1) Some Basic N/w Commands :

(i) ipconfig : `It` is a command-line utility used in Windows to display and manage the network configuration of a computer. It provides details about IP addresses, subnet masks, default gateways, and other networking settings.

```
C:\Users\admin>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . : rc.local

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . : www.tendawifi.com
   Link-local IPv6 Address . . . . . : fe80::b04d:f625:49a4:79aa%14
   IPv4 Address. . . . . . . . . . . : 192.168.0.116
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.0.1
```

(ii) ping(packet internet groper) <domain name>: It is used to test the network connectivity and measure round-trip time from originating source to a destination host.

```
C:\Users\admin>ping google.com

Pinging google.com [142.250.182.174] with 32 bytes of data:
Reply from 142.250.182.174: bytes=32 time=5ms TTL=60
Reply from 142.250.182.174: bytes=32 time=6ms TTL=60
Reply from 142.250.182.174: bytes=32 time=8ms TTL=60
Reply from 142.250.182.174: bytes=32 time=9ms TTL=60

Ping statistics for 142.250.182.174:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 9ms, Average = 7ms
```

(iii) arp –a : The `arp -a` command displays the ARP (Address Resolution Protocol) cache, which maps IP addresses to MAC addresses on a local network.

```
C:\Users\admin>arp -a

Interface: 192.168.0.116 --- 0xe
  Internet Address      Physical Address      Type
  192.168.0.1           04-95-e6-3c-40-80     dynamic
  192.168.0.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.251           01-00-5e-00-00-fb     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.102.18        01-00-5e-7f-66-12     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static
```

(iv) tracert <domain name> : It traces the route that packets take from the local machine to a specified destination host showing networks hops and latency

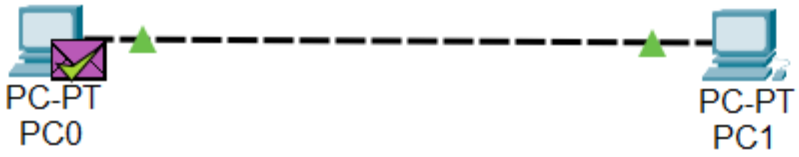
(V) netstat: It display the network statistics active network connections and open ports on the system.

```
C:\Users\admin>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:49669        kubernetes:49670       ESTABLISHED
  TCP    127.0.0.1:49670        kubernetes:49669       ESTABLISHED
  TCP    127.0.0.1:49671        kubernetes:49672       ESTABLISHED
  TCP    127.0.0.1:49672        kubernetes:49671       ESTABLISHED
  TCP    192.168.0.116:57954    relay-2ad8ad50:https   ESTABLISHED
  TCP    192.168.0.116:57959    20.198.119.84:https    ESTABLISHED
  TCP    192.168.0.116:58004    20.198.119.84:https    ESTABLISHED
  TCP    192.168.0.116:58162    a23-217-111-49:https   CLOSE_WAIT
  TCP    192.168.0.116:58163    40.99.9.50:https       ESTABLISHED
  TCP    192.168.0.116:58166    150.171.85.254:https   CLOSE_WAIT
  TCP    192.168.0.116:58167    13.107.246.254:https   CLOSE_WAIT
  TCP    192.168.0.116:58168    a96-17-194-250:https   CLOSE_WAIT
  TCP    192.168.0.116:58169    a23-10-239-251:http    ESTABLISHED
  TCP    192.168.0.116:58173    52.168.117.175:https   TIME_WAIT
```

(vi) nslookup <domain> : It is used to perform dns lookup to obtain dns related information about the domain name and their ip address**.**

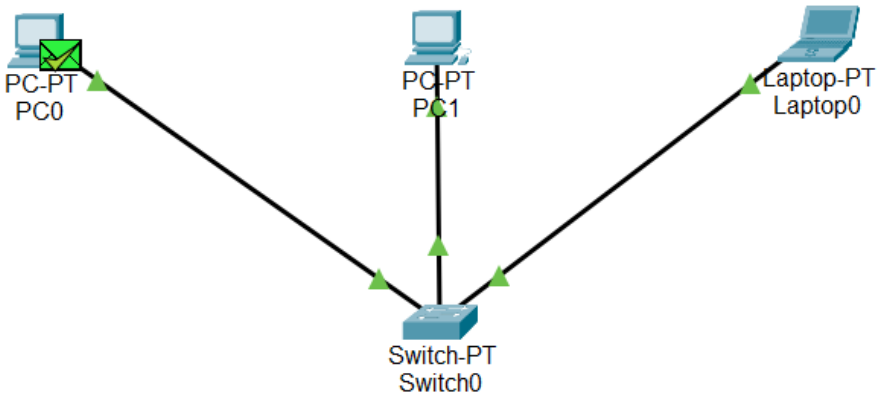
```
C:\Users\admin>nslookup www.youtube.com
Server:  UnKnown
Address:  192.168.0.1

Name:    youtube-ui.l.google.com
Addresses:  2404:6800:4002:824::200e
          2404:6800:4002:825::200e
          2404:6800:4002:822::200e
          2404:6800:4002:823::200e
          216.58.200.174
Aliases:  www.youtube.com
```

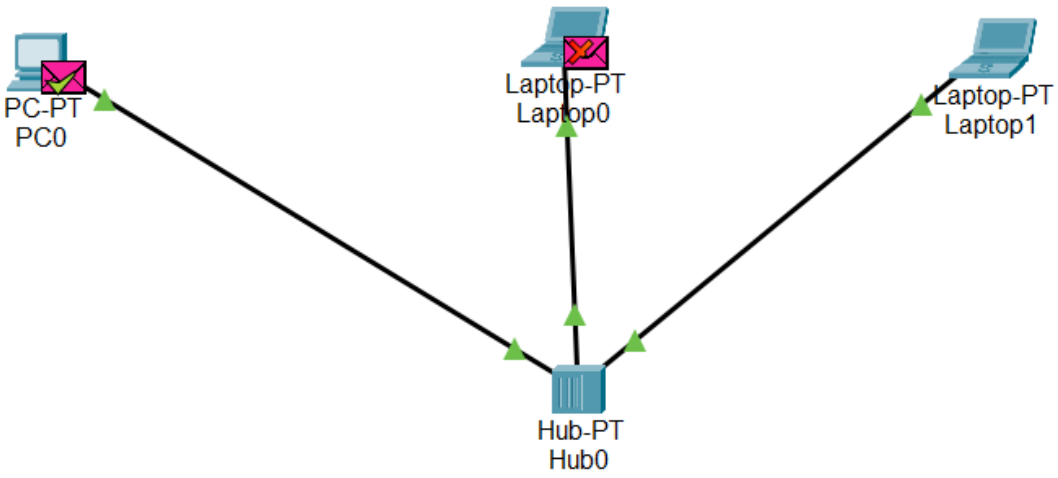
Question 2)



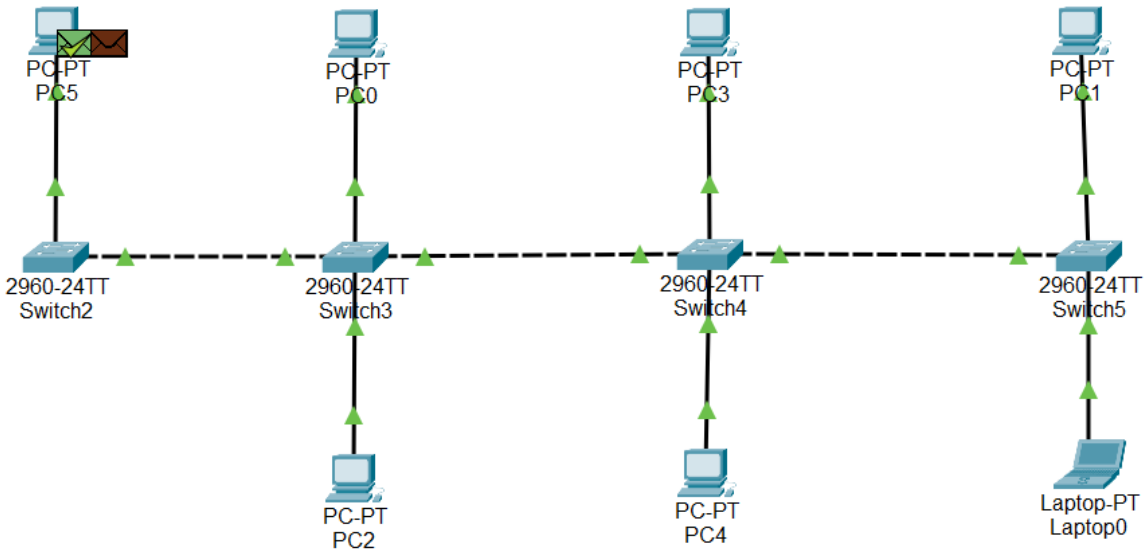
Question 3)

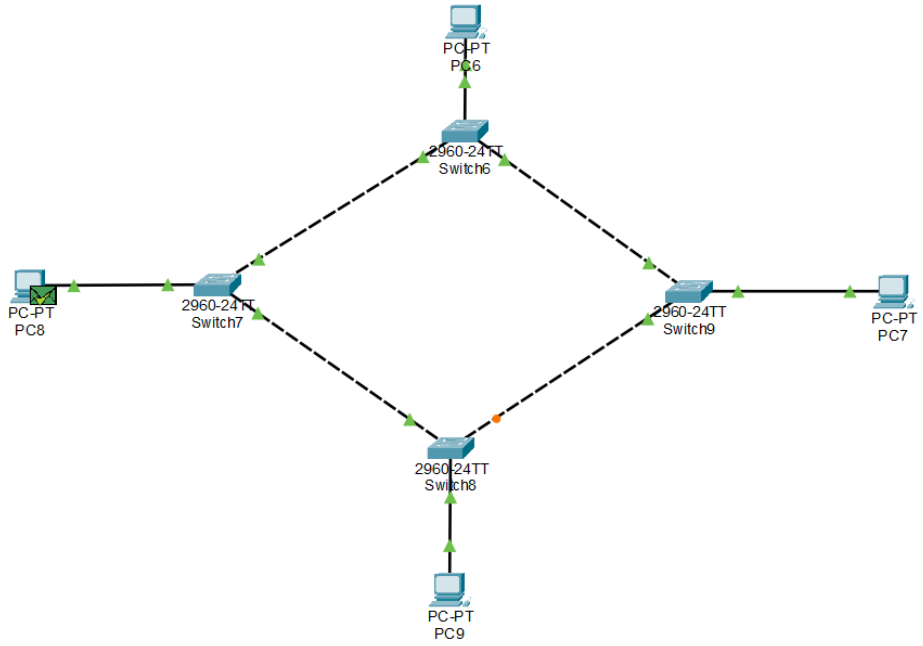
Question4)

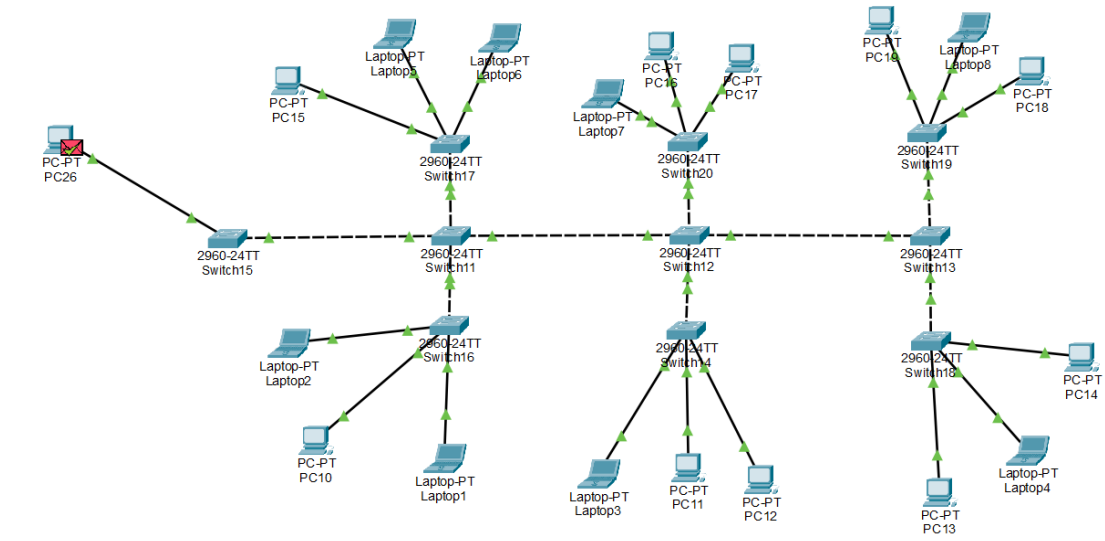

PC-PT
PC0
PC-PT
PC1
Laptop-PT
Laptop0
Switch-PT
Switch0


PC-PT
PC0
Laptop-PT
Laptop0
Laptop-PT
Laptop1
Hub-PT
Hub0

Question5)


PC-PT
PC5
PC-PT
PC0
PC-PT
PC3
PC-PT
PC1
2960-24TT
Switch2
2960-24TT
Switch3
2960-24TT
Switch4
2960-24TT
Switch5
PC-PT
PC2
PC-PT
PC4
Laptop-PT
Laptop0


PC-PT
PC6
2960-24TT
Switch6
PC-PT
PC8
2960-24TT
Switch7
2960-24TT
Switch9
PC-PT
PC7
2960-24TT
Switch8
PC-PT
PC9


Laptop-PT
Laptop5
Laptop-PT
Laptop6
PC-PT
PC15
PC-PT
PC26
2960-24TT
Switch17
PC-PT
PC16
PC-PT
PC17
Laptop-PT
Laptop7
2960-24TT
Switch20
PC-PT
PC19
Laptop-PT
Laptop8
PC-PT
PC18
2960-24TT
Switch19
2960-24TT
Switch15
2960-24TT
Switch11
2960-24TT
Switch12
2960-24TT
Switch13
Laptop-PT
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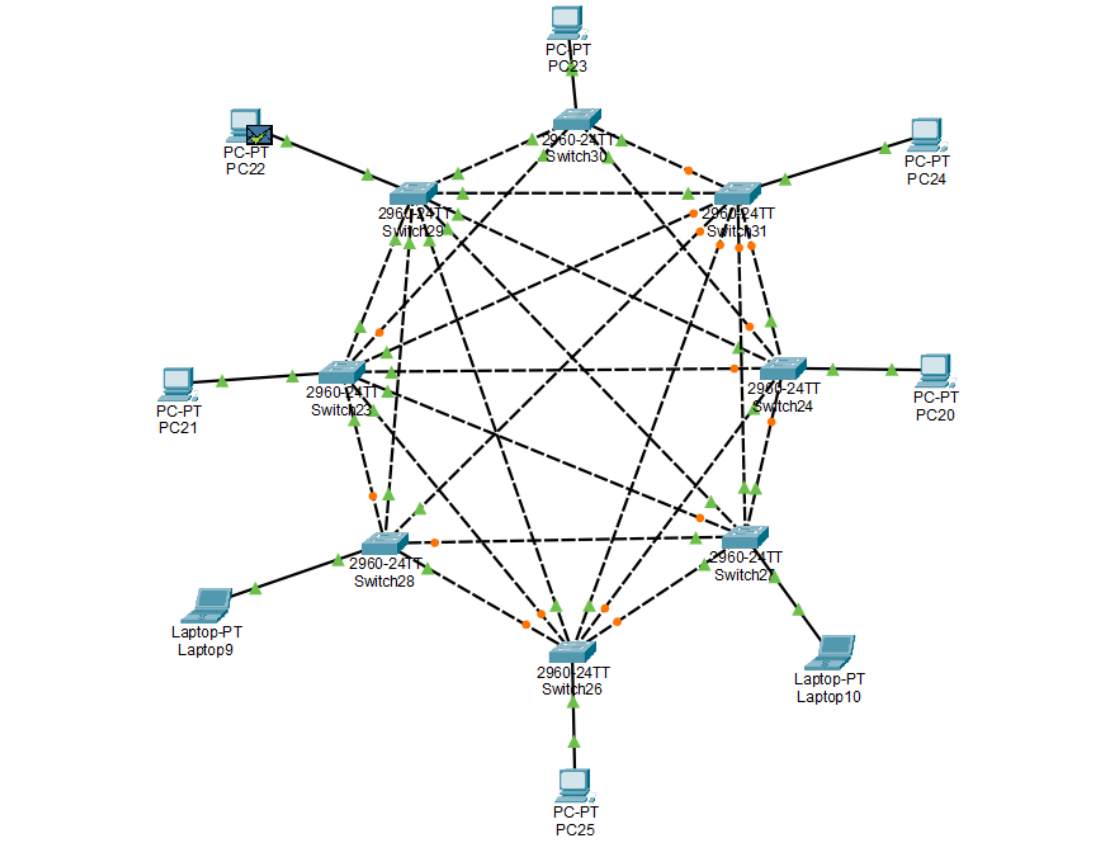
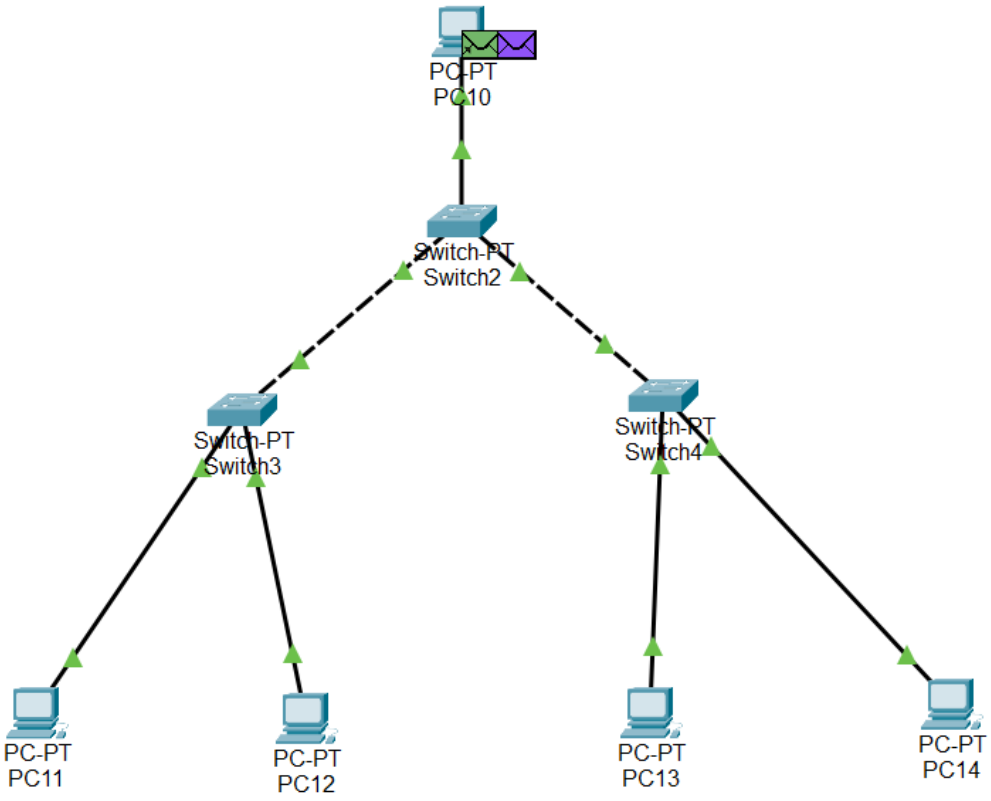
2960-24TT
Switch16
2960-24TT
Switch14
2960-24TT
Switch18
PC-PT
PC14
PC-PT
PC10
Laptop-PT
Laptop1
Laptop-PT
Laptop3
PC-PT
PC11
PC-PT
PC12
Laptop-PT
Laptop4
PC-PT
PC13


PC-PT
PC23
PC-PT
PC22
2960-24TT
Switch30
PC-PT
PC24
2960-24TT
Switch29
2960-24TT
Switch31
PC-PT
PC21
2960-24TT
Switch23
2960-24TT
Switch24
PC-PT
PC20
2960-24TT
Switch28
2960-24TT
Switch27
Laptop-PT
Laptop9
2960-24TT
Switch26
Laptop-PT
Laptop10
PC-PT
PC25


PC-PT
PC10
Switch-PT
Switch2
Switch-PT
Switch3
Switch-PT
Switch4
PC-PT
PC11
PC-PT
PC12
PC-PT
PC13
PC-PT
PC14

Question 6)

```
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname SW1
SW1(config)#banner motd $
Enter TEXT message.  End with the character '$'.
**********************************
Only Authorized Users Allowed
**********************************
$

SW1(config)#exit
SW1#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

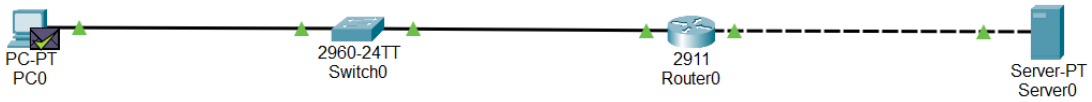
```
SW1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SW1(config)#line con 0
SW1(config-line)#password cisco@123
SW1(config-line)#login
SW1(config-line)#exit
SW1(config)#enable secret India@123
SW1(config)#exit
SW1#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

```
**********************************
Only Authorized Users Allowed
**********************************


User Access Verification

Password:
Password:

SW1>enable
Password:
Password:
SW1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
SW1(config)#exit
SW1#
%SYS-5-CONFIG_I: Configured from console by console
```

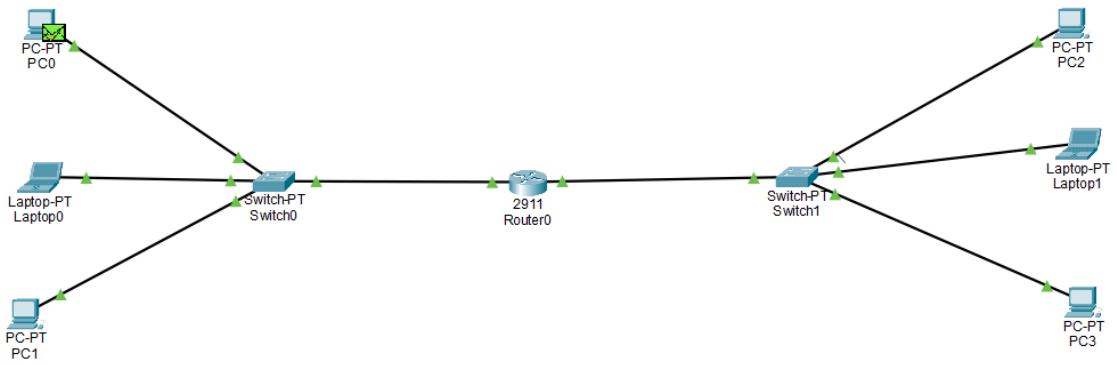
Question 7)

```
Router>enable
Router#configure t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
^Z
Router#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/0        192.168.1.1     YES manual up                    down
FastEthernet0/1        unassigned      YES unset  administratively down down
Vlan1                  unassigned      YES unset  administratively down down
Router#
```

Question 8)



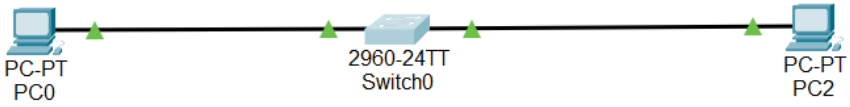
Question 9)



Question (10)

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface v
% Incomplete command.
Switch(config)#interface vlan
% Incomplete command.
Switch(config)#interface vlan 1
Switch(config-if)#ip add 192.168.0.11 255.255.255.0
Switch(config-if)#no shutdown

Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
```

```
Switch(config)#interface vlan 1
Switch(config-if)#no shutdown
Switch(config-if)#line vty 0 4
Switch(config-line)#login local
Switch(config-line)#user cisco password cisco
Switch(config)#
Switch(config)#
Switch(config)#
Switch(config)#
Switch(config)#enable password cisco1
Switch(config)#
```

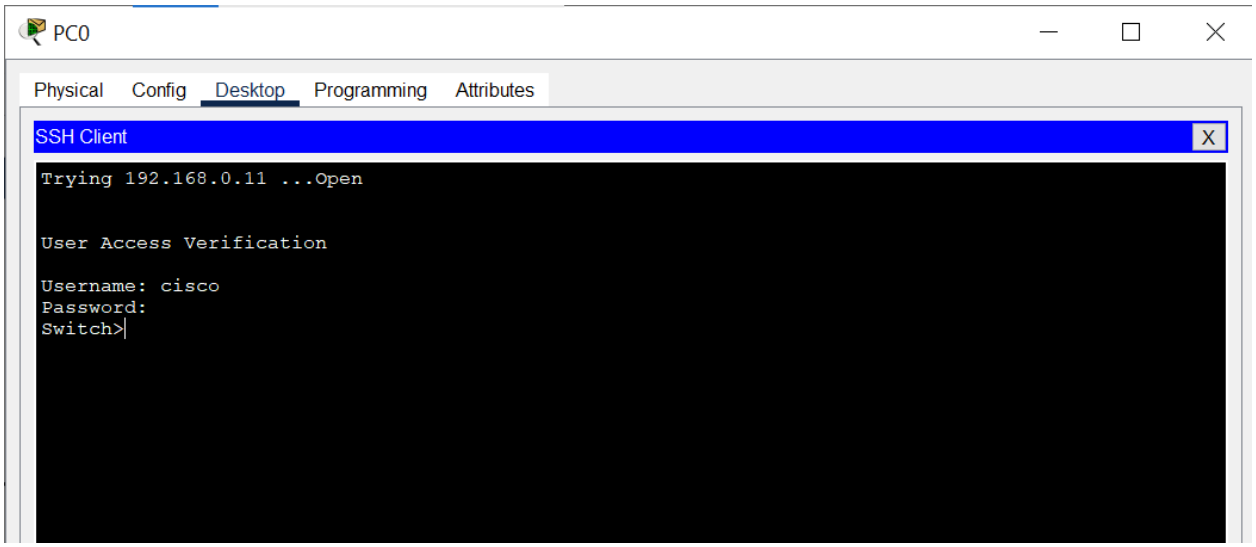


PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>
C:\>ping 192.168.0.11

Pinging 192.168.0.11 with 32 bytes of data:

Reply from 192.168.0.11: bytes=32 time<1ms TTL=128
Reply from 192.168.0.11: bytes=32 time=16ms TTL=128
Reply from 192.168.0.11: bytes=32 time=1ms TTL=128
Reply from 192.168.0.11: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 16ms, Average = 4ms
```




```
Switch>enable
Password:
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
```