Week#5 – Starting from Feb 01 – 2016

1.Learning objectives:

a.To know more details..and appreciate the role of Dynamic Host Control Protocol in a network

b. Learn how to systematically troubleshoot a network? -Internet Control Messaging Protocol.

c. How to add a wireless host to a network ?

2.Dynamic Host Control Protocol in a Local Area Network (LAN)

2.1. Problem statement

Design, simulate and test a network to suit the following requirements.

Scenario #1

	Subnet #1	
	Maximum number of hosts to be allowed *[in the sense, any new host apart from these 3, should nod be allowed to access the network]*	3
	• number of wired hosts	2
	• number of wireless hosts **How to add wireless host ?** to add wireless host ○ Select Wireless devices ○ Pick **'generic access point'** ○ Connect the **access point to wired network either to HUB or Switch** ○ Pick and drag **'Wireless end device' (Either Wireless Tablet or Generic wireless device)**	1
	Addressing mechanism	Dynamic
	Subnet ID	You may choose any address block.

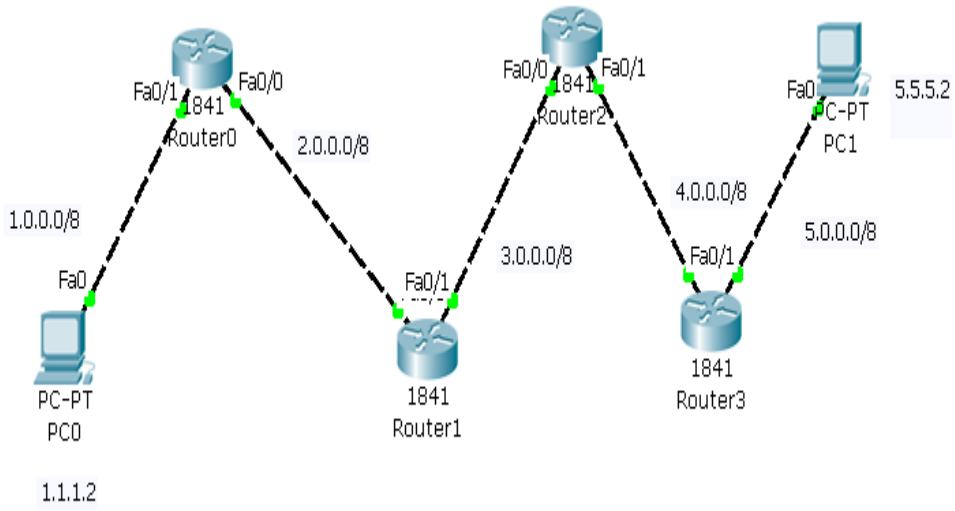
	Output to be shown	Show the successful communication among all the hosts
		Add new user and show the failure to access the network.

Scenario #2

	Expand the network	
	No restrictions on the total number of hosts in Subnet#1	
	Add one more subnet (Subnet#2) that includes	
	Server	**1**
	Wired hosts	**2**
	Subnet ID	You may choose any address block.

	Output to be shown	Show the successful communication among all the hosts

3. Learn how to systematically trouble shoot ? -Internet Control Messaging Protocol



1.Create the topology as shown above.

2.Configure all the equipment.**(Use RIP as Routing Protocol)**

3**. In real time mode,** PING from PC0 to PC1 and ensure successful communication.

SELECT SIMULATION MODE

1. Select Event list
2. **Filter all protocols; Retain only ICMP** ***(Focus only on ICMP)***

3.1. When every thing works fine

3. PING from PC0 to PC1 (Press Auto capture /Play) ; Observe the movement of packets ;

Packet reaches PC1 and echoed back to PC0.

Click again Auto capture /Play to stop the simulation.

Check the event list, Analyse ICMP PDU and write down the following.

	Which event ?	What to observe and write ?
	When the packet just starts from PC0	ICMP PDU Type : ?? Code : ??
	When the packet returns PC0	ICMP PDU ICMP Code : ?? Code : ??

3.2. ….wrong destination IP address

Click PC0

Select Command Prompt

Enter PING 8.8.8.8 (Wrong IP address, which is not available in the network)

Click AutoCapture / Play

Observe the movement of packet

	Which event ?	What to observe and write ?
	When the packet just starts from PC0	i) Comment in the PDU ii) ICMP PDU iii) Type : ?? iv) Code : ??
	When the packet returns PC0	i) Comment in the PDU ICMP PDU ii) Type : ?? iii) Code : ??

3.3. One of the routers is not configured properly.

In the previous topology, deliberately introduce 'mis-configuration' / wrong configuration:

- Use REAL TIME mode
- Delete the routing table entry of Router2.

- **Reset the network (Click power cycle devices)**
- PING end to end . **Obviously 'failure' is displayed.**
- **Repeat the experiment in SIMULATION MODE**

Use simulation mode , analyse ICMP PDU and find out the 'destination not reachable or destination host not reachable ' message.