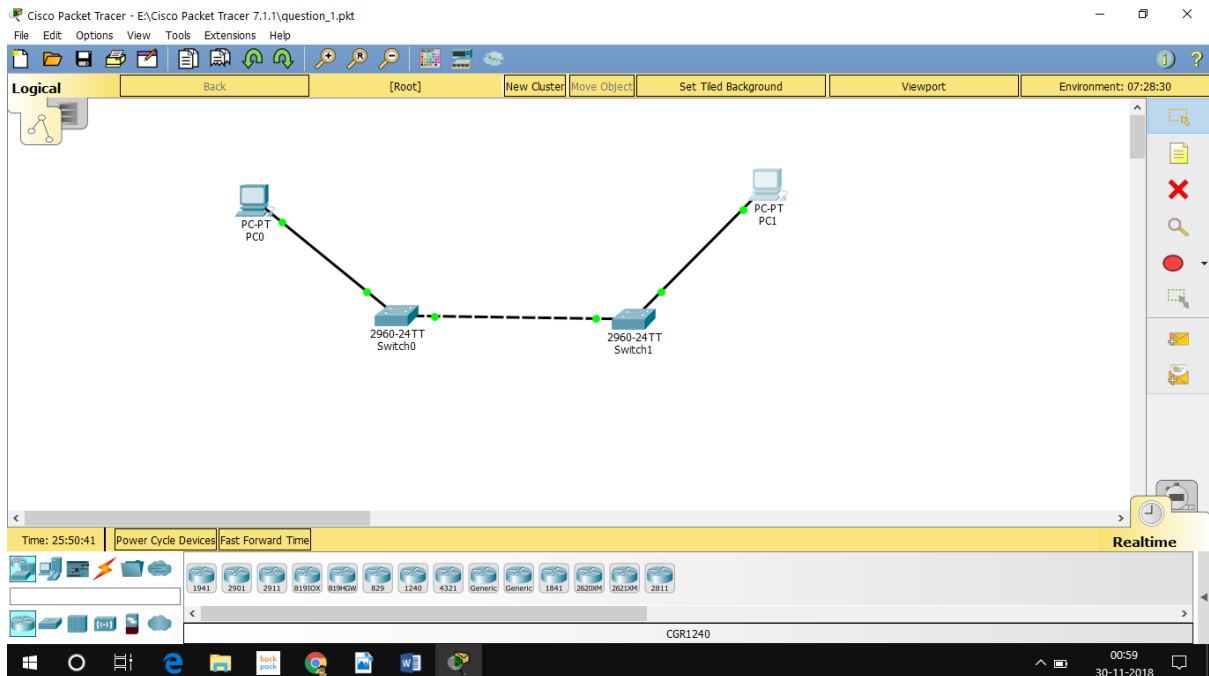
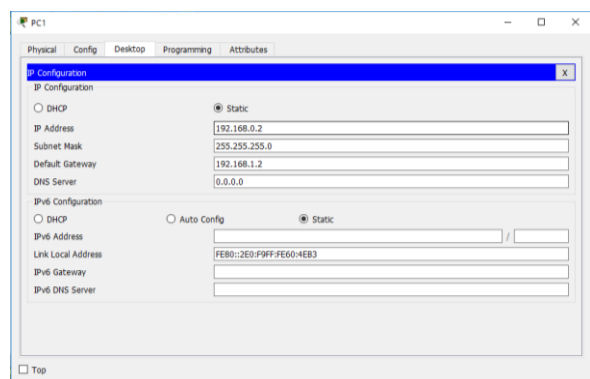
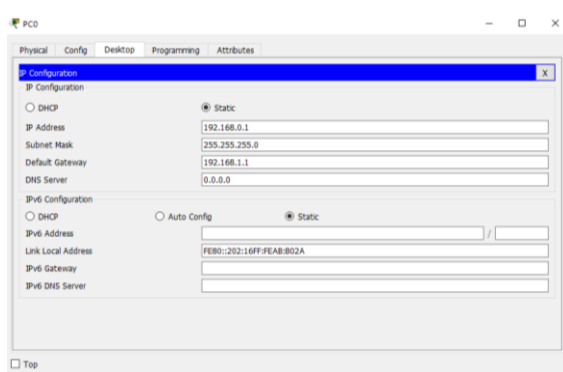


SM Assignment 7

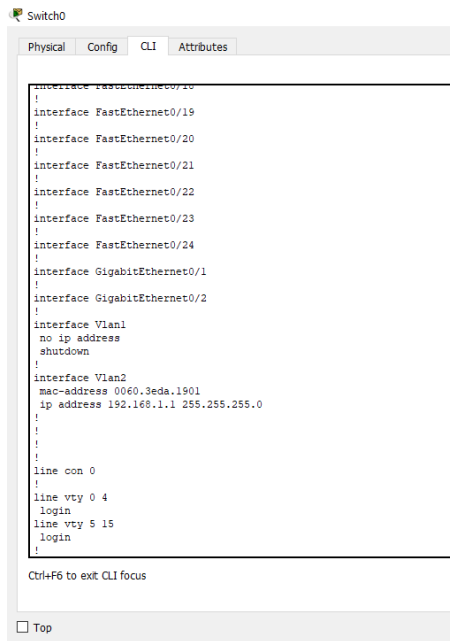
Question 1



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.



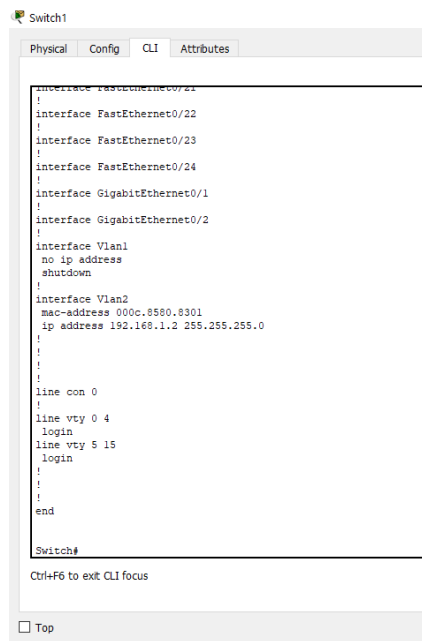
Switch0

Physical Config CLI Attributes

```
interface FastEthernet0/10
!
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

☐ Top



Switch1

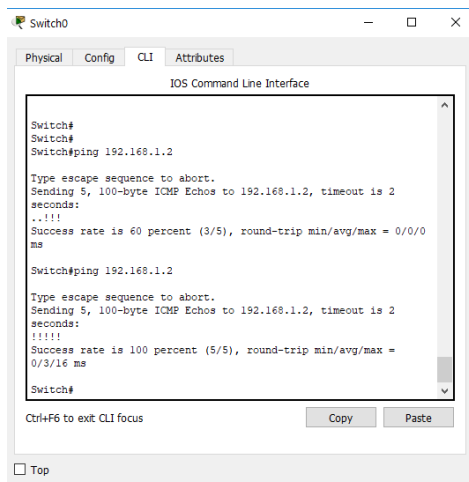
Physical Config CLI Attributes

```
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

☐ Top

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

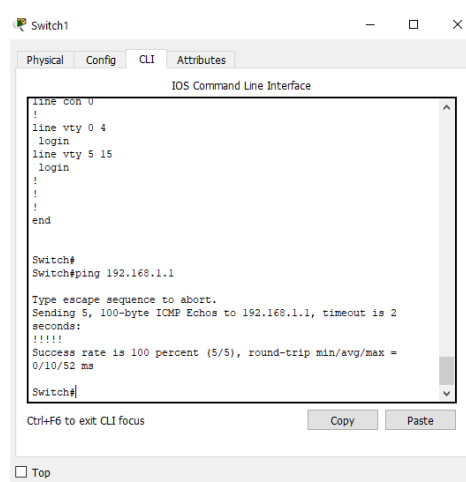
Switch#ping 192.168.1.2

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

☐ 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

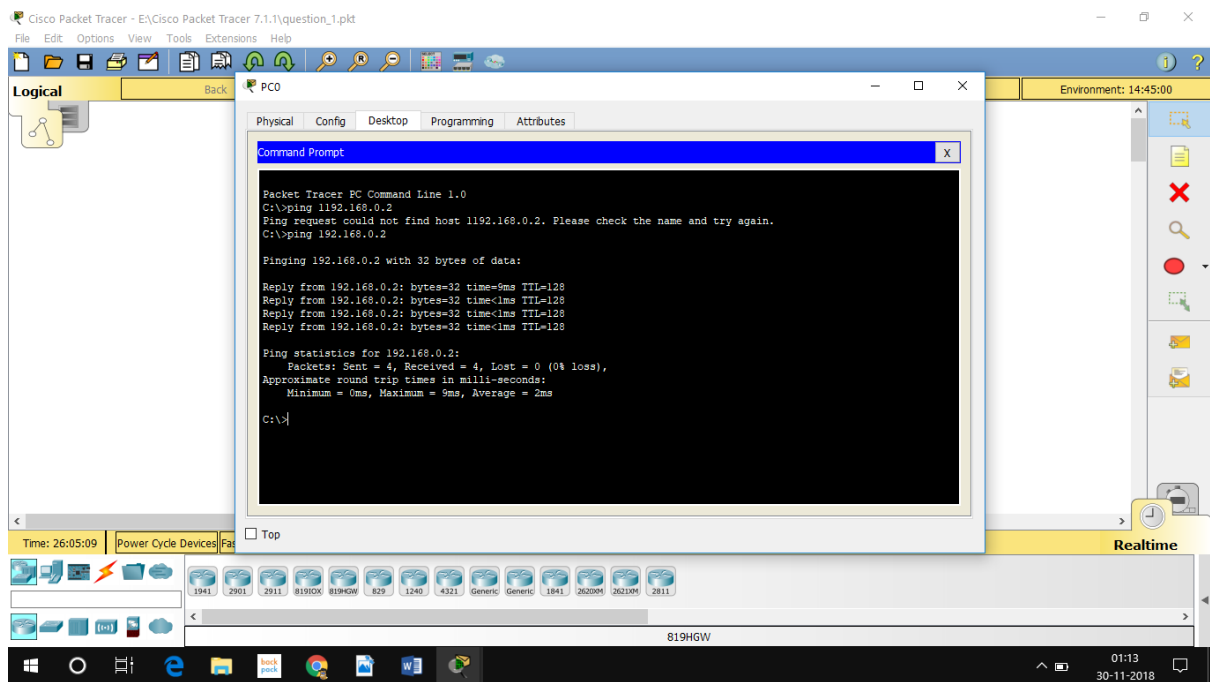
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2
seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max =
0/10/52 ms

Switch#
```

Ctrl+F6 to exit CLI focus

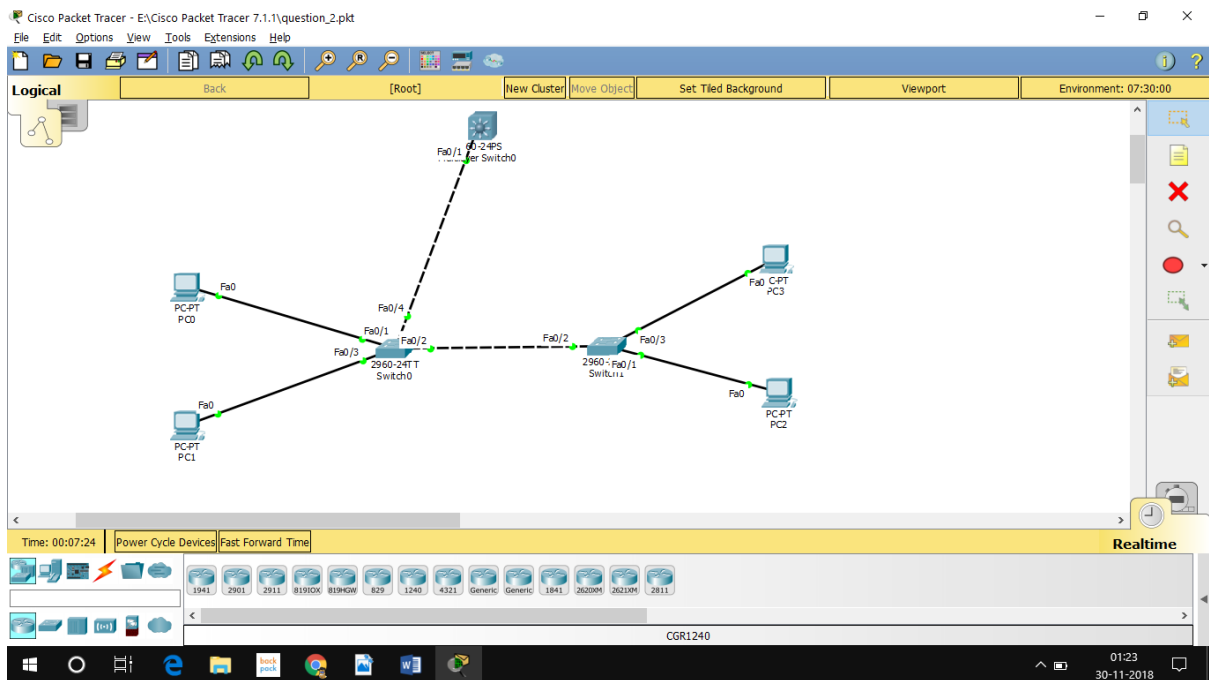
☐ Top

Both switches were able to communicate to each other.

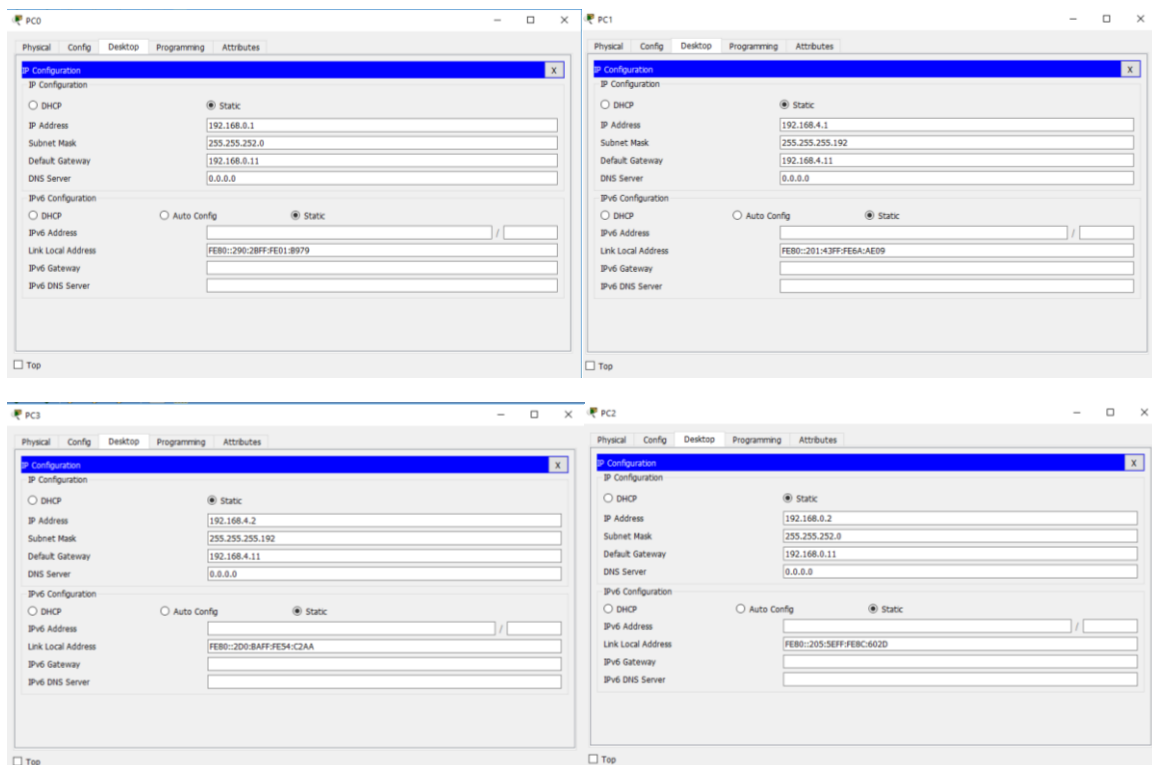


PC0 was able to make connection between PC1 and ping test is shown above.

Question 2



Scenario created according to the question.



Configurations of PCs on the network

```
Switch0
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    BrdMode Transl 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    BrdMode Transl Trans2
-----

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

Ctrl+F6 to exit CLI focus
```

```
Switch1
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    BrdMode Transl 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    BrdMode Transl Trans2
-----

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

Ctrl+F6 to exit CLI focus
```

Configurations of switches.

```
Multilayer Switch0
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

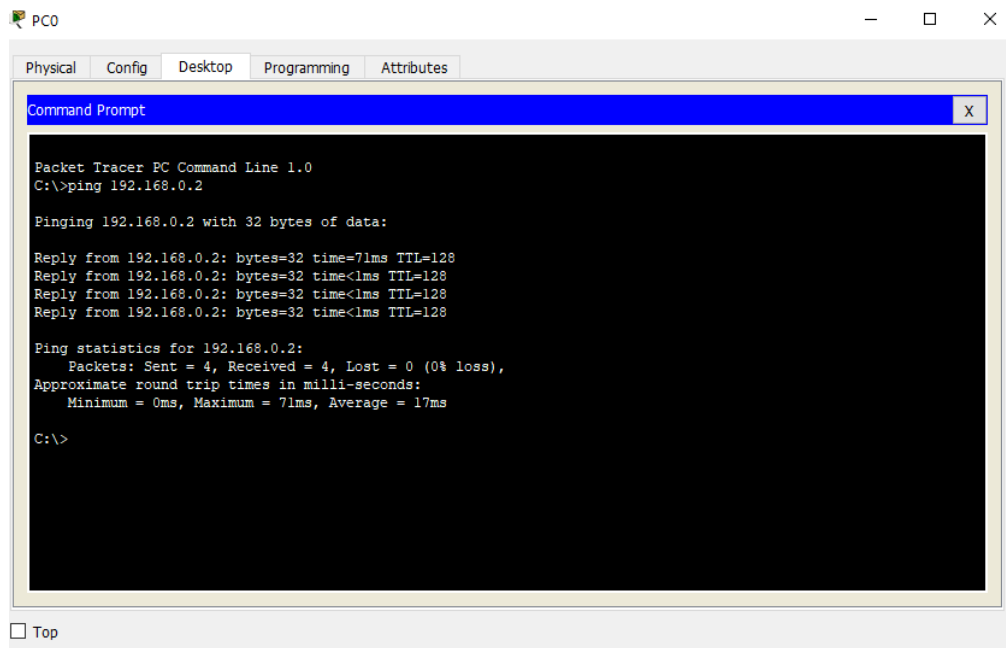
VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp    BrdMode Transl Trans2
-----
1    enet    100001    1500    -      -      -      -      -      0      0
2    enet    100002    1500    -      -      -      -      -      0      0
3    enet    100003    1500    -      -      -      -      -      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    BrdMode Transl Trans2
-----

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

Ctrl+F6 to exit CLI focus
```

Configuration of multilayer switch or gateway.



PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

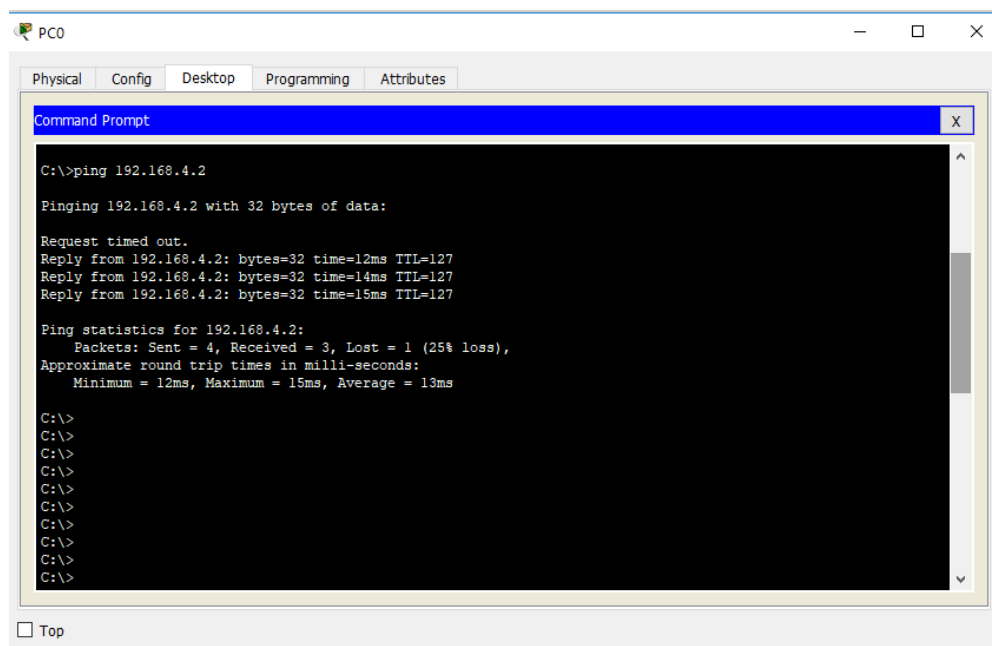
Reply from 192.168.0.2: bytes=32 time=71ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128
Reply from 192.168.0.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 71ms, Average = 17ms

C:\>
```

☐ Top

As you can PC0 (vlan 2) was able to ping PC2 (vlan 2) on same vlan but on another switch.



PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.4.2

Pinging 192.168.4.2 with 32 bytes of data:

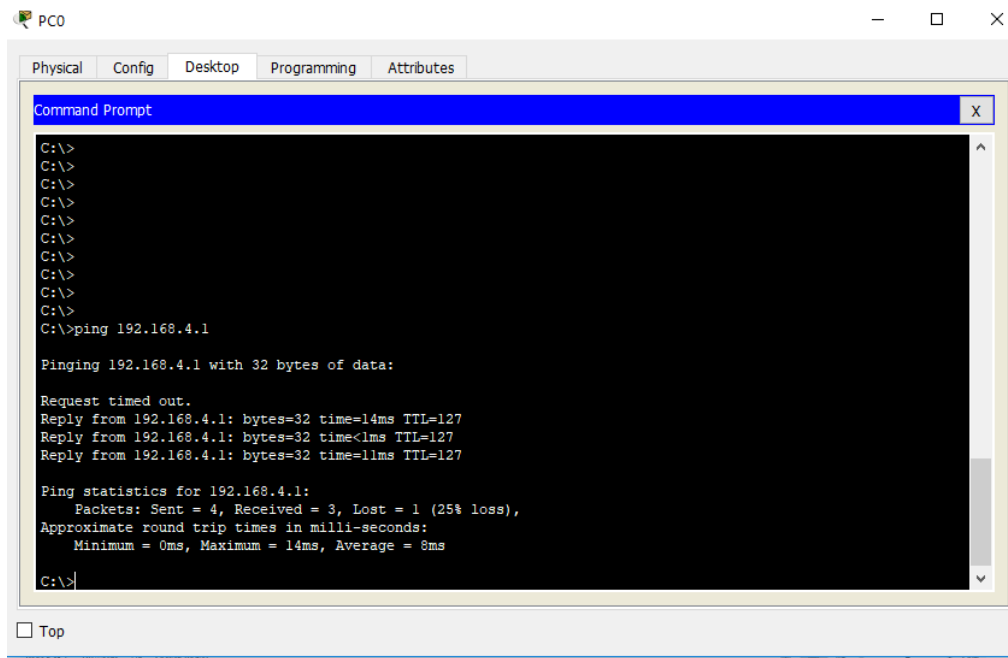
Request timed out.
Reply from 192.168.4.2: bytes=32 time=12ms TTL=127
Reply from 192.168.4.2: bytes=32 time=14ms TTL=127
Reply from 192.168.4.2: bytes=32 time=15ms TTL=127

Ping statistics for 192.168.4.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 15ms, Average = 13ms

C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
```

☐ Top

As you can see that PC0 (vlan 2) was able to ping PC3 (vlan 3) of different vlan and on different switch.



The screenshot shows a window titled 'PC0' with tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The command prompt shows the following text:

```
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.4.1: bytes=32 time=14ms TTL=127
Reply from 192.168.4.1: bytes=32 time<1ms TTL=127
Reply from 192.168.4.1: bytes=32 time=11ms TTL=127

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 8ms

C:\>
```

Below the command prompt, there is a 'Top' button and a status bar at the bottom showing 'Page 6 of 7', '210 words', '178', and 'English (United Kingdom)'.

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