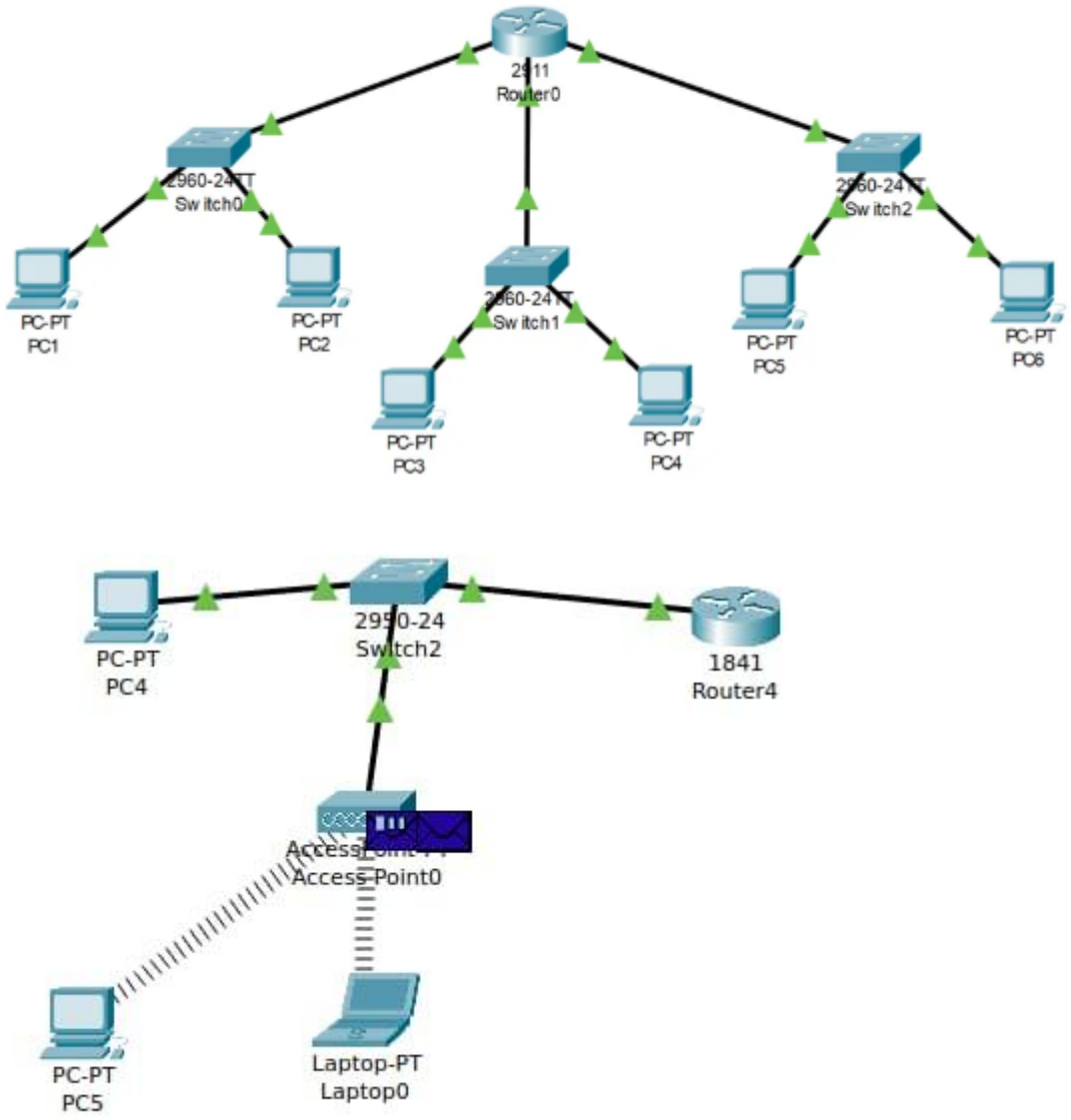

I have done both wired and wireless configuration on cisco packet tracer

Q1.Explain the different Network Devices and the layers in which they operate?

https://www.geeksforgeeks.org/devices-used-in-each-layer-of-tcp-ip-model/

1. Physical Layer – Physical layer of TCP/IP model is responsible for physical connectivity of two devices. Some of the devices used in Physical layers are,

Hubs:

Hubs are devices commonly used to connect segments of a LAN. It contains multiple input/output ports. when signal is at any input port, this signal will be made at all output ports except the one it is coming from.

Cables:

In Wired network architecture (e.g Ethernet), cables are used to interconnect the devices. some of the types of cables are coaxial cable, optical fiber cable, and twisted pair cable.

Repeaters:

Repeaters are used in transmission systems to regenerate analog or digital signals distorted by transmission loss. Analog repeaters can only amplify the signal whereas a digital repeaters can reproduce a signal to near its original quality.

2. Data Link Layer – Data Link layer is responsible to transfer data hop by hop (i.e within same LAN, from one device to another device) based on the MAC address. Some of the devices used in Data Link layer are,

Bridges:

A bridge is a type of computer network device that provides interconnection with other networks that use the *same protocol*, connecting two different networks together and providing communication between them.

Switch: A network switch is a multiport network bridge that uses MAC addresses to forward data at the data link layer (layer 2) of the OSI model. Some switches can also forward data at the network layer (layer 3) by additionally incorporating routing functionality. Such switches are commonly known as layer-3 switches or multilayer switches.

3. Network Layer – The network layer is responsible for creating routing table, and based on routing table, forwarding of the input request. Some of the Devices used in Network Layer are,

Routers:

A router is a switch like device that routes/forwards data packets based on their IP addresses. Routers normally connect Local Area Network (LANs) and Wide Area Network (WANs)

together and have a dynamically updating routing table based on which they make decisions on routing the incoming packets.

Q2 Differentiate between Hubs and switches
https://www.geeksforgeeks.org/difference-between-hub-and-switch/

Hub	Switch
Hub is operated on **Physical layer of OSI model**.	While switch is operated on **Data link layer of OSI Model**.
Hub is a broadcast type transmission.	While switch is a Unicast, multicast and broadcast type transmission.
Hub have 4/12 ports.	While switch can have 24 to 48 ports.
In hub, Packet filtering is not provided.	While in switch, Packet filtering is provided.
Hub cannot be used as a repeater.	While switch can be used as a repeater.

Hub is not an intelligent device. It sends message to all ports hence it is comparatively inexpensive.	While switch is an intelligent device that sends message to selected destination so it is expensive.
Hub is simply old type of device and is not generally used.	While switch is very sophisticated device and widely used.