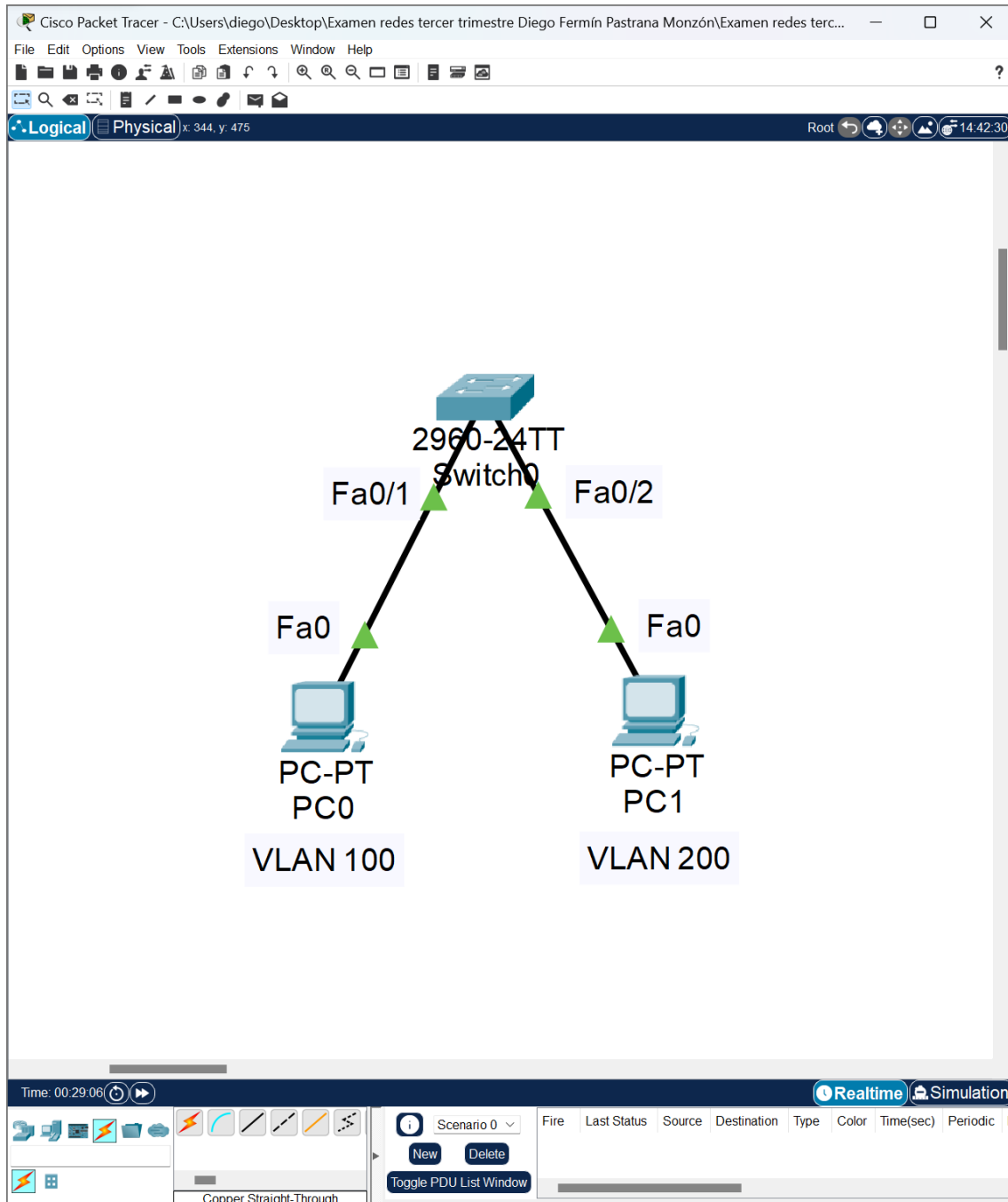


Pregunta 2: Ejercicio de VLAN sencillo (1 punto)

Crear dos VLAN, 100 y 200, con un Switch y conectar dos equipos, uno a cada VLAN. Utilizar la IP 192.168.10.0/24 y crear dos subredes, una para cada VLAN.



Switch0
Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 100
Switch(config-vlan)#name VLAN 100
      ^
% Invalid input detected at '^' marker.

Switch(config-vlan)#name VLAN100
Switch(config-vlan)#interface f0/1
Switch(config-if)#switchport mode access vlan 100
      ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 100
Switch(config-if)#exit
Switch(config)#vlan 200
Switch(config-vlan)#name VLAN200
Switch(config-vlan)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 200
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

VLAN Name                Status    Ports
-----
1    default                active    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

100  VLAN100                active    Fa0/1
200  VLAN200                active    Fa0/2
1002 fddi-default            active
1003 token-ring-default    active
1004 fddinet-default        active
1005 trnet-default          active

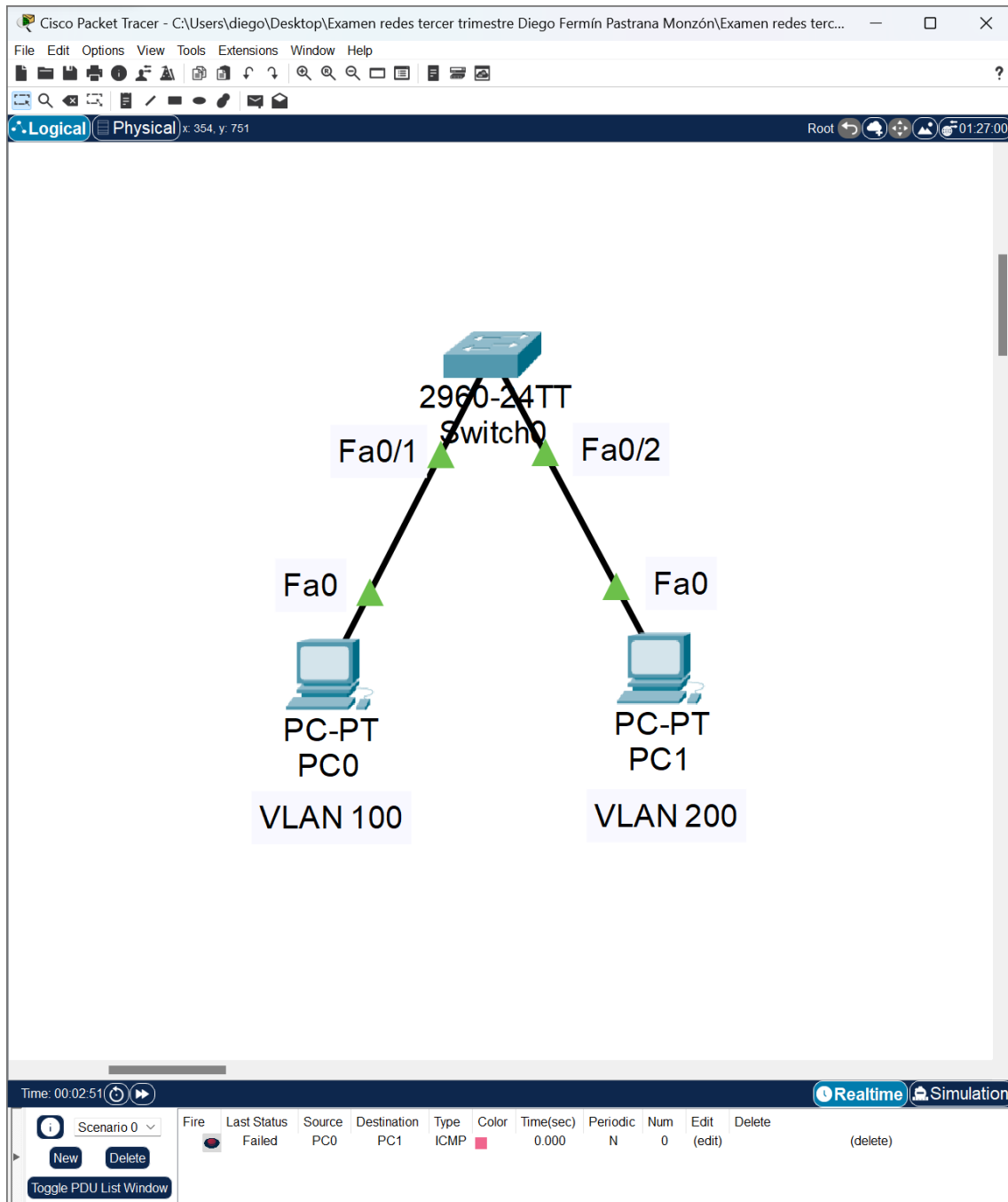
VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp    BrdgMode Trans1 Trans2
-----
1    enet    100001    1500   -       -       -       -     -       0       0
100  enet    100100    1500   -       -       -       -     -       0       0
200  enet    100200    1500   -       -       -       -     -       0       0
1002 fddi    101002    1500   -       -       -       -     -       0       0

Switch#

```

Copy
Paste

☐ Top



Si nos fijamos abajo, el ping entre los dos equipos falla, así que debería de estar el apartado de las VLAN correctamente configurado, de lo contrario el ping daría exitoso.

Pregunta 4: Configuración de VLANs en un Switch con subredes (5 puntos)

Tienes dos switches de 24 puertos y necesitas configurar las siguientes VLANs:

VLAN 10: Red de Ventas – 2 equipos

VLAN 20: Red de Ingeniería – 2 equipos

VLAN 30: Red de Administración – 2 equipos

Subred 1: 192.168.10.0/24 (VLAN 10)

Subred 2: 192.168.20.0/24 (VLAN 20)

Subred 3: 192.168.30.0/24 (VLAN 30)

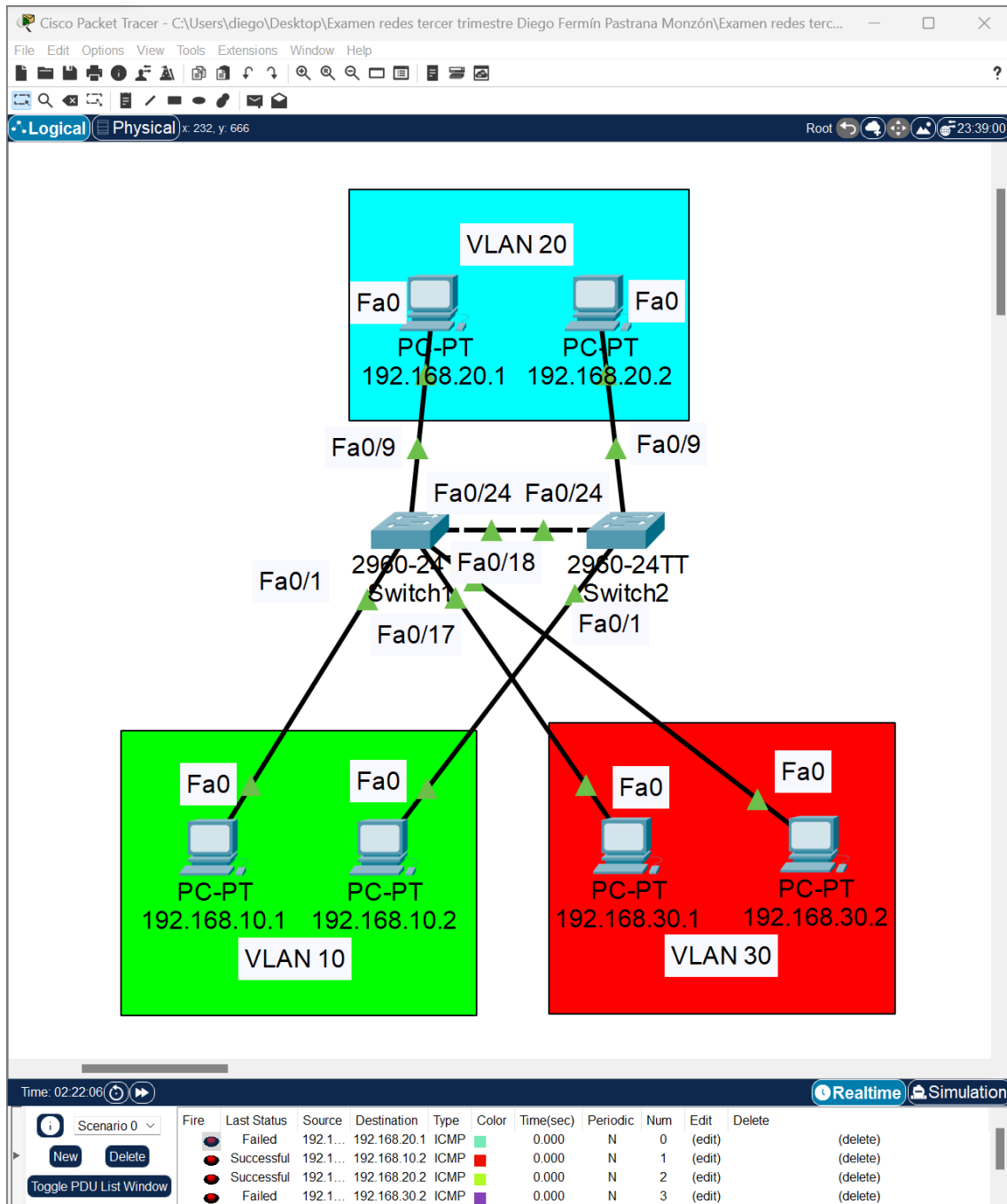
a) Proporciona los comandos necesarios para crear estas VLANs con dos switches:

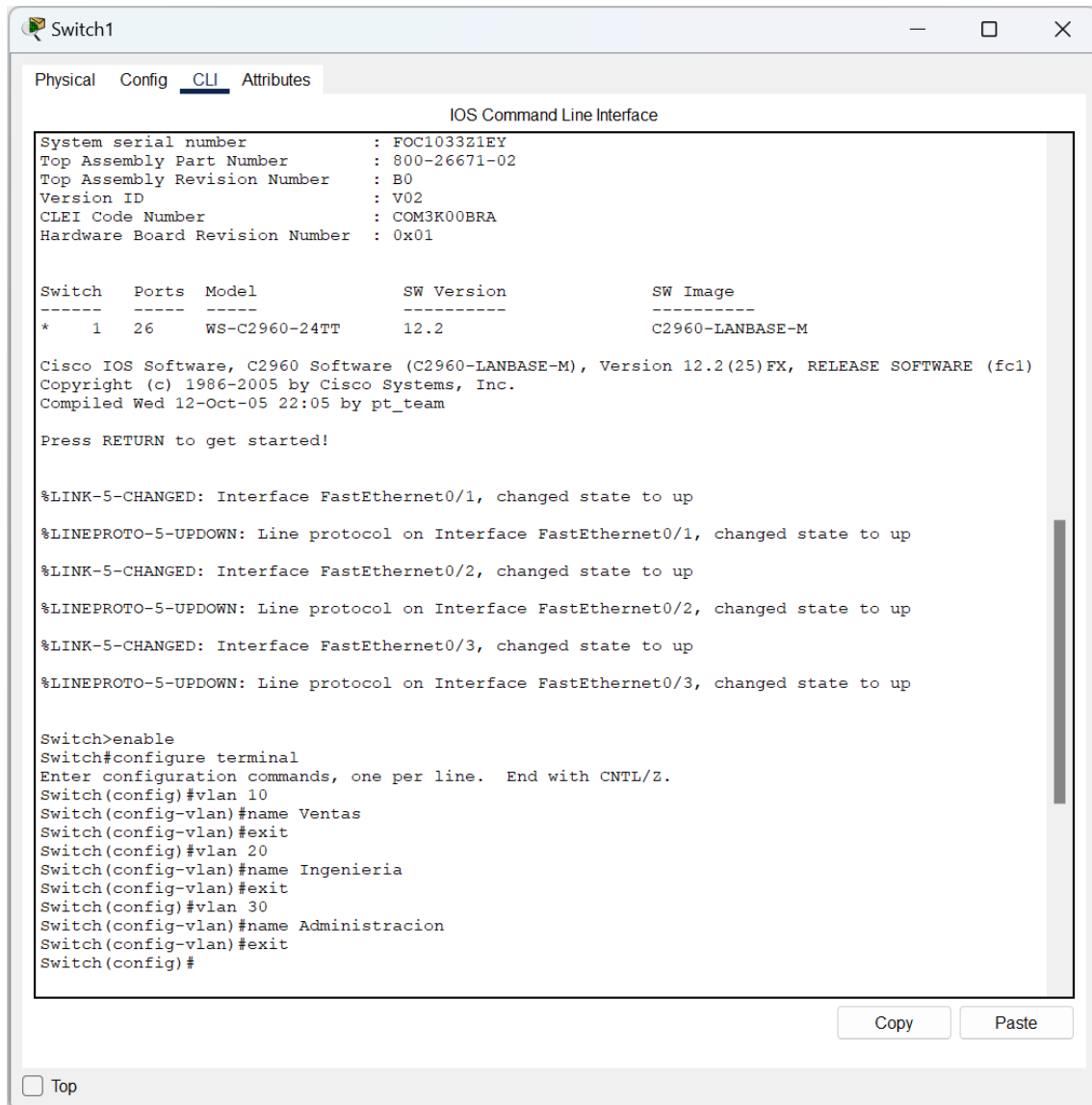
a. SW1: Host 1 de VLAN 10, Host 2 de VLAN 20, Host 1 y 2 de VLAN 30

b. SW2: Host 2 de VLAN 10, Host 1 de VLAN 20.

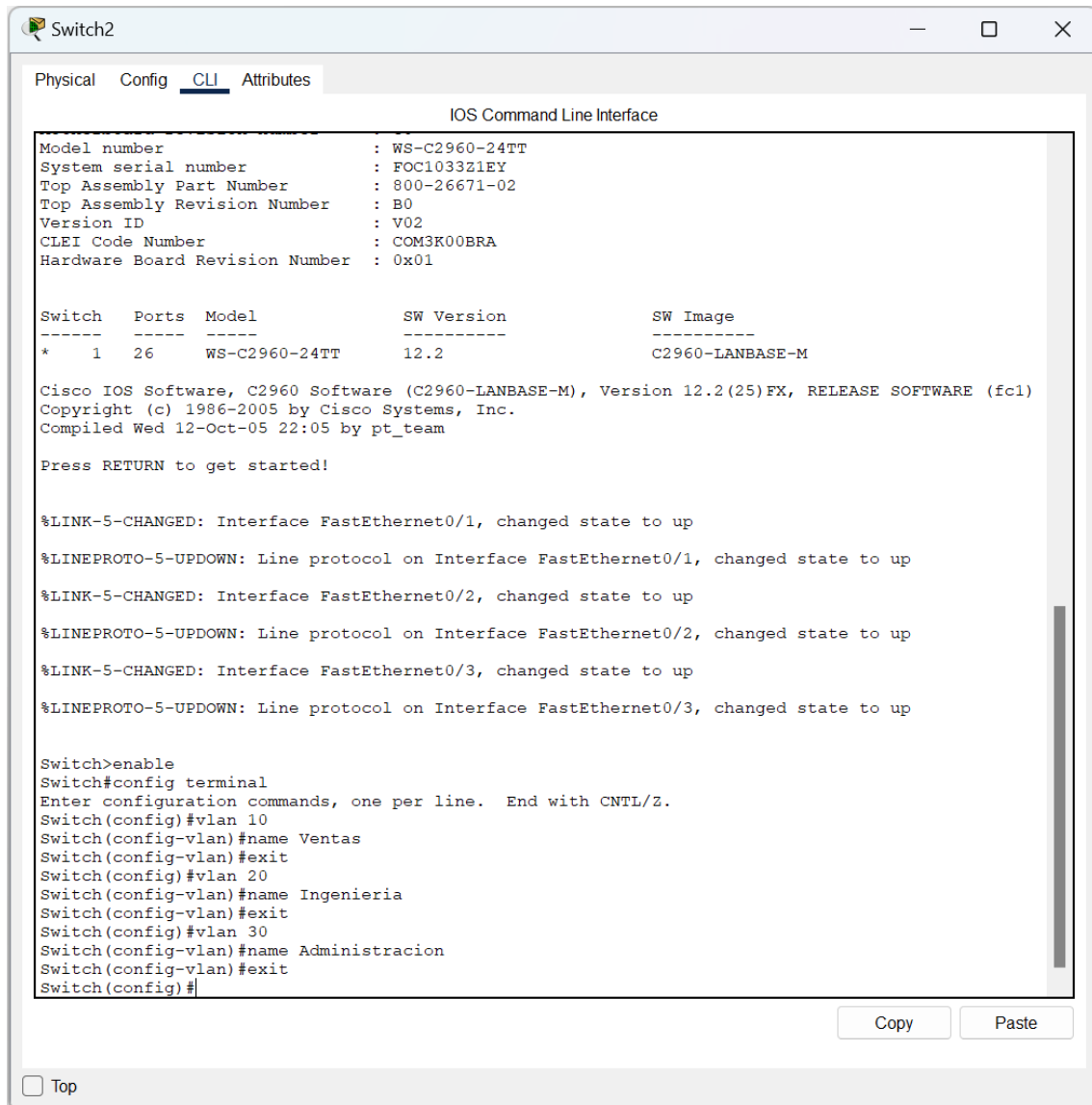
b) Asigna los puertos 1-8 a la VLAN 10, los puertos 9-16 a la VLAN 20, y los puertos 17-24 a la VLAN 30.

c) Muestra cómo configurar un puerto de enlace troncal para permitir el tráfico de todas las VLANs.

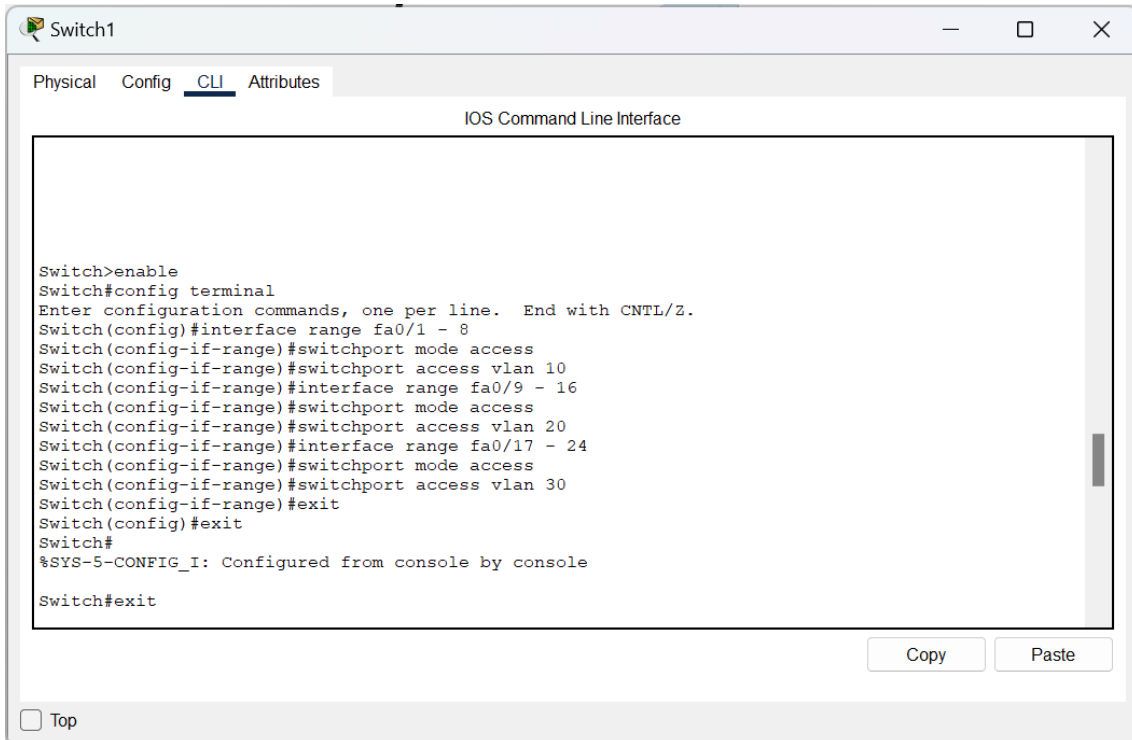




Se crean las VLAN y les ponemos nombre en el switch 1



Se crean las VLAN y les ponemos nombre en el switch 2



Switch1

Physical Config CLI Attributes

IOS Command Line Interface

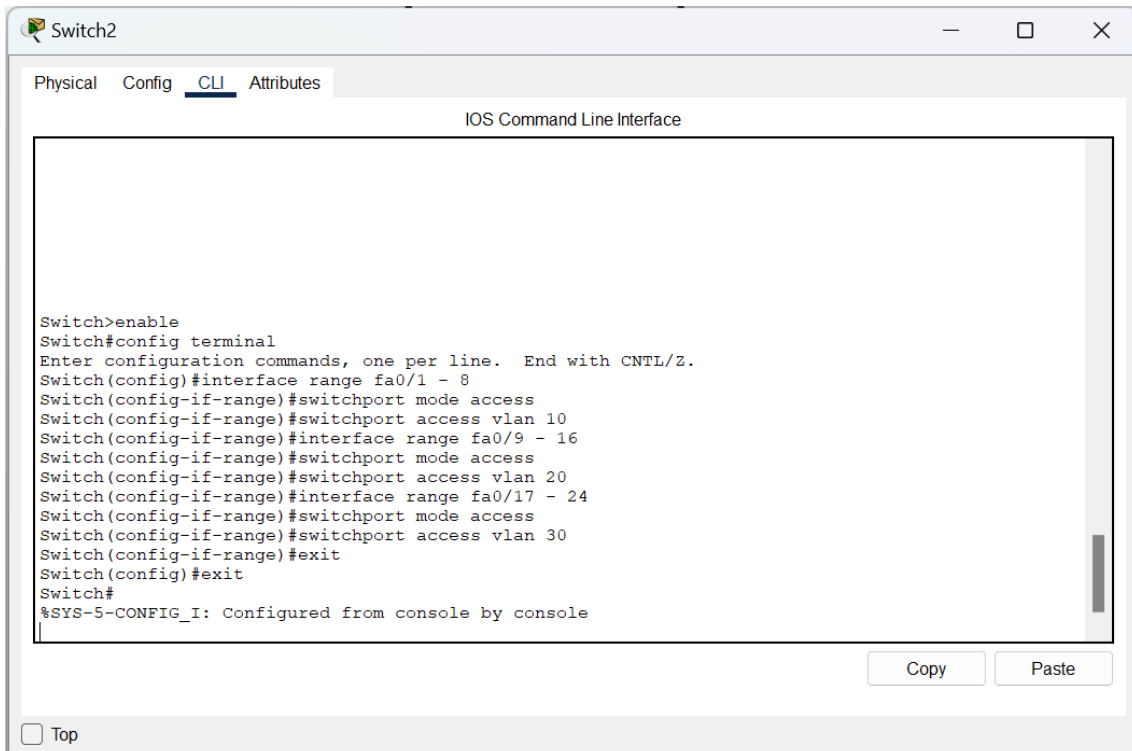
```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1 - 8
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#interface range fa0/9 - 16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#interface range fa0/17 - 24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#exit
```

☐ Top

Copy Paste

Asignamos los puertos en el switch 1



Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>enable
Switch#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1 - 8
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#interface range fa0/9 - 16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#interface range fa0/17 - 24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

☐ Top

Copy Paste

Asignamos los puertos en el switch 2

Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>show vlan
```

VLAN	Name	Status	Ports
1	default	active	Gig0/1, Gig0/2
10	Ventas	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8
20	Ingenieria	active	Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16
30	Administracion	active	Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24
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
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
30	enet	100030	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0

--More--

Copy Paste

☐ Top

Comprobamos que se han asignado en el switch 1

Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>show vl
Switch>show vlan
```

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

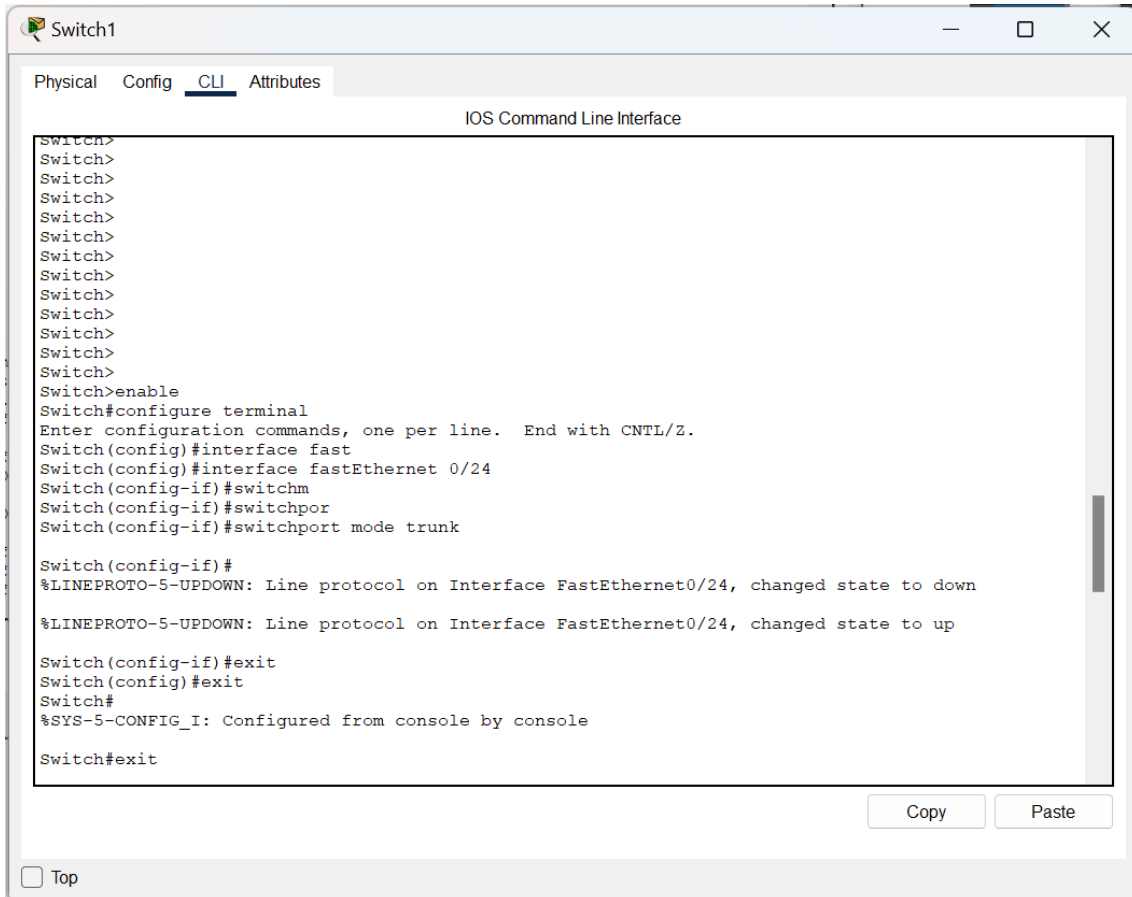
VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
30	enet	100030	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0

--More--

Copy Paste

☐ Top

Comprobamos que se han asignado en el switch 2



Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fast
Switch(config)#interface fastEthernet 0/24
Switch(config-if)#switchm
Switch(config-if)#switchpor
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

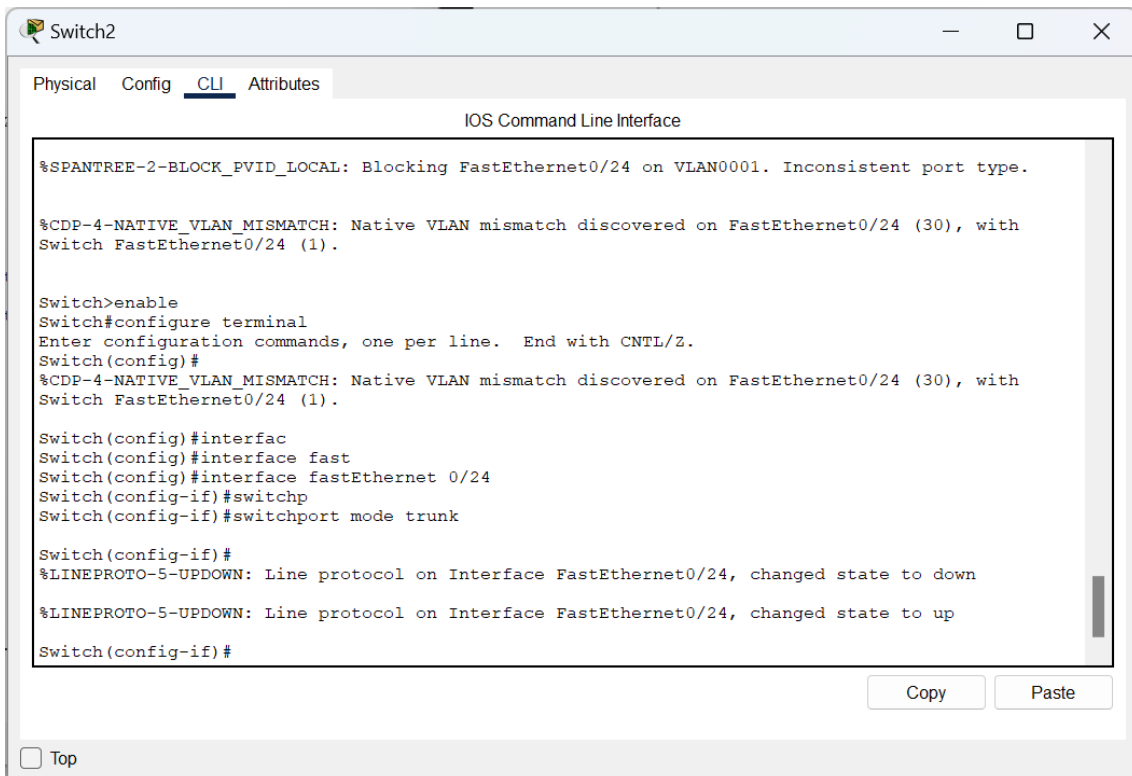
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#exit
```

☐ Top

Copy Paste

Aplicamos el trunk en el puerto 24 del switch 1



Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/24 on VLAN0001. Inconsistent port type.

%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/24 (30), with
Switch FastEthernet0/24 (1).

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
%CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/24 (30), with
Switch FastEthernet0/24 (1).

Switch(config)#interfac
Switch(config)#interface fast
Switch(config)#interface fastEthernet 0/24
Switch(config-if)#switchp
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up





Switch(config-if)#
```

☐ Top

Copy Paste

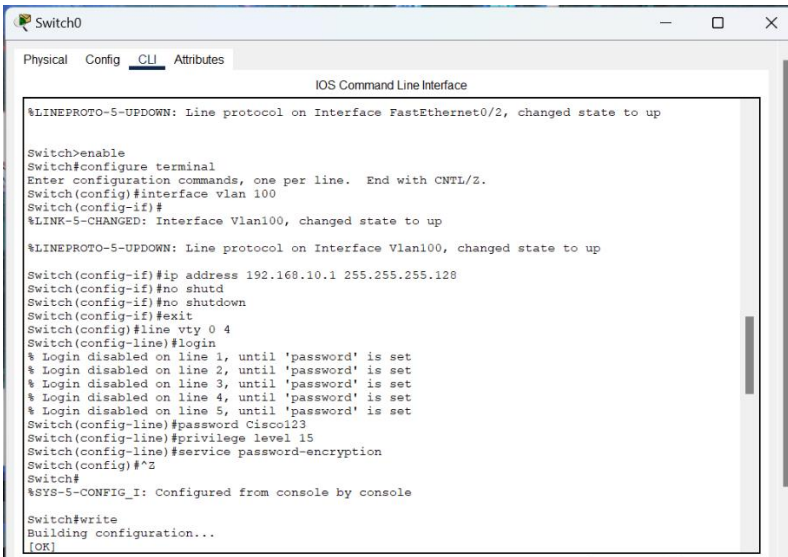
Aplicamos el trunk en el puerto 24 del switch 2

Una vez ya hemos hecho todo el proceso, incluido el trunking y además añadido las correspondientes IPs y máscaras a los PCs, ya podemos comprobar que entre los PCs de cada VLAN se hace el ping correctamente, pero entre los de las VLAN diferentes no.

Last Status	Source	Destination	Type	Color	Time(sec)	Periodic
Failed	192.168.10.2	192.168.20.2	ICMP		0.000	N
Failed	192.168.30.1	192.168.10.1	ICMP		0.000	N
Successful	192.168.30.2	192.168.30.1	ICMP		0.000	N
Successful	192.168.10.1	192.168.10.2	ICMP		0.000	N

Pregunta 3: Telnet (1 punto)

Configurar los equipos del ejercicio anterior para conectarse a los switches por Telnet.



```

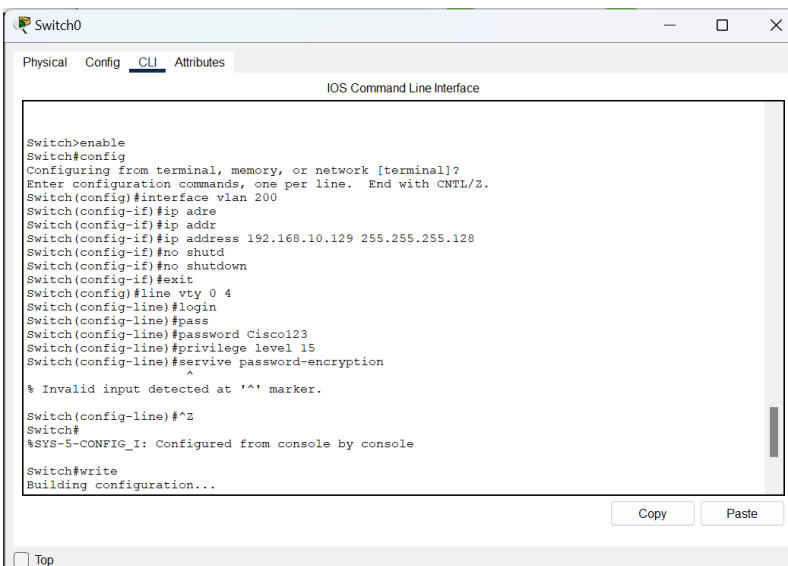
Switch0
Physical Config CLI Attributes
IOS Command Line Interface

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface vlan 100
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan100, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan100, changed state to up

Switch(config-if)#ip address 192.168.10.1 255.255.255.128
Switch(config-if)#no shutd
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#line vty 0 4
Switch(config-line)#login
% Login disabled on line 1, until 'password' is set
% Login disabled on line 2, until 'password' is set
% Login disabled on line 3, until 'password' is set
% Login disabled on line 4, until 'password' is set
% Login disabled on line 5, until 'password' is set
Switch(config-line)#password Cisco123
Switch(config-line)#privilege level 15
Switch(config-line)#service password-encryption
Switch(config)#^Z
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#write
Building configuration...
[OK]
  
```



```

Switch0
Physical Config CLI Attributes
IOS Command Line Interface

Switch>enable
Switch#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface vlan 200
Switch(config-if)#ip adre
Switch(config-if)#ip addr
Switch(config-if)#ip address 192.168.10.129 255.255.255.128
Switch(config-if)#no shutd
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#line vty 0 4
Switch(config-line)#login
Switch(config-line)#pass
Switch(config-line)#password Cisco123
Switch(config-line)#privilege level 15
Switch(config-line)#servive password-encryption

% Invalid input detected at '^' marker.

Switch(config-line)#^Z
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#write
Building configuration...

Copy Paste
☐ Top
  
```

Ponemos todos los comandos necesarios para configurar telnet para las 2 VLAN, además de ponerle una contraseña que en este caso es “Cisco123”.

```

Cisco Packet Tracer PC Command Line 1.0
C:\>telnet 192.168.10.1
Trying 192.168.10.1 ...Open

User Access Verification

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

[Connection to 192.168.10.1 closed by foreign host]
C:\>telnet 192.168.10.1
Trying 192.168.10.1 ...Open

User Access Verification

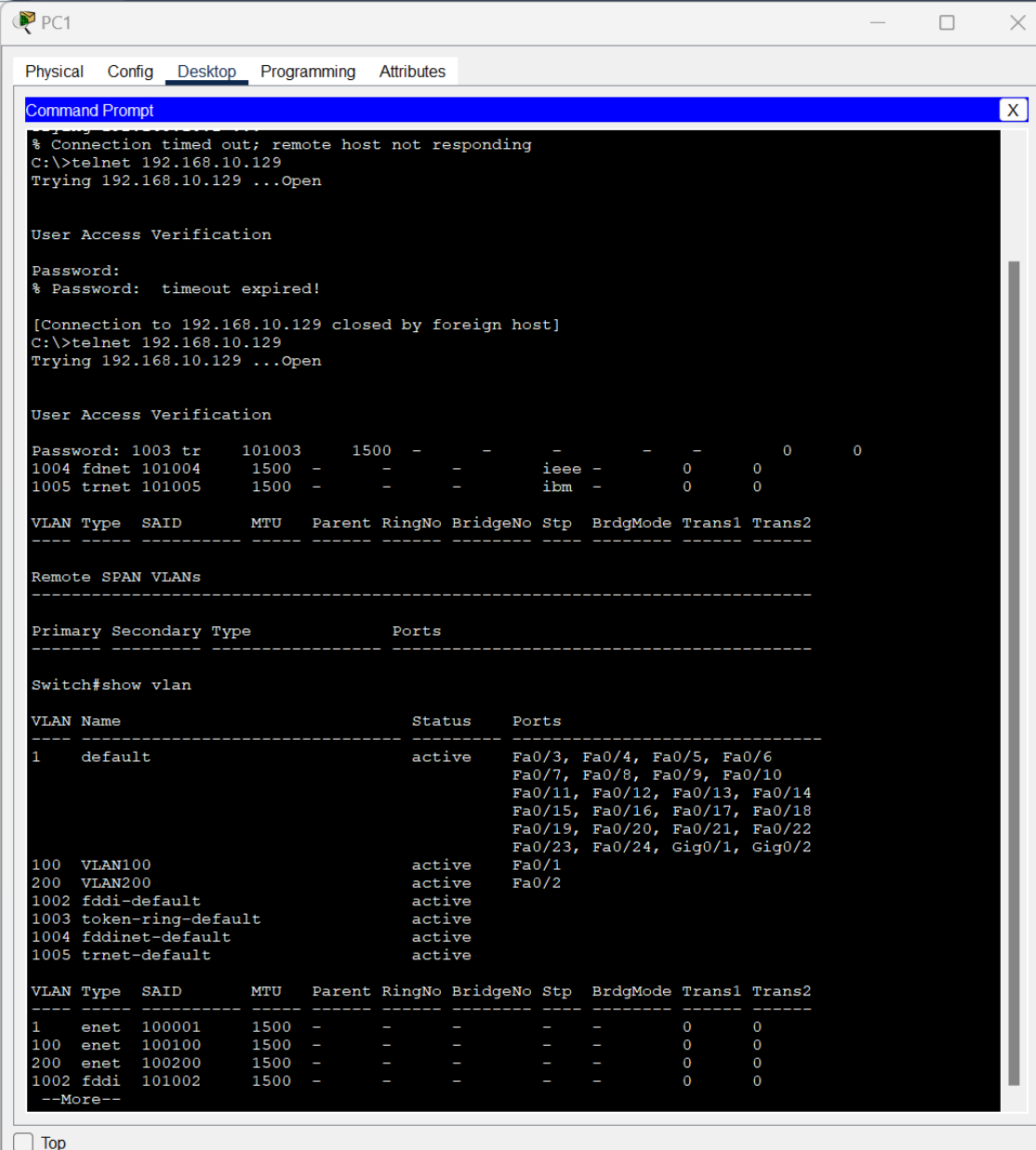
Password:
Switch#show vlan

VLAN Name                Status    Ports
-----
1    default                active    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

100  VLAN100                active    Fa0/1
200  VLAN200                active    Fa0/2
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   1000001   1500  -     -     -     -   -         0       0
100  enet   100100    1500  -     -     -     -   -         0       0
200  enet   100200    1500  -     -     -     -   -         0       0
1002 fddi   101002    1500  -     -     -     -   -         0       0
--More--
  
```

Como vemos tenemos acceso y control con telnet a partir del PC0



PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
% Connection timed out; remote host not responding
C:\>telnet 192.168.10.129
Trying 192.168.10.129 ...Open

User Access Verification

Password:
% Password: timeout expired!

[Connection to 192.168.10.129 closed by foreign host]
C:\>telnet 192.168.10.129
Trying 192.168.10.129 ...Open

User Access Verification

Password: 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
-----

Primary Secondary Type Ports
-----

Switch#show vlan

VLAN Name                Status    Ports
-----
1    default                active    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
100  VLAN100                active    Fa0/1
200  VLAN200                active    Fa0/2
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
100  enet  100100  1500 - - - - - 0 0
200  enet  100200  1500 - - - - - 0 0
1002 fddi  101002  1500 - - - - - 0 0
--More--
```

☐ Top

También funciona desde el PC1

Pregunta 1: Ejercicio de subnetting (1 punto).

Subred: 192.168.10.0/24

- a) Determinar las subredes necesarias para que se puedan conectar 16 equipos en 7 subredes.
- b) Determinar cuál es la máscara de las subredes.
- c) Indicar cómo, a partir de una IP de un host, podríamos determinar la IP de la red, utilizando la máscara.
- d) Indicar, las subredes creadas, así como las IP de los equipos. Además, indicar la IP de difusión de cada subred.

- A) $2^5=32$ bits para host, se pasa, pero necesitamos que sobre al menos 2 para los reservados
 $2^3=8$ bits para subredes