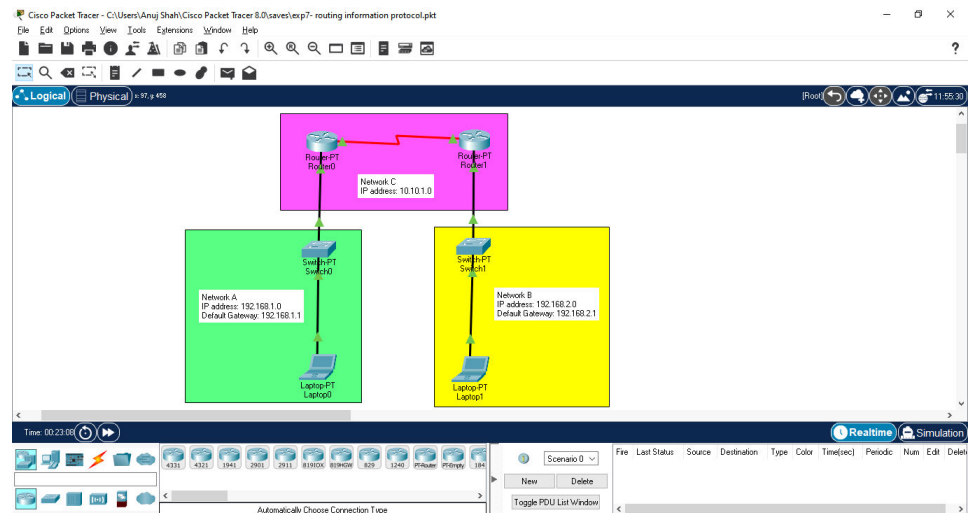
Conclusion:	

| Post Lab Questions: | 1. What is Routing?
2. What are the main parameters considered in general routing table?
3. What are the various interdomain routing protocols?

Routing
Routing is the process of selecting a path for traffic in a network or between or across multiple networks.
Broadly, routing is performed in many types of networks, including circuit-switched networks, such as the public switched telephone network (PSTN), and computer networks, such as the Internet.
In packet switching networks, routing is the higher-level decision making that directs network packets from their source toward their destination through intermediate network nodes by specific packet forwarding mechanisms.
Source: Wikipedia
https://en.wikipedia.org/wiki/Routing

Routing tables
A routing table is a set of rules, often viewed in table format, that is used to determine where data packets traveling over an Internet Protocol (IP) network will be directed. All IP-enabled devices, including routers and switches, use routing tables.

A routing table contains the information necessary to forward a packet along the best path toward its destination. Each packet contains information about its origin and destination. When a packet is received, a network device examines the packet and matches it to the routing table entry providing the best match for its destination. The table then provides the device with instructions for sending the packet to the next hop on its route across the network.

A basic routing table includes the following parameters:
Destination: The IP address of the packet's final destination Next hop: The IP address to which the packet is forwarded Interface: The outgoing network interface the device should use when |

forwarding the packet to the next hop or final destination
- Metric: Assigns a cost to each available route so that the most cost-effective path can be chosen
- Routes: Includes directly-attached subnets, indirect subnets that are not attached to the device but can be accessed through one or more hops, and default routes to use for certain types of traffic or when information is lacking.

Source: TechTarget, What is routing table? https://searchnetworking.techtarget.com/definition/routing-table

Inter-domain routing protocols
Inter-domain routing is data flow control and interaction between Primary Domain Controller (PDC) computers. This type of computer uses various computer protocols and services to operate. It is most commonly used to multicast between internet domains.

Internet protocols that are focused on inter-domain functions include:
- Border Gateway Multicast Protocol
- Classless Inter-Domain Routing
- Multicast Source Discovery Protocol
- Protocol Independent Multicast