Problem 1:

Design the following network in packet tracer and create three VLANs. Then configure the switch and router so that PCs of the same and different VLAN can communicate with each other and assign IP address using DHCP.
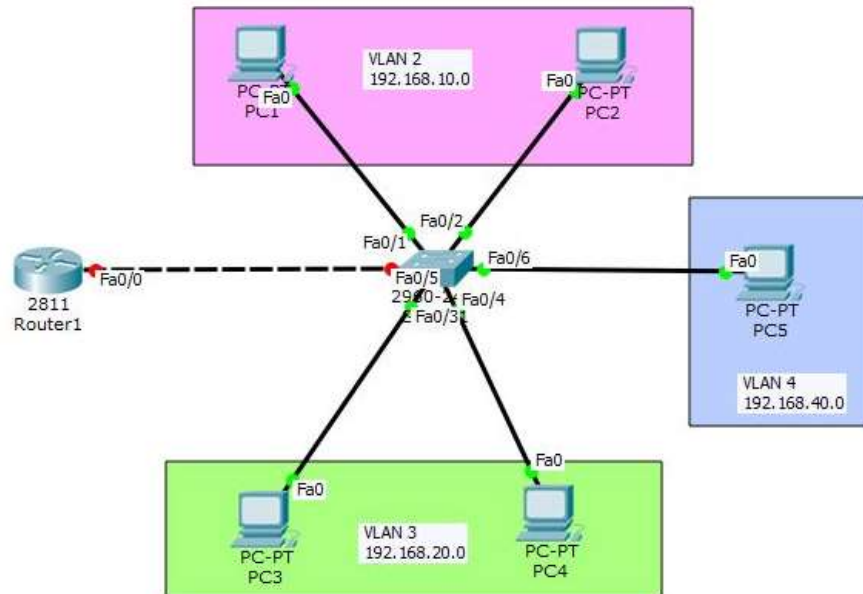
Switch 0:

Switch#config t
Switch(config)#vlan 2
Switch(config-vlan)#name v2
Switch(config-vlan)#vlan 3
Switch(config-vlan)#name v3
Switch(config-vlan)#vlan 4
Switch(config-vlan)#name v4
Switch(config-vlan)#exit
Switch(config)#int range f0/1-2
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 2
Switch(config-if-range)#int range f0/3-4
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 3
Switch(config-if-range)#int f0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#exit
Switch(config)#int f0/5
Switch(config-if)#switchport mode trunk

Switch(config-if)#exit
Switch(config)#do copy running-config startup-config

<u>Router 0:</u>

Router>en
Router#config t
Router(config)#int f0/0
Router(config-if)#no shutdown
Router(config-if)#int f0/0.10
Router(config-subif)#encapsulation dot1q 2
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#ip dhcp pool r1
Router(dhcp-config)#network 192.168.10.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#exit
Router(config)#int f0/0.20
Router(config-subif)#encapsulation dot1q 3
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#ip dhcp pool r2
Router(dhcp-config)#network 192.168.20.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.20.1
Router(dhcp-config)#exit
Router(config)#int f0/0.40
Router(config-subif)#encapsulation dot1q 4
Router(config-subif)#ip address 192.168.40.1 255.255.255.0
Router(config-subif)#ip dhcp pool r3
Router(dhcp-config)#network 192.168.40.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.40.1
Router(dhcp-config)#exit
Router(config)#do copy running-config startup-config

Problem 2:

Design the following network in packet tracer and create three VLANs. Then configure the switch and router so that PCs of the same and different VLAN can communicate with each other and assign IP address using DHCP.
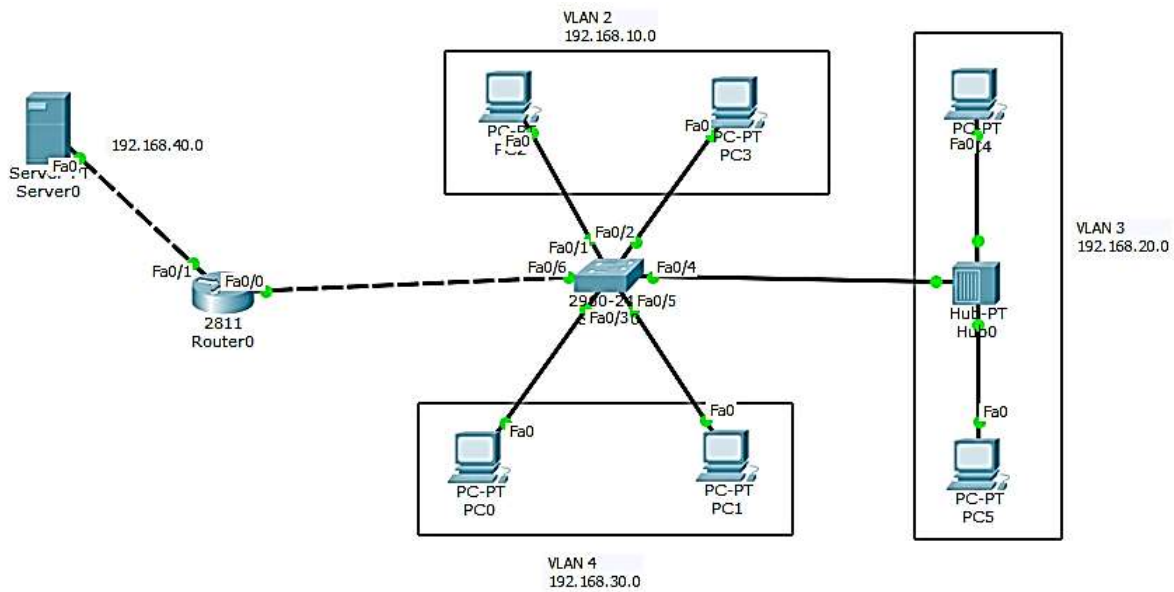
Switch 0:

Switch>en
Switch#config t
Switch(config)#vlan 2
Switch(config-vlan)#name v2
Switch(config-vlan)#vlan 3
Switch(config-vlan)#name v3
Switch(config-vlan)#vlan 4
Switch(config-vlan)#name v4
Switch(config-vlan)#exit
Switch(config)#int range f0/1-2
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 2
Switch(config-if-range)#int f0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#int f0/5
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 4
Switch(config-if)#int f0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 3
Switch(config-if)#exit
Switch(config)#int f0/6
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#do copy running-config startup-config

Router 0:

```
Router>en
Router#config t
Router(config)#int f0/0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#int f0/1
Router(config-if)#ip address 192.168.40.1 255.255.255.0
Router(config-if)#no shut down
Router(config-if)#exit
Router(config)#int f0/0.1
Router(config-subif)#encapsulation dot1q 2
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#ip dhcp pool r1
Router(dhcp-config)#network 192.168.10.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#dns server 192.168.40.2
Router(dhcp-config)#dns-server 192.168.40.2
Router(dhcp-config)#exit
Router(config)#int f0/0.2
Router(config-subif)#encapsulation dot1q 3
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#ip dhcp pool r2
Router(dhcp-config)#network 192.168.20.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.20.1
Router(dhcp-config)#dns-server 192.168.40.2
Router(dhcp-config)#exit
Router(config)#int f0/0.3
Router(config-subif)#encapsulation dot1q 4
Router(config-subif)#ip address 192.168.30.1 255.255.255.0
Router(config-subif)#ip dhcp pool r3
Router(dhcp-config)#network 192.168.30.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.30.1
Router(dhcp-config)#dns-server 192.168.40.2
Router(dhcp-config)#exit
Router(config)#do copy running-config startup-config
```