Experiment 2: Configuration of DHCP Server

1. Aim: To configure DHCP server on a network comprising of wired and/or wireless devices.

2. Tools Used: Cisco Packet Tracer

3. Related Theory:

A DHCP server has a database that statically binds the physical addresses to IP addresses; in this sense, it is backward compatible with Bootstrap Protocol (BOOTP). However, it also has a second database with a pool of available (unused) IP addresses and assigns an IP address for a negotiable period of time. The dynamic aspect of DHCP is needed when a host moves from network to network or is connected and disconnected from a network.

DORA is the Process that is used by **DHCP** (Dynamic Host Configuration Protocol). It is used for providing the IP Address to the clients/host machines. It has **four main** stages and it obtains the IP Address from the centralized server.

Fig. 1: DHCP Messages

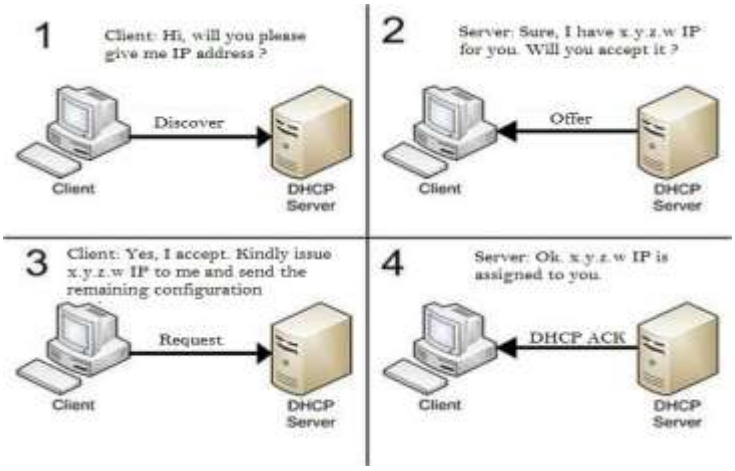

Fig. 2: DHCP DORA

4. Laboratory Exercise:

Task 1: Create a topology as shown in Fig. 3. Check connectivity of devices.

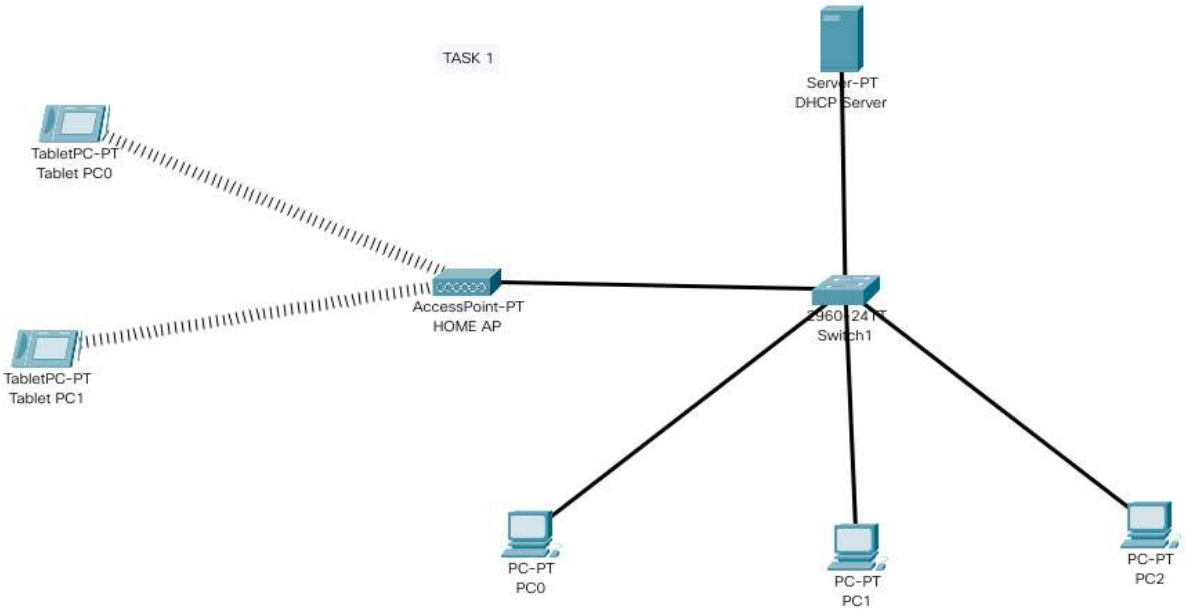

Fig. 3: Basic DHCP Network

Task 2: Create a topology as shown in Fig. 4. Let the topology comprise of a router which acts like a DHCP Server.

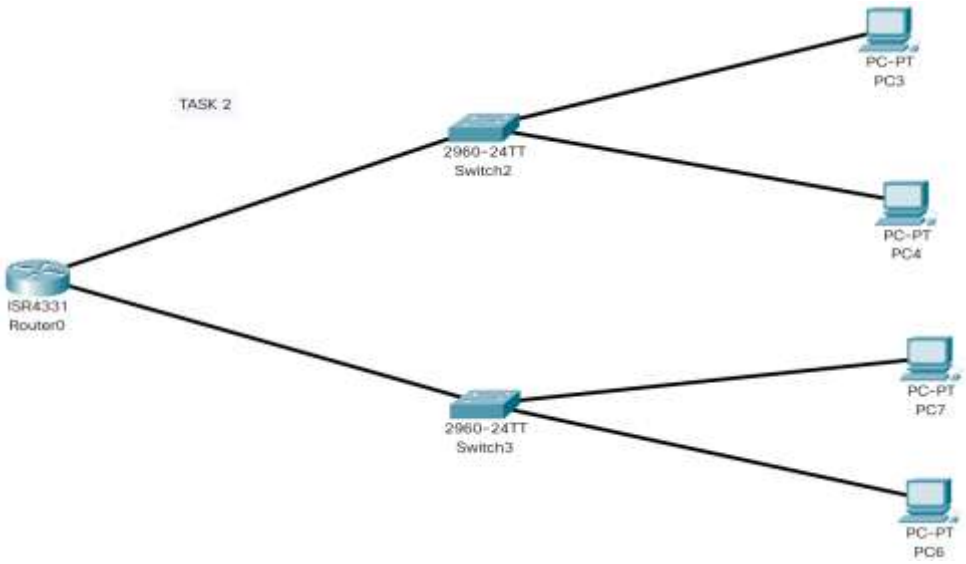

Fig. 4: Router as DHCP Server

Task 3: Create a topology as shown in Fig. 5. Let the topology comprise of a DHCP server and clients located in different subnets. Let all the devices in the given topology be assigned IP addresses through the DHCP server.

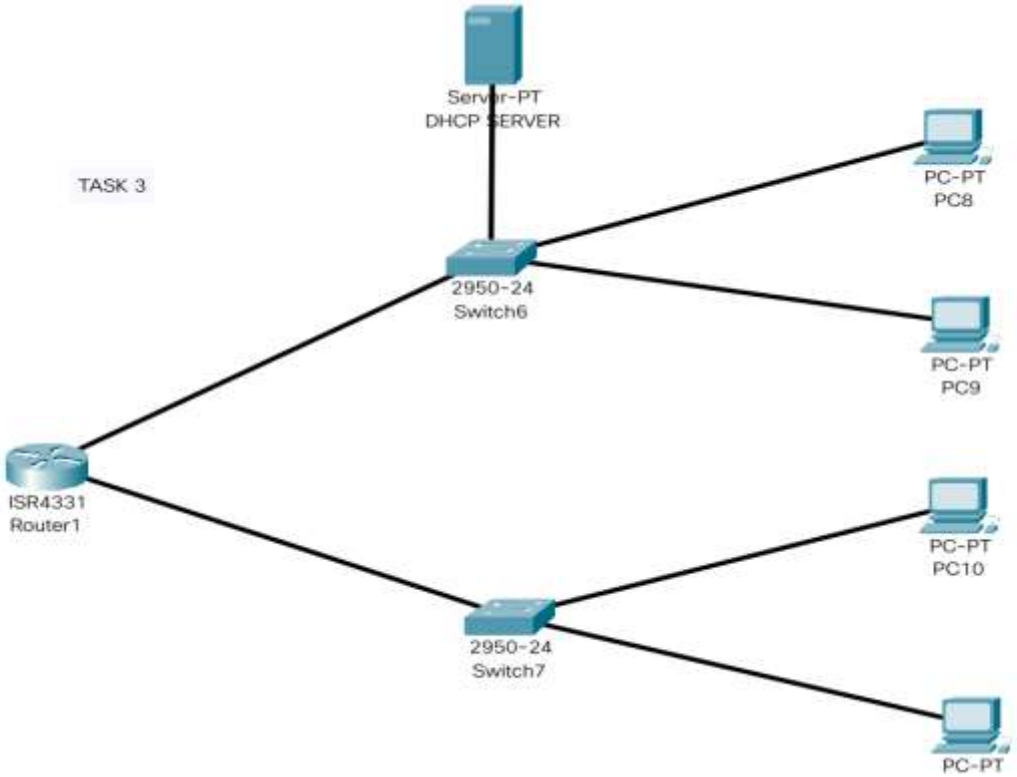

Fig. 5: DHCP Server in different subnet

5. Post-Experiment Exercise:

A. Conclusion

B. Questions:

1. Discuss DHCP operation when the client and server are on the same network and on different networks.
2. Explain DORA process of DHCP service.