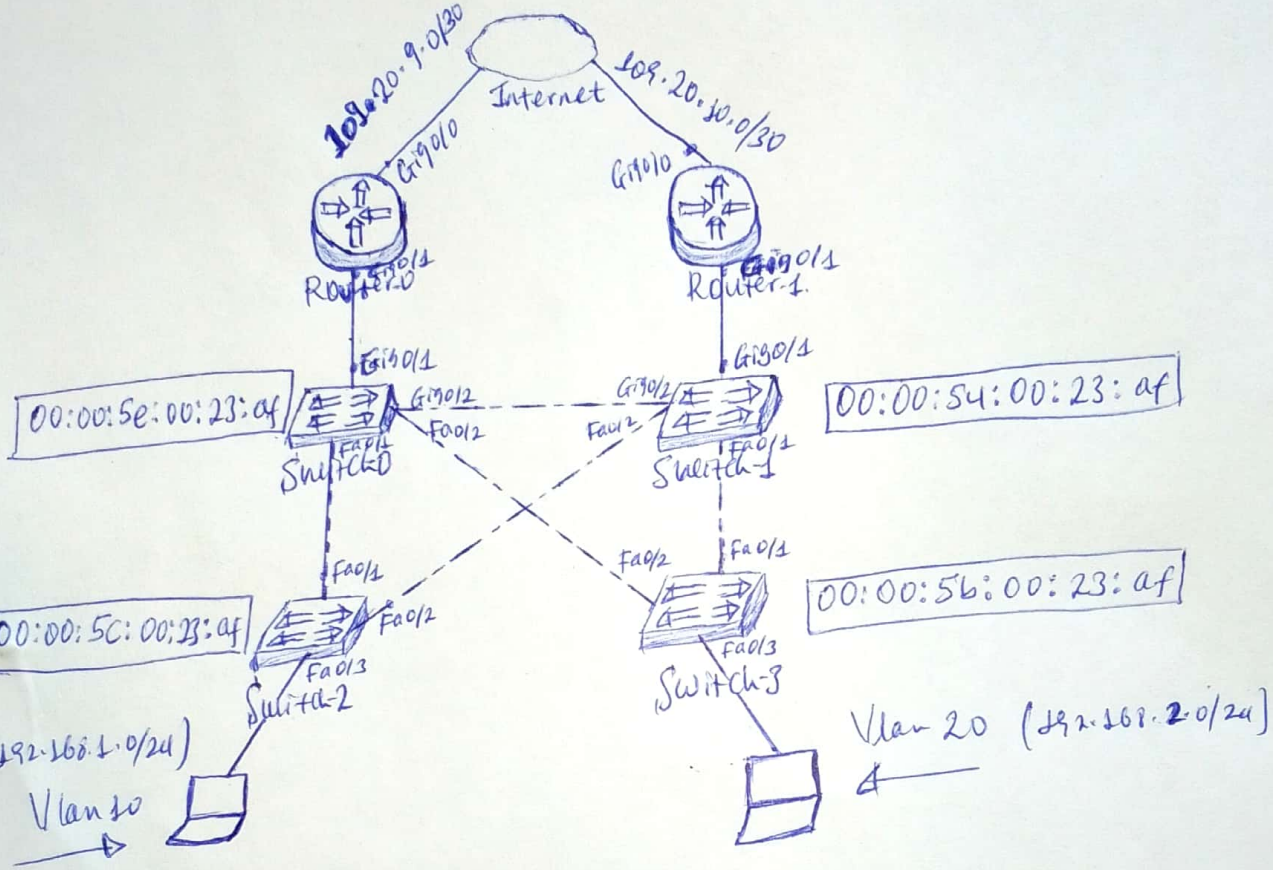
Q. Configure the following network using:

A) Spanning tree protocol

B) OSPF routing protocol

C) Give dynamic ip address on the router



Solution → 1st create a Vlan on Switch-0 and Switch-1

```
Switch0 > enable
Switch0# config-terminal
Switch0(config)# name S0
S0(config)# int Vlan 10
S0(config-if) exit
S0(config)# int Vlan 20
S0(config-if)#exit
S0(config)# int range gig 0/1-2
S0(config-if-range)# Switch port mode trunk
S0(config-if-range)#exit
S0(config)# do fa0/1
S0(config-if)# Switch port mode access
```

#

Page-1

```
S0(config-if)# switch port access vlan 10
S0 (config-if)# exit
S0 (config)# int fa 0/2
S0 (config-if)# switch port mode access
S0 (config-if)# switch port access vlan 20
S0 (config-if)# do write
S0 (config-if)# end

Switch1 > enable
Switch1 # config-terminal
Switch1 (config)# name S1
 S1 (config-if)# int vlan 10
 S1 (config-if)# exit
 S1 (config)# int vlan 20
 S1 (config-if)# exit
S1 (config)# int range fa 0/1-2
S1 (config-if-range)# switch port mode trunk
S1 (config-if-range)# exit
S1 (config)# int fa 0/1
S1 (config-if)# switch port mode access
S1 (config-if)# switch port access vlan 10
S1 (config-if)# exit
S1 (config)# int fa 0/2
S1 (config-if)# switch port mode access
S1 (config-if)# switch port access vlan 20
S1 (config-if)# do write
S1 (config-if)# end
```

→ 2nd Configure virtual link and HSRP (hot stand by routing protocol on router-0 and router-1

```
Router 0 > enable
Router 0# config-terminal
Router 0 [config]# name R0
R0 (config)# int gig 0/0
R0 (config-if)# ip address 109.20.9.1 255.255.255.252
R0 (config-if)# exit
R0 (config)# int gig 0/1.10
R0 (config-subif)# encapsulation dot1Q 10
R0 (config-subif)# ip address 192.168.1.1 255.255.255.0
R0 (config-subif)# Stand by 1 ip 192.168.1.2
R0 (config-subif)# Stand by 1 priority 120
R0 (config-subif)# Stand by 1 preempt
R0 (config-subif)# Stand by 1 track Gig 0/0
R0 (config-subif)# exit
R0 (config)# int gig 0/1.20
R0 (config-subif)# encapsulation dot1Q 20
R0 (config-subif)# ip address 192.168.2.2 255.255.255.0
R0 (config-subif)# stand by 1 ip 192.168.2.1
R0 (config-subif)# Standby 1 preempt
R0 (config-subif)# exit
R0 (config-subif)# do write.
```

```
Router 1 > enable
Router1# config-term
Router (config)# name R1.
R1 (config)# int gig 0/0
R1 (config-if)# ip address 109.20.10.1 255.255.255.252.
R1 (config-if) exit
R1 (config)# int gig 0/1.10
R1 (config-subif)# encapsulation dot1Q 10
R1 (config-subif)# ip address 192.168.1.2 255.255.255.0
R1 (config-subif)# standby 1 ip 192.168.1.1
R1 (config-subif)# Stand by preempt
R1 (config-subif)# exit
```

R1(Config)#int Gig 0/1.20
R1(Config-subif)# encapsulation dot1Q 20
R1(Config-subif)# ip address 192.168.2.1 255.255.255.0
R1(Config-subif)# standby 1 ip 192.168.2.2
R1(Config-subif)# standby 1 priority 120
R1(Config-subif)# standby 1 preempt
R1(Config-subif)# standby 1 track Gig 0/0
R1(Config-subif)# do write.
R1(Config-subif)# exit
R1(Config)#

→ 3rd Configure dhcp on router 1 and router-2 by invoking Vlans

R0(config)#ip dhcp pool Vlan10
R0(dhcp-config)# network 192.168.1.0 255.255.255.0
R0(dhcp-config)# default-router 192.168.1.1
R0(dhcp-config)# exit.
R0(config)# ip dhcp pool Vlan 20
R0(dhcp-config)# network 192.168.2.0 255.255.255.0
R0(dhcp-config)# default-router 192.168.2.2
R0(dhcp-config)# exit
R1(config)# ip dhcp pool Vlan 10
R1(dhcp-config)# network 192.168.1.0 255.255.255.0
R1(dhcp-config)# default-router 192.168.1.2.
R1(dhcp-config)#exit
R1(config) ip dhcp pool Vlan20
R1(dhcp-config)# network 192.168.2.0 255.255.255.0
R1(dhcp-config)# default-router 192.168.2.1
R1(dhcp-config)# exit.

→

→ 4th Configure OSPF on both router 0 and router 1.

```
R0(config)#router ospf 10
R0(config-router)# net 10.20.0.0 0.0.0.3 area 0
R0(config-router)# net 192.168.1.0 0.0.0.255 area 0
R0(config-router)# net 192.168.2.0 0.0.0.255 area 0
R0(config-router)# do write
R0(config-router)# do write.
R1(config)# router OSPF 20
R1(config-router)# net 10.20.10.0 0.0.0.3 area 0
R1(config-router)# net 192.168.1.0 0.0.0.255 area 0
R1(config-router)# net 192.168.2.0 0.0.0.255 area 0
R1(config-router)# do write.
R1(config-router)# exit
```

→ 5th Configure Spanning tree on both Switch 0 and Switch 1

```
S0(config)#Spanning-tree Vlan 10 root primary
S0(config)#Spanning-tree Vlan 20 root Secondary
S0(config)#Spanning-tree bpduguard enable
S0(config)#Spanning-tree portfast
S0(config)#do write
S0(config)#end.
S1(config)#Spanning-tree Vlan 10 root secondary
S1(config)#Spanning-tree Vlan 20 root primary
S1(config)#Spanning-tree bpduguard enable
S1(config)# Spanning-tree portfast
S1(config)# do write
S1(config)# end
```

// = //