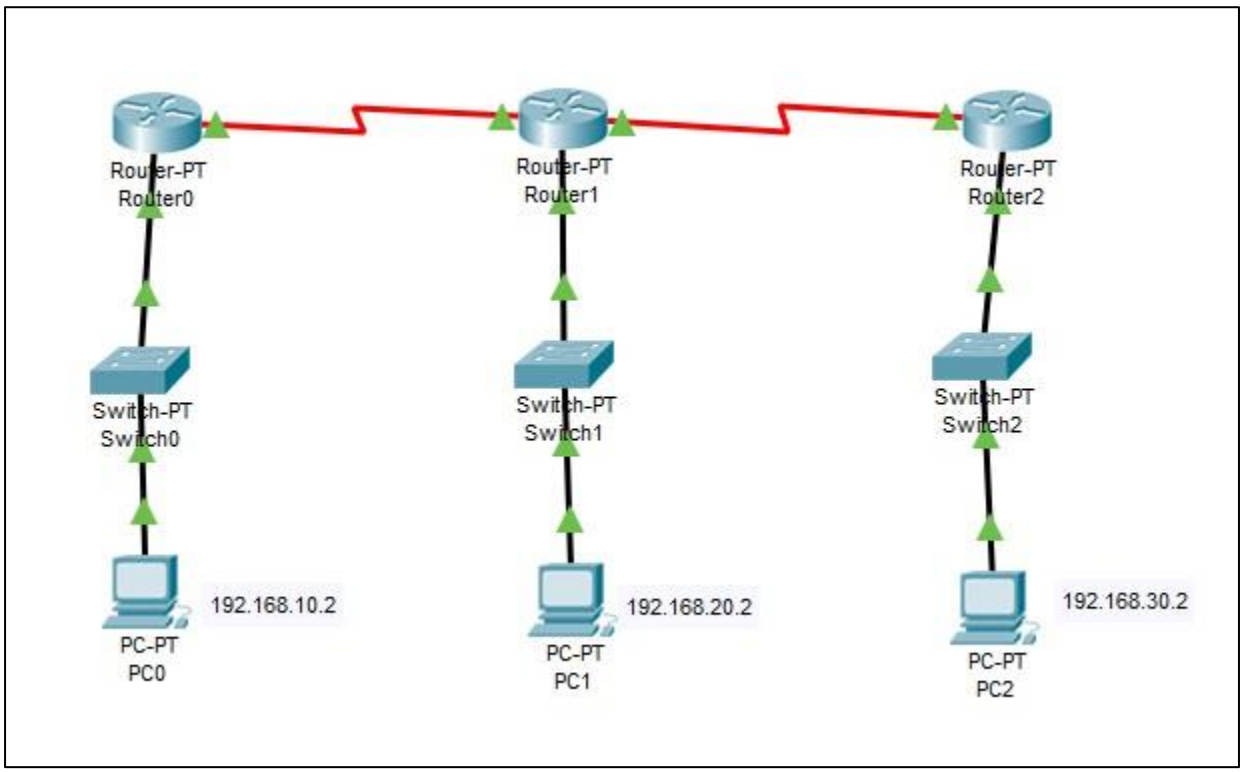
Experiment No 09

B.1 Answers of Task to be written by student:

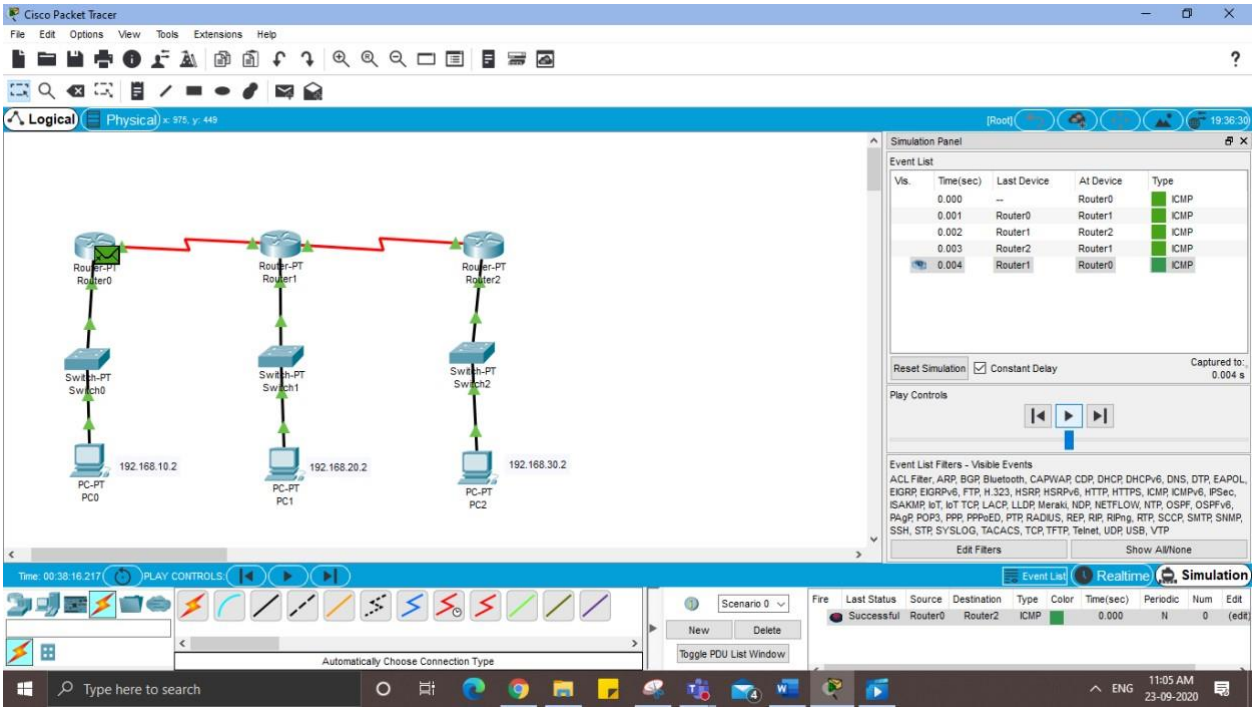
Network:



Successful Tests:

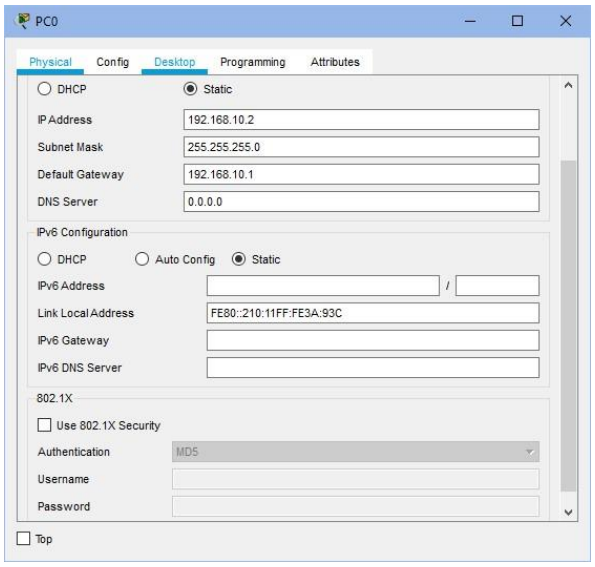
PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	Router0	Router1	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC0	PC2	ICMP		0.000	N	1	(edit)	(delete)
	Successful	Router1	Router2	ICMP		0.000	N	2	(edit)	(delete)
	Successful	Router0	Router2	ICMP		0.000	N	3	(edit)	(delete)



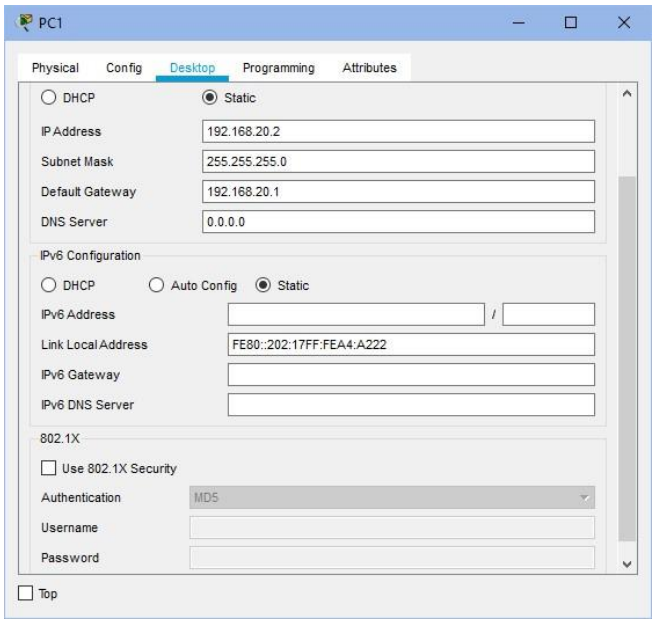
Configurations:

PC0-



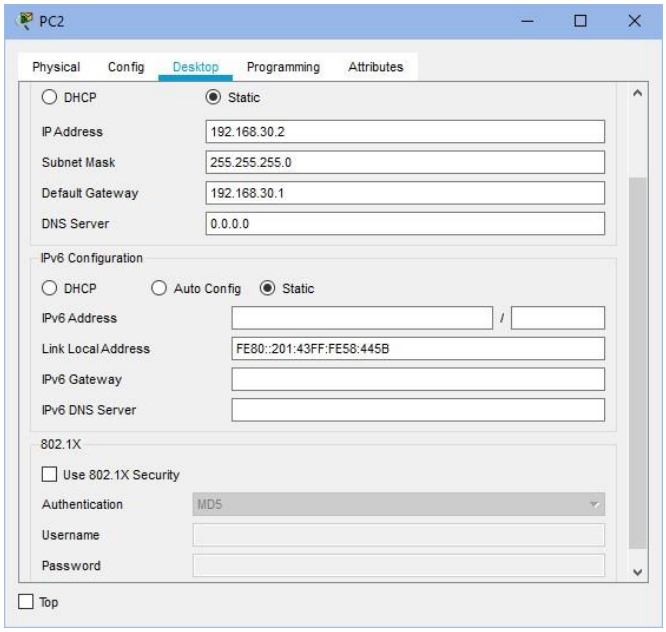
- Under Desktop, choose IP Configuration and do the following:
    - Set IP Address as 192.168.10.2 ○ Set

    Default Gateway as 192.168.10.1 PC1-



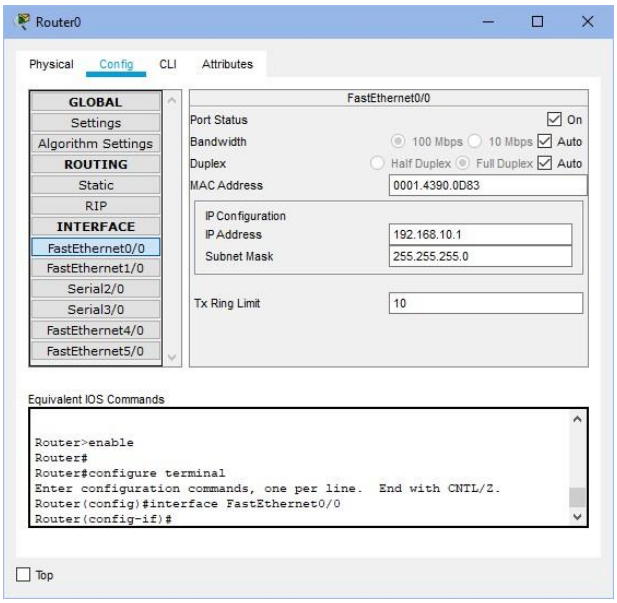
- Under Desktop, choose IP Configuration and do the following:
  - Set IP Address as 192.168.20.2 ○ Set Default Gateway as 192.168.20.1

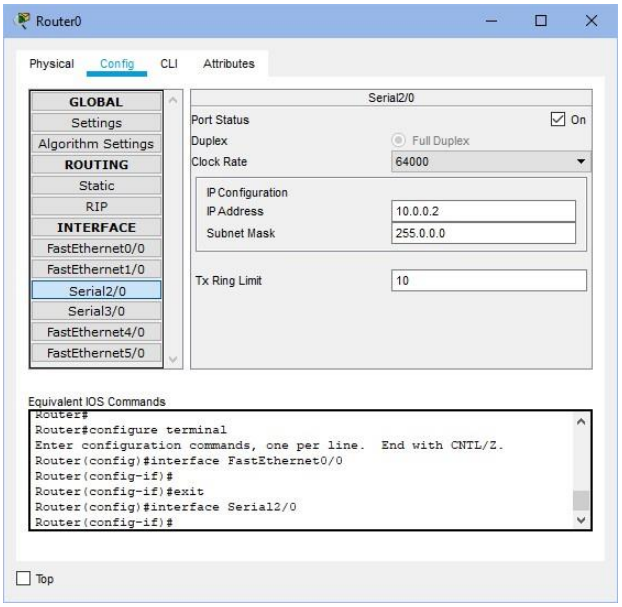
PC2-

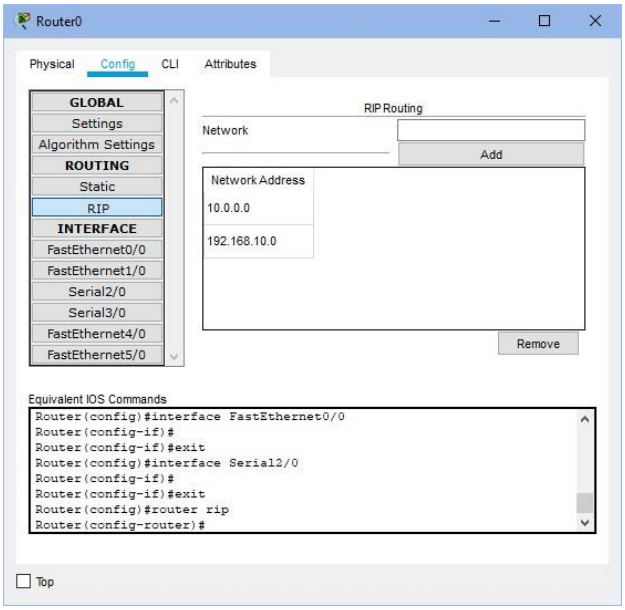


- Under Desktop, choose IP Configuration and do the following:
  - Set IP Address as 192.168.30.2 ○ Set Default Gateway as 192.168.30.1

Router0-



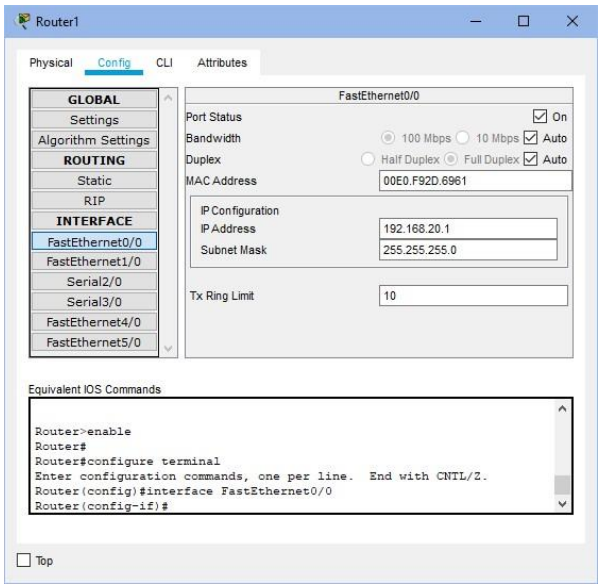


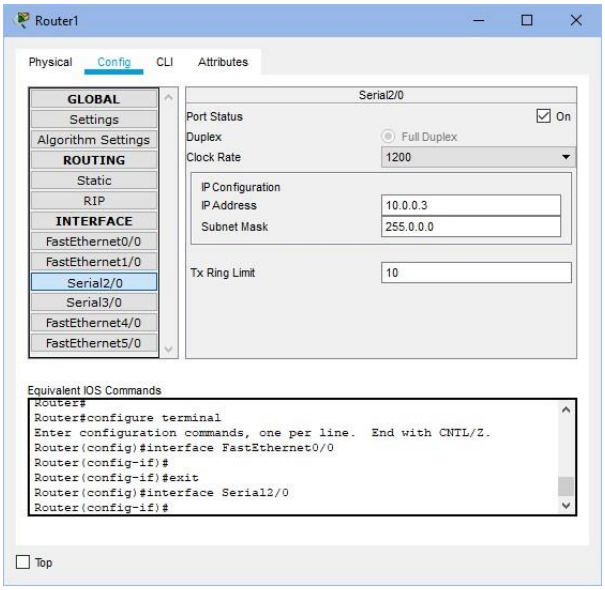


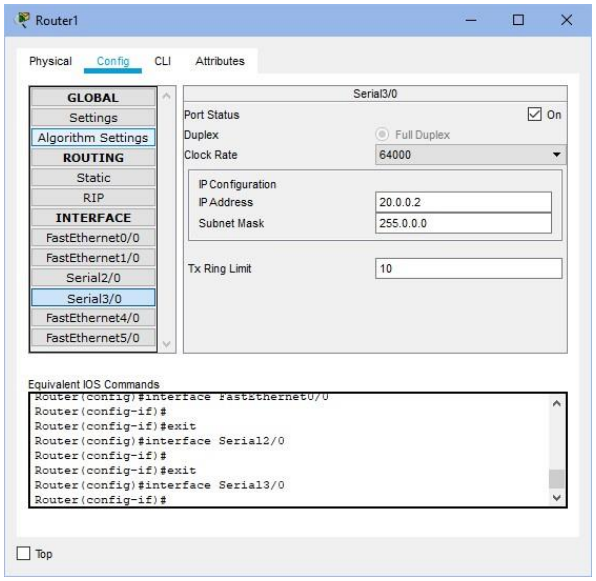
- Under Config tab, do the following: ○ Under FastEthernet0/0-
  - Set IP Address as 192.168.10.1
  - Set Port Status as "ON" ○ Under Serial 2/0-
  - Set IP Address as 10.0.0.2
  - Set Port Status as "ON"

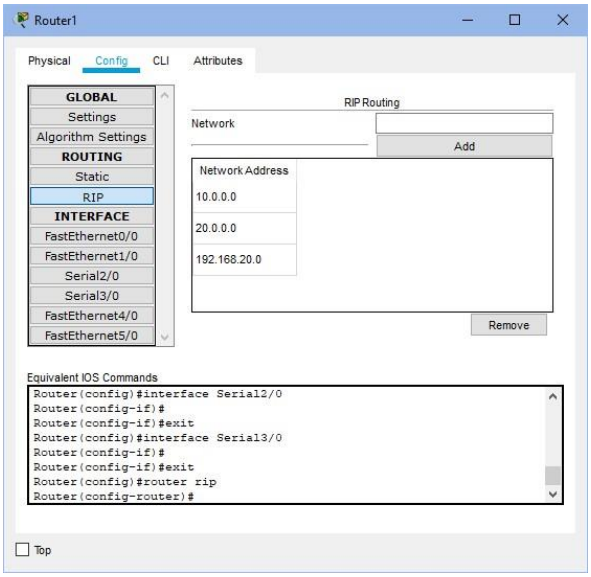
  Set Clock Rate as 64000 ○ Under RIP, add networks 192.168.10.1 and 10.0.0.2

Router1-





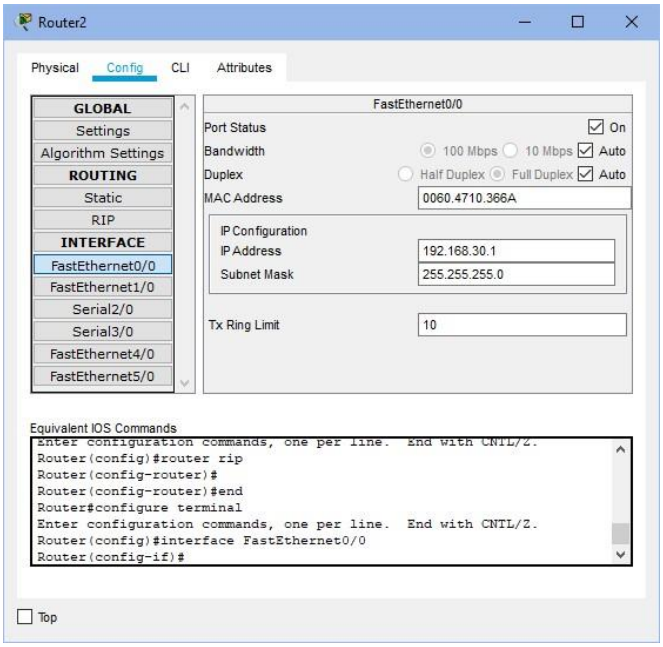


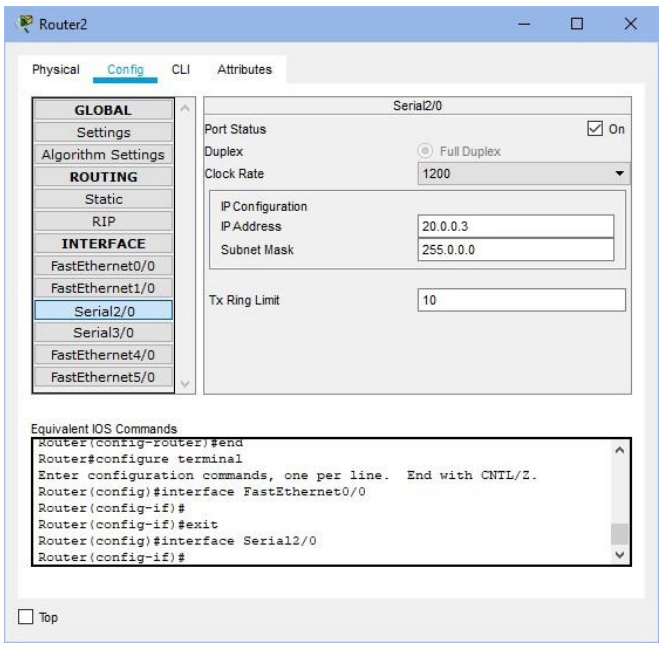


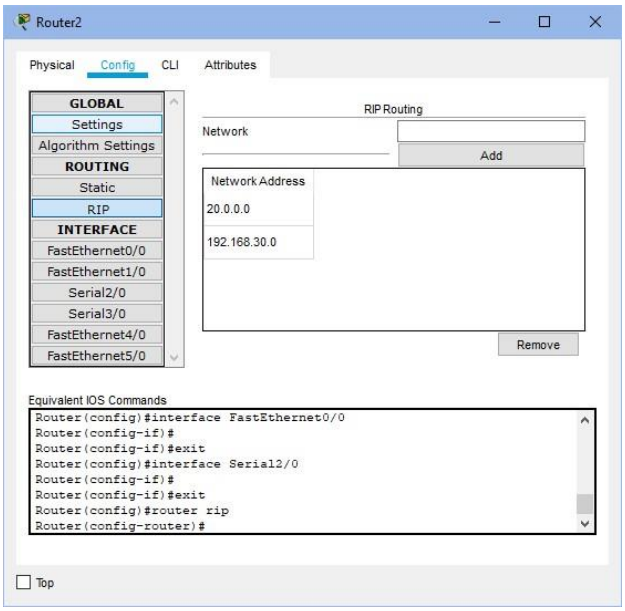
- Under Config tab, do the following:
  - Under FastEthernet0/0-
    - Set IP Address as 192.168.20.1
    - Set Port Status as "ON"
  - Under Serial2/0-
    - Set IP Address as 10.0.0.3
    - Set Port Status as "ON"
  - Under Serial3/0-

- Set IP Address as 20.0.0.2
- Set Port Status as “ON”
- Set Clock rate as 64000 ○ Under RIP, add networks

192.168.20.1, 10.0.0.3 and 20.0.0.2 Router2-







• Under Config tab, do the following:

○ Under FastEthernet0/0-

- Set IP Address as 192.168.30.1 Set Port Status as “ON” ○ Under Serial 2/0-
- Set IP Address as 20.0.0.3 Set Port Status as “ON” ○ Under RIP, add networks 20.0.0.3 and 192.168.30.1

B.2 Observations and learning:

Distance Vector Routing is a dynamic routing protocol for intra-domain data transmission in autonomous systems. Each router has its own routing table or distance vector which holds the

distance till every other router in the network. Distance vector routing updates the routing table for all the routers parallelly to help decide the next hop for a packet. First, the router checks the direct neighbors and updates its distance vector/table. Then, it uses its direct neighbors' tables and updates its table again and so on till a path is found to all the other routers in the network.

B.3 Conclusion:

I have understood the concept of distance vector routing algorithm and have successfully made a network using Routing Information Protocol in Cisco Packet Tracer.

B.4 Question of Curiosity

Q1. Explain Count to infinity problem.

Answer: One of the important issues in Distance Vector Routing is County of Infinity Problem or Routing loop. In distance vector routing, routing loops occurs when an interface goes down or when two routers send updates to each other at the same time. One way to solve this problem is for routers to send information only to the neighbors that are not exclusive links to the destination. Example: there are three routers A, B and C which are connected in series at distance of 1. So, A is directly connected to B, B is directly connected to C but to go from A to C, we have to go via B. If the link between B and C is disconnected, then B will know that it can no longer get to C via that link and will update its table. Before it can send any updates, it's possible that B will receive an update from A which saying that it can get to C at a cost of 2. B can get to A at a cost of 1, so it will update a route to C via A at a cost of 3. A will then receive updates from B later and update its cost to 4. They will then go on feeding each other bad information toward infinity. This is count to infinity problem.