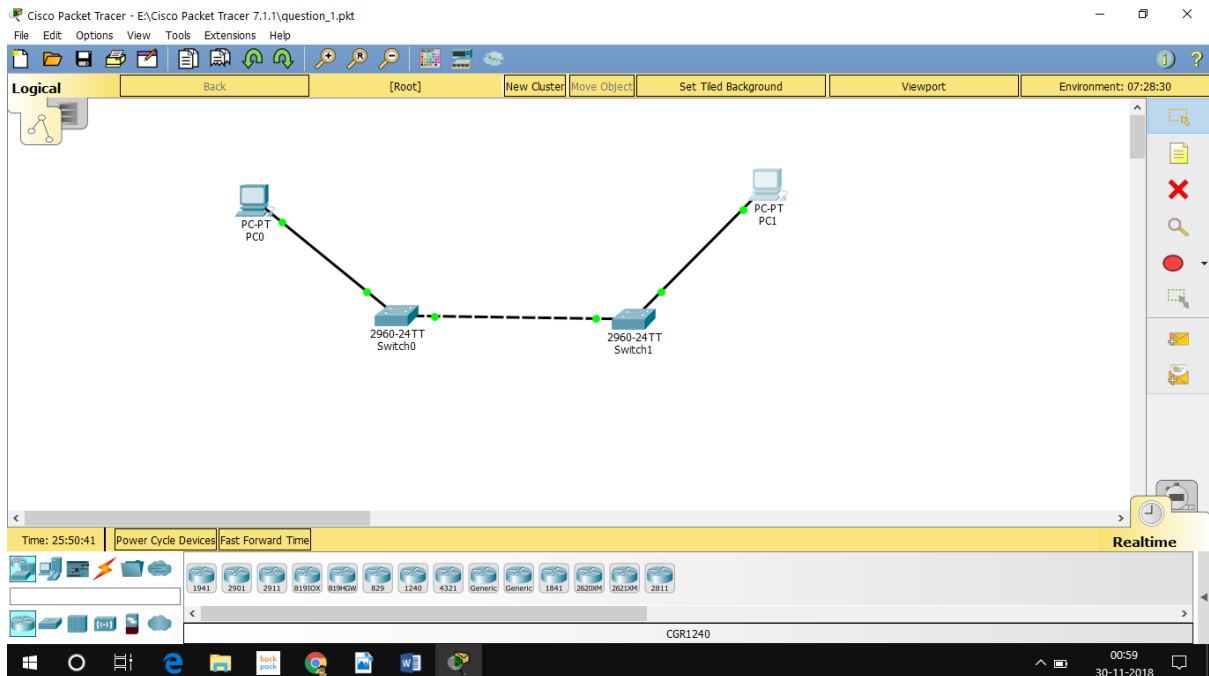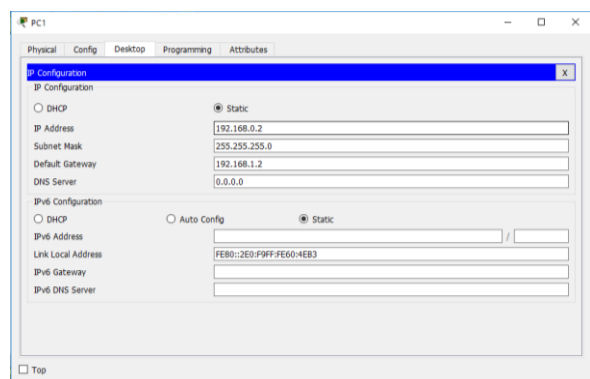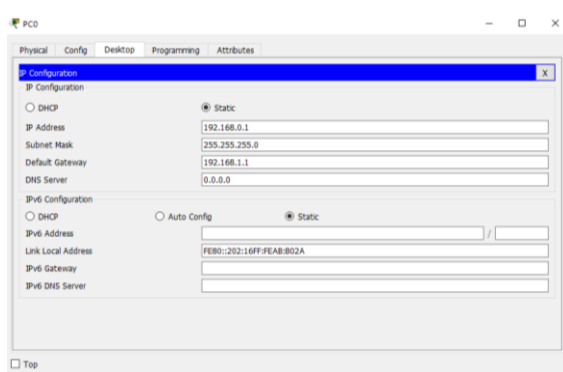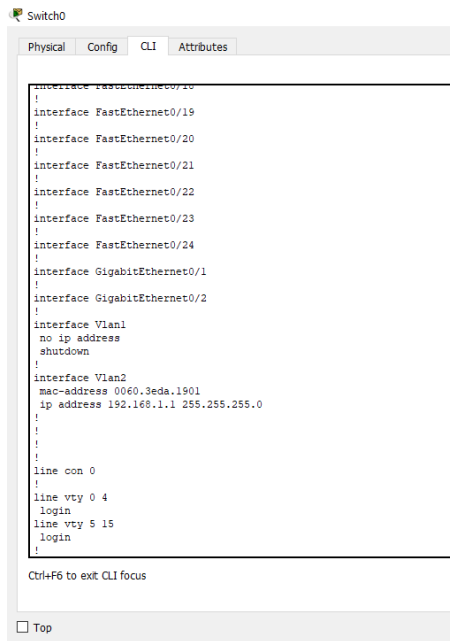# SM Assignment 7

Question 1

In this 2 pc and 2 switches are connected according to scenario in the question.

Configuration of pc according to question, both are on same network and have class c IP address.
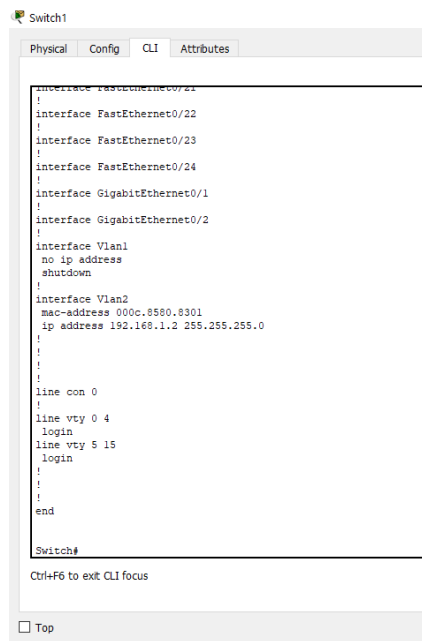
Switch0 — Physical | Config | CLI | Attributes

```
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan2
 mac-address 0060.3eda.1901
 ip address 192.168.1.1 255.255.255.0
 !
 !
 !
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
```
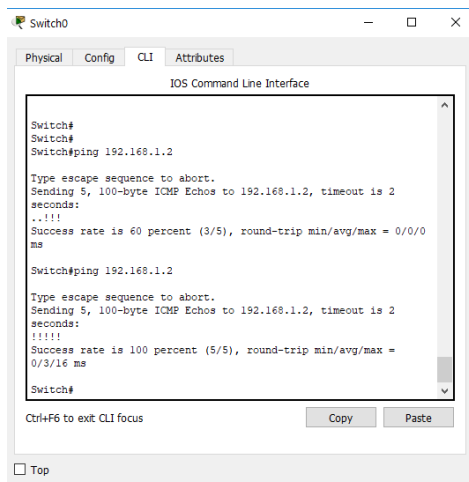Ctrl+F6 to exit CLI focus

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Switch1 — Physical | Config | CLI | Attributes

```
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
 no ip address
 shutdown
!
interface Vlan2
 mac-address 000c.8580.8301
 ip address 192.168.1.2 255.255.255.0
 !
 !
 !
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
 !
 !
 !
end

Switch#
```
Ctrl+F6 to exit CLI focus

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Configuration of switches and settings of vlan.

Switch0 — Physical | Config | CLI | Attributes

IOS Command Line Interface

```
Switch#
Switch#
Switch#ping 192.168.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2
seconds:
..!!!
Success rate is 60 percent (3/5), round-trip min/avg/max = 0/0/0
ms

Switch#ping 192.168.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2
seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max =
0/3/16 ms

Switch#
```
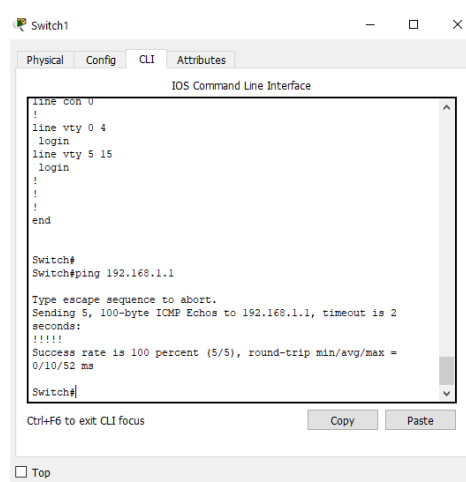Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Switch1 — Physical | Config | CLI | Attributes

IOS Command Line Interface

```
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
end

Switch#
Switch#ping 192.168.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2
seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max =
0/10/52 ms

Switch#
```
Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

Both switches were able to communicate to each other.
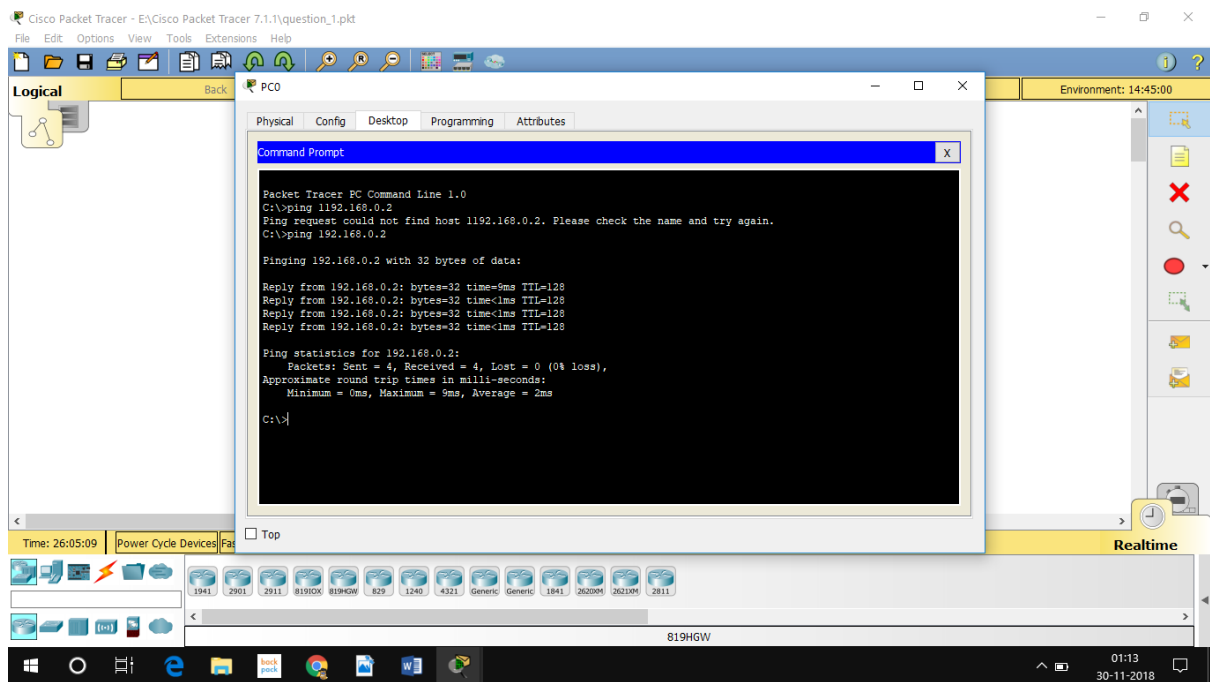
PC0 was able to make connection between PC1 and ping test is shown above.

Question 2
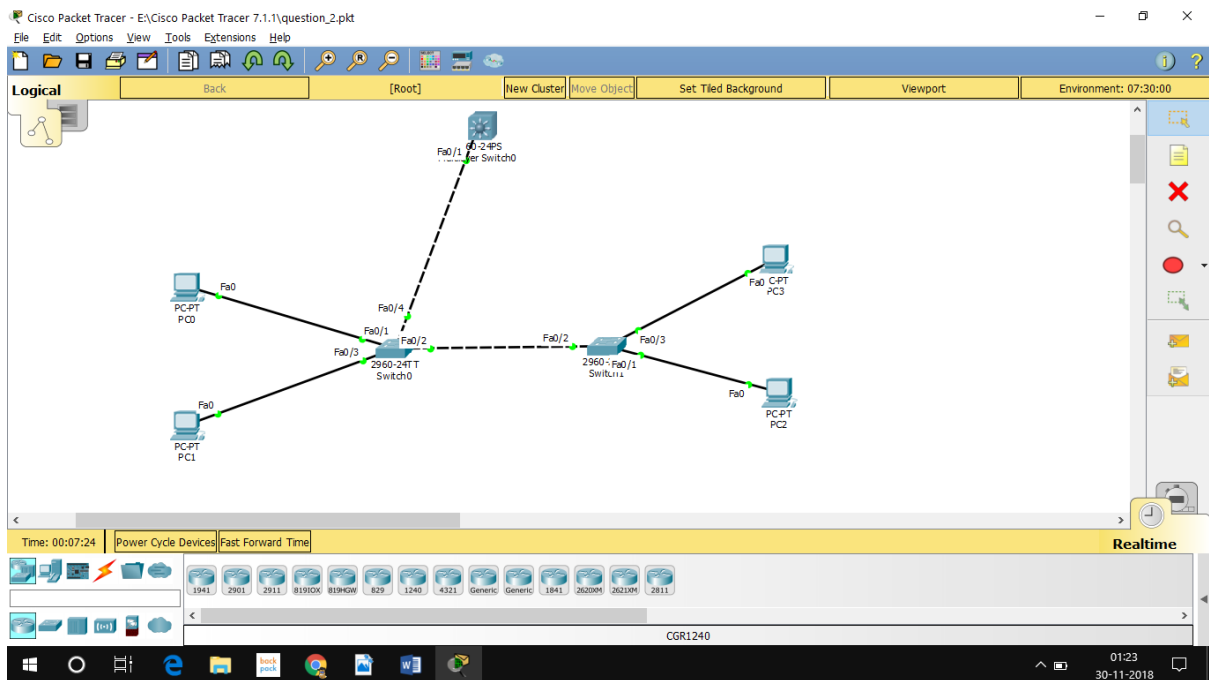
Scenario created according to the question.
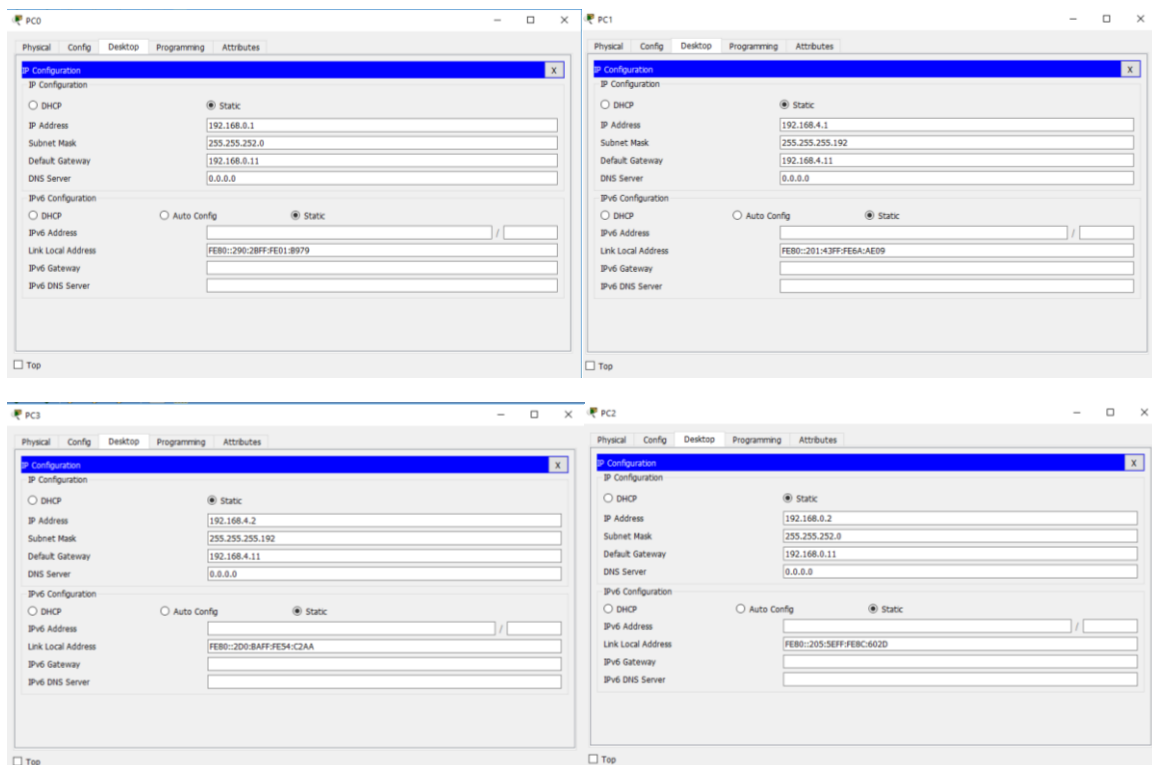
Configurations of PCs on the network

Switch0

Physical | Config | CLI | Attributes

IOS

```
Switch>
Switch>show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                Gig0/1, Gig0/2
2    VLAN0002                         active    Fa0/1
3    VLAN0003                         active    Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
-------------------------------------------------------------------------------

 --More--
```

Ctrl+F6 to exit CLI focus

☐ Top

Switch1

Physical | Config | CLI | Attributes

IOS

```
Switch>
Switch>show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                                Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                                Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                                Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                                Fa0/24, Gig0/1, Gig0/2
2    VLAN0002                         active    Fa0/1
3    VLAN0003                         active    Fa0/3
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
-------------------------------------------------------------------------------

 --More--
```

Ctrl+F6 to exit CLI focus

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Configurations of switches.

Multilayer Switch0   — ☐ ✕

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
Switch>
Switch>show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                Fa0/22, Fa0/23, Fa0/24, Gig0/1
                                                Gig0/2
2    VLAN0002                         active
3    VLAN0003                         active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
-------------------------------------------------------------------------------

 --More--
```
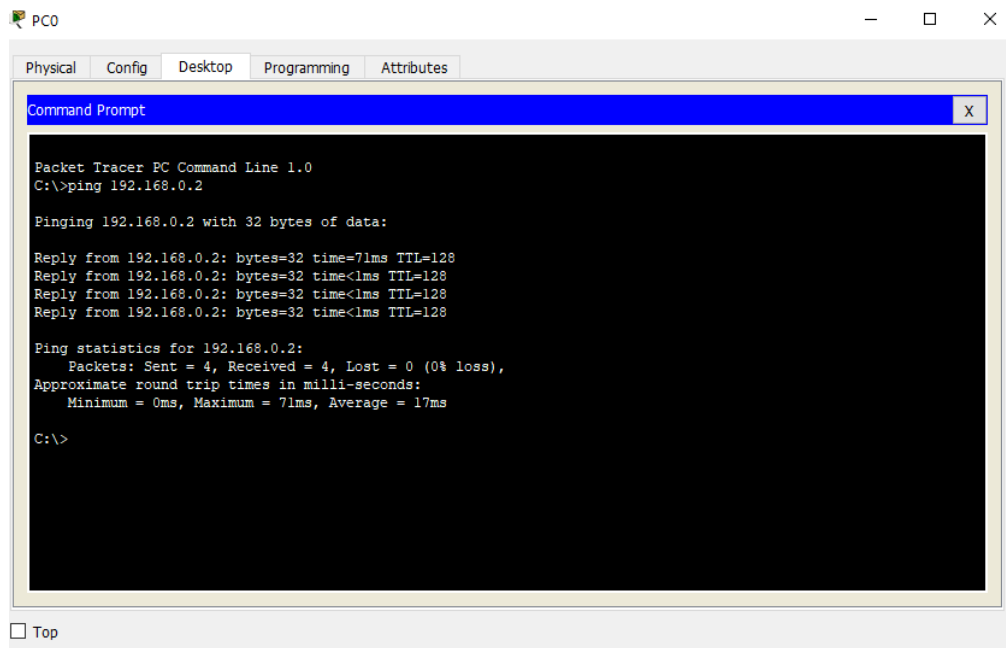
Ctrl+F6 to exit CLI focus   Copy | Paste

☐ Top

Configuration of multilayer switch or gateway.
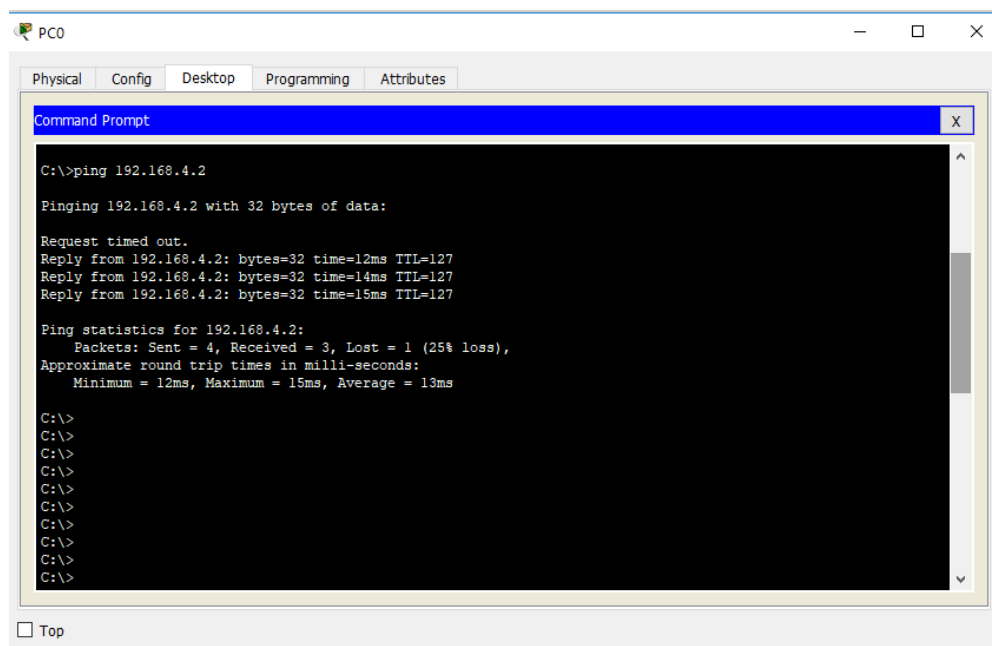
As you can PC0 (vlan 2) was able to ping PC2 (vlan 2) on same vlan but on another switch.
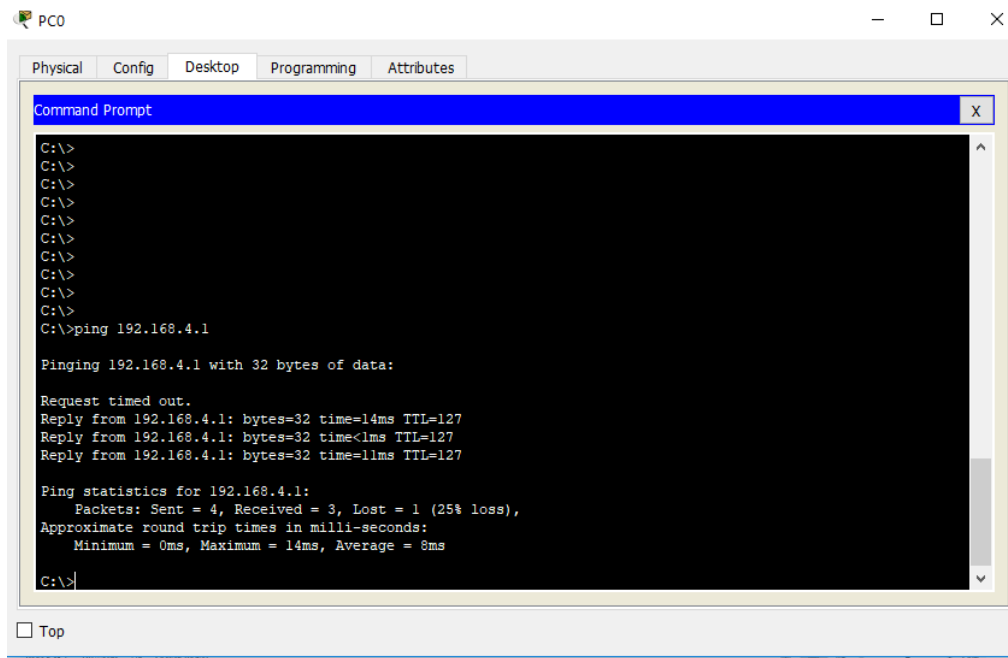
As you can see that PC0 (vlan 2) was able to ping PC3 (vlan 3) of different vlan and on different switch.

As you see PC0 (vlan 2)was able to ping PC1 (vlan 3) of different vlan and on same switch.

Question 3

(a) $14_{10} = 1110_2$ so 4 bits in binary are required to represent 14 in decimal so in class C IP first 24 bits are reserved as 1 in subnet mask and 4 will be added ie 11111111.11111111.11111111.11110000 or 255.255.255.240

(b) for third subnet first four bits of last octet will be 0010 (as number starts from 0) and last four bit will be 1110 (as 1111 will be broadcast id),so last octet will be 00101110 then IP address will be 192.16.3.46 .

(c) for last subnet first four bits of last octet will be 1101 (as number starts from 0) and last four bit will be 1110 (as 1111 will be broadcast id), so last octet will be 11011110 then IP address will be 192.16.3.222 if we take 14th subnet as last subnet but if we take 15th subnet as last subnet then first four bits will be 1111 and then answer will be 11111110 or 192.16.3.254 .

(d)   14 as 1 is for network id and 1 for broadcast id will be subtracted from 16.

(e)   for first subnet first four bit of last octet will be 0000 (as number starts from 0) and last four bit will be 1111 (as 1111 will be broadcast id), so last octet is 00001111 then IP address will be 192.16.3.15