Group Assignment 2 - Group Lab Activity 2

TNE10006/TNE60006 S1 2025

Assignment Weight:
7.5%

Assignment Points:
75

Submission Due Date:
Week 12 Lab session.

Reference Material:

Sample Final Skills Exam A

Instructions:

1. Form a group of 3-4 people amongst the students present in the lab session.
2. Discuss and answer the questions in Group Assignment 2 with your group members.
3. Organise for your group to meet as needed to complete all the questions.
4. Each group will submit one completed Group Assignment 2
5. Submit Group Assignment 2, in the Canvas shell, under the Group Lab Activity 2
6. Late penalties will apply for submission after the due date.

Group Assignment 2 Sections:

Section 1: Sample Final Skills Exam A – Topology Analysis (30 marks)

Section 2: Sample Final Skills Exam A – Configuration (25 marks)

Section 3: Sample Final Skills Exam A – Troubleshooting (20 marks)

IMPORTANT:
This document has been formatted as a PDF form providing answer fields. You must not convert this file to another file type nor use a PDF editor to insert your answers.

Group Assignment 2 Members Information:

Student Name	Student ID

Section 1: Sample Final Skills Exam A – Topology Analysis (30 marks)

When tasked to build a network end to end, you should first analyse the topology diagram, addressing tables, and other relevant specifications to understand basic network configuration requirements. In this section, you must refer to the information on **Sample Final Skills Exam A** and discuss configuration requirements with your group. The questions below will help guide the topology analysis discussion.

Note: the topology analysis group discussion should be carried out before configuring the network.

Q1. Refer to **Sample Final Skills Exam A** and answer the following questions regarding VLANs, VLAN membership and 802.1q trunking requirements.

a) How many VLANs must be configured on **Curly**? If any, list the required VLANs specifying VLAN ID and name.
(2 marks)

VLAN 5 (Three), VLAN 45 (Stooges), VLAN 451 (Management), VLAN 1 (default)

b) How many VLANs must be configured on **Moe**? If any, list the required VLANs specifying VLAN ID and name.
(2 marks)

VLAN 5 (Three), VLAN 45 (Stooges), VLAN 278 (Crazy), VLAN 451 (Management), VLAN 1 (default)

c) How many access ports must be configured on **Curly**? If any, list the required access ports specifying port ID and VLAN membership.
(1 mark)

2 access ports: Gi1/0/21 and Gi1/0/24 in VLAN 451

d) How many access ports must be configured on **Moe**? If any, list the required access ports specifying port ID and VLAN membership.
(3 marks)

12 access ports: Fa0/13-16 in VLAN 5, Fa0/17-20 in VLAN 45, Fa0/21-24 in VLAN 278

e) How many 802.1q trunks must be configured on **Curly**? If any, list the required trunks specifying port ID and switchport mode.
(2 marks)

Gi1/0/1 and Gi1/0/2 as switchport mode trunk

f) How many 802.1q trunks must be configured on **Moe**? If any, list the required trunks specifying port ID, switchport mode and native VLAN ID.
(1 mark)

Fa0/1 and Fa0/2 as switchport mode trunk

Q2. Refer to **Sample Final Skills Exam A** and answer the following questions regarding inter-VLAN routing requirements.

a) Use the table to list all interfaces and sub-interfaces that must be configured on **Larry**. For each, specify interface ID, IP address, subnet mask, and 802.1q ID when applicable.
(5 marks)

Interface ID	**IP address**	**Subnet Mask**	**802.1q ID**
Example: *Loopback 10*	*115.23.10.100*	*255.255.255.240*	*Not applicable*
Gig0/01.5	83.174.16.126	255.255.255.128	5
Gig0/0/1.45	83.174.15.0	255.255.240.0	45
Gig0/0/1.278	83.174.16.158	255.255.255.225	378
Gig0/0/1.451	83.174.16.168	255.255.255.248	451
Loopback0	93.216.87.1	255.255.255.248	N/A

Note: you might not need to use all rows.

Q3. Refer to **Sample Final Skills Exam A** and answer the following questions regarding switch IP management requirements.

a) How many VLAN interfaces must be configured on **Curly**? If any, list all required VLAN interfaces specifying interface ID, IP address and subnet mask.
(1 mark)

1 VLAN interface: VLAN 451 - 83.174.16.165 /29

b) How many VLAN interfaces must be configured on **Moe**? If any, list all required VLAN interfaces specifying interface ID, IP address and subnet mask.
(1 mark)

2 VLAN interfaces: VLAN 451 - 83.174.16.164 /29, VLAN 278 - 83.174.16.156 /27

c) Must a default-gateway be configured on **Curly**? If so, specify the default-gateway IP.
(1 mark)

Yes - 83.174.16.166

d) Must a default-gateway be configured on **Moe**? If so, specify the default-gateway IP.
(1 mark)

Yes - 83.174.16.166

Q5. Refer to **Sample Final Skills Exam A** and answer the following questions regarding redundancy and port-security requirements.

a) Must the STP bridge priority be modified on **Curly** and/or **Moe**? If so, list the switches it should be modified on, specifying VLAN(s) and priority value in each case.
(4 marks)

Yes - Moe: VLAN 45 & 278, priority 24576, Curly: VLAN 5 & 451, priority 24576

b) Must an EtherChannel be configured between **Curly** and **Moe**? If so, use the table below to specify the EtherChannel settings.
(2 marks)

Switch	**Interface range**	**Port-Channel ID**	**Channel-Group Mode**
Example *S3*	*G1/0/10-11*	*Port-Channel 1*	*Active*
Curly	Gi0/0/1-2	Port-Channel 1	Active
Moe	Fa0/1-2	Port-Channel 1	Active

c) Must Port-Security be configured on **Curly** and/or **Moe**? If so, use the table to specify switch name, interface(s) ID and Port-Security settings
(3 marks)

Switch Name	**Interface(s) ID**	**Max. MAC address allowance**	**MAC address learning mode**	**Violation action**
Example: *S3*	*Gi1/0/12-24*	*2*	*Sticky*	*Restrict*
Moe	Fa0/13-16	1	Sticky	Restrict
Moe	Fa0/17-20	1	Dynamic	Protect
Moe	Fa0/21-24	4	Dynamic	Restrict
Curly	N/A	N/A	N/A	N/A

Note: you might not need to use all rows.

Q6. Refer to **Sample Final Skills Exam A** and answer the following questions regarding end-host IP configuration.

a) What IPv4 settings can be configured on the **Ethernet PC**?
(1 mark)

IP address:83.174.16.130
Subnet Mask:255.255.255.224
Default Gateway:83.174.16.158

Section 2: Sample Final Skills Exam A – Configuration (25 marks)

Once you have a good understanding of the topology and configuration requirements, you can move on to build the network. For this, you must use Cisco CLI configuration commands on the switches and routers, as well as verification commands to validate the settings. In this section, you will be asked to specify the CLI commands you used to complete **Sample Final Skills Exam A.**

Note: your answers must show CLI commands that include parameters specific to Sample Final Skills Exam A (i.e. generic command sets will not be considered correct answers).

Q1. Refer to **Sample Final Skills Exam A** and answer the following questions regarding global and remote management configuration.

a) Use the table to list the command(s) used to configure global settings and remote management on each device.
(4 marks)

Setting	**Larry**	**Curly**	**Moe**
Device Hostname	hostname Larry	hostname Curly	hostname Moe
Banner MOTD	banner motd #StudentID,Surname	banner motd #StudentID,Surname#	banner motd #StudentID,Surname #
Disable Domain Lookup	no ip domain-lookup	no ip domain-lookup	no ip domain-lookup
Synchronous Logging	logging synchronous (inconsoleandvtylines)	logging synchronous (inconsoleandvtylines)	logging synchronous (inconsoleandvtylines)
Disable Unused Ports	int range g0/0,g1/1/1-4>shutdown	int range fa0/3-12,gi0/1-2>shutdown	int range fa0/3-12,gi0/1-2>shutdown
SSH Management	username sample password exam ip domain-name example.com ip ssh version 2 line vty 0 4 login local transport input ssh	Same as Larry	Same as Larry

Note: if a setting is not required on a device, leave the cell blank or type "Not Required".

b) What command(s) can be used to verify that all unused ports have been disabled, and that all used ports are enabled?
(0.5 mark)

show ip interface brief

c) What command(s) can be used on **Curly** or **Moe** to test SSH remote access to **Larry**?
(0.5 mark)

ssh -1 sample 83.174.16.166 or ssh -1 sample 93.216.87.1

Q2. Refer to **Sample Final Skills Exam A** and answer the following questions regarding VLANs, VLAN membership and 802.1q trunking configuration.

a) Use the table to list the commands used on **Curly** and **Moe** to configure VLANs and VLAN membership when applicable.
(2 marks)

Switch Name	**VLANs Configuration**	**VLAN Membership Configuration**
Example: S3	*S3(config)#vlan 100* *S3(config-vlan)#name example1* *S3(config)#vlan 200* *S3(config-vlan)#name example2*	*Not applicable*
Curly	vlan 5 name Three vlan 45 name Stooges vlan 451 name Management	int range gi1/0/21,gi1/0/24 switchport mode access switchport access vlan 451
Moe	vlan 5 name Three vlan 45 name Stooges vlan 278 name Crazy vlan 451 Management	int range fa0/13-16 switchport mode access switchport.access vlan 5.int range fa0/17-20.switchport access vlan 45. int range fa0/21-24 switchport access vlan 278

Note: if VLANs or VLAN membership configuration is not required on a device, leave the cell blank or type "Not Required".

b) What command(s) can be used to verify VLANs and VLAN membership configuration on **Curly** and **Moe**?
(0.5 mark)

show vlan brief

c) Use the table to list the commands used on **Curly** and **Moe** to configure 802.1q trunk interfaces.
(2 marks)

Switch Name	**Trunk Interface(s) Configuration**
Curly	int range gi1/0/1-2 switchport mode trunk channel-group 1 mode active switchport trunk native vlan 451
Moe	int range fa0/1-2 switchport mode trunk cannel-group 1 mode trunk switchport trunk native vlan 451

d) What command(s) can be used to verify 802.1q trunking configuration on **Curly** and **Moe**?
(0.5 mark)

show interface trunk

Q3. Refer to **Sample Final Skills Exam A** and answer the following questions regarding inter-VLAN routing configuration.

a) Use the table to list the commands used on **Larry** to configure interfaces, sub-interfaces and loopback interfaces.
(5 marks)

Interface ID	**Interface Configuration**
Example: Loopback 100	*R1(config)#interface loopback 100* *R1(config-if)description THIS IS AN EXAMPLE* *R1(config-if) ip address 115.23.10.10 255.255.128.0*
Loopback0	interface loopback0 ip address 93.216.87.1 255.255.255.248
Gig0/0/1.5	int g0/0/1.5 ecapsulation dot1q 5 ip address 83.174.16.126 255.255.255.128
Gig/0/0/1.45	int g0/0/1.45 encapsulation dot1q 45 ip address 83.174.15.0 255.255.240.0
Gig0/0/1.278	int g0/0/1.278 encapsulation dot1q 278 ip address 83.174.16.158 255.255.255.224
Gig0/0/1.451	int g0/0/1.451 encapsulation dot1q 451 ip address 83.174.16.166 255.255.255.248

Note: you might not need to use all rows.

b) What command(s) can be used to verify Inter-VLAN routing configuration on **Larry**?
(1 mark)

show ip route or show running-config

Q4. Refer to **Sample Final Skills Exam A** and answer the following questions regarding switch management IP settings configuration.

a) Use the table to list the commands used on **Curly** and **Moe** to configure management IP settings.
(2 marks)

Switch Name	**Management IP Configuration**
Curly	interface vlan 451 ip address 83.174.16.165 255.255.255.248 no shutdown ip default-gateway 83.174.16.166
Moe	interface vlan 451 ip address 83.174.16.164 255.255.255.248 interface vlan 278 ip address 83.174.16.156 255.255.255.224 no shutdown > ip default-gateway 83.174.16.166

b) What command(s) can be used to verify management IP settings on **Curly** and **Moe**?
(0.5 mark)

show ip interface brief and show ip default-gateway

Q5. Refer to **Sample Final Skills Exam A** and answer the following questions regarding redundancy and port-security configuration.

a) Use the table to list the command(s) used to configure redundancy and port-security settings on **Curly** and **Moe**.
(5 marks)

Setting	**Curly**	**Moe**
STP	spanning-tree vlan 5 priority 24576 spanning-tree vlan 451 priority 24576	spanning-tree vlan 45 priority 24576 spanning-tree vlan 278 priority 24576
EtherChannel	interface range gi1/0/1-2 channel-group 1 mode active interface port-channel 1	interface range fa0/1-2 channel-group 1 mode active interface port-channel 1
Port-Security	Not Required	int fa0/13-16 switchport port-security switchport port-security maximum 1 switchport port-security mac-address sticky switchport port-security violation restrict int fa0/17-20 switchport port-security violation protect int fa0/21-24 switchport port-security maximum 4 switchport port-security violation restrict

Note: if a setting is not required on a device, leave the cell blank or type "Not Required".

c) What command(s) can be used to verify STP settings on **Curly** and **Moe**?
(0.5 mark)

show spanning-tree vlan [VLAN_ID]

d) What command(s) can be used to verify EtherChannel settings on **Curly** and **Moe**?
(0.5 mark)

show etherchannel summary

e) What command(s) can be used to verify port-security settings on **Curly** and **Moe**?
(0.5 mark)

show port-security and show port-security interface [interface_ID]

Section 3: Sample Final Skills Exam A – Validation and Troubleshooting (20 marks)

After building a network, you should validate that the network is fully functional and that it meets all specifications. For this, you can use Cisco CLI **show** commands to validate the settings on switches and routers, as well as **ping** commands to test connectivity from each device to all other devices (including a test PC). This process is known as **troubleshooting** and will allow you to detect and fix configuration errors. In this section, you will find **show** outputs and **ping** results based on **Sample Final Skills Exam A**. You must discuss this troubleshooting information with your group to detect configuration errors and specify the commands that must be used to fix them.

Q1. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **physical topology** troubleshooting.

a) Based on the **show ip interface brief** outputs, are all interfaces in the correct status? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(1 mark)

Note: assume all required cables between the devices are in place.

```
Larry#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   unassigned      YES unset  administratively down down
GigabitEthernet0/0/1   unassigned      YES unset  up                    up
--More--
```

```
Curly#show ip interface brief
Any interface listed with OK? value "NO" does not have a valid configuration

Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down
Vlan451                83.174.16.165   YES manual up                    up
GigabitEthernet0/0     unassigned      NO  unset  administratively down down
GigabitEthernet1/0/1   unassigned      YES unset  up                    up
GigabitEthernet1/0/2   unassigned      YES unset  administratively down down
GigabitEthernet1/0/3   unassigned      YES unset  administratively down down
GigabitEthernet1/0/4   unassigned      YES unset  administratively down down
GigabitEthernet1/0/5   unassigned      YES unset  administratively down down
GigabitEthernet1/0/6   unassigned      YES unset  administratively down down
GigabitEthernet1/0/7   unassigned      YES unset  administratively down down
GigabitEthernet1/0/8   unassigned      YES unset  administratively down down
GigabitEthernet1/0/9   unassigned      YES unset  administratively down down
GigabitEthernet1/0/10  unassigned      YES unset  administratively down down
GigabitEthernet1/0/11  unassigned      YES unset  up                    up
GigabitEthernet1/0/12  unassigned      YES unset  administratively down down
--More--
```

```
Moe#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down
Vlan451                83.174.16.164   YES manual up                    up
FastEthernet0/1        unassigned      YES unset  up                    up
FastEthernet0/2        unassigned      YES unset  down                  down
FastEthernet0/3        unassigned      YES unset  administratively down down
FastEthernet0/4        unassigned      YES unset  administratively down down
FastEthernet0/5        unassigned      YES unset  administratively down down
FastEthernet0/6        unassigned      YES unset  administratively down down
FastEthernet0/7        unassigned      YES unset  administratively down down
FastEthernet0/8        unassigned      YES unset  administratively down down
FastEthernet0/9        unassigned      YES unset  administratively down down
FastEthernet0/10       unassigned      YES unset  administratively down down
FastEthernet0/11       unassigned      YES unset  administratively down down
FastEthernet0/12       unassigned      YES unset  administratively down down
FastEthernet0/13       unassigned      YES unset  up                    up
FastEthernet0/14       unassigned      YES unset  down                  down
FastEthernet0/15       unassigned      YES unset  down                  down
FastEthernet0/16       unassigned      YES unset  down                  down
FastEthernet0/17       unassigned      YES unset  down                  down
FastEthernet0/18       unassigned      YES unset  down                  down
FastEthernet0/19       unassigned      YES unset  down                  down
FastEthernet0/20       unassigned      YES unset  down                  down
FastEthernet0/21       unassigned      YES unset  down                  down
FastEthernet0/22       unassigned      YES unset  down                  down
FastEthernet0/23       unassigned      YES unset  down                  down
FastEthernet0/24       unassigned      YES unset  up                    up
GigabitEthernet0/1     unassigned      YES unset  administratively down down
GigabitEthernet0/2     unassigned      YES unset  administratively down down
```

Error Description	**Re-configuration Command(s)**
Larry Gi0/0/0 is administratively down	interface g0/0/0 no shutdown
Curly Gi0/0 is administratively down and invalid (NO)	interface g0/0 no shutdown
Moe Gi0/1 and Gi0/2 are administratively down	interface range g0/1 - 2 no shutdown

Note: you might not need to use all rows.

Q2. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **VLANs and VLAN membership** troubleshooting.

a) Based on the **show vlan brief** output, is the VLANs and VLAN membership configuration correct on **Curly**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(2 marks)

```
Curly#show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Gi1/0/3, Gi1/0/4, Gi1/0/5
                                                Gi1/0/6, Gi1/0/7, Gi1/0/8
                                                Gi1/0/9, Gi1/0/10, Gi1/0/12
                                                Gi1/0/13, Gi1/0/14, Gi1/0/15
                                                Gi1/0/16, Gi1/0/17, Gi1/0/18
                                                Gi1/0/19, Gi1/0/20, Gi1/0/22
                                                Gi1/0/23, Gi1/1/1, Gi1/1/2
                                                Gi1/1/3, Gi1/1/4
5    Three                            active
45   Stooges                          active
451  Management                       active    Gi1/0/21, Gi1/0/24
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
```

Error Description	**Re-configuration Command(s)**
Ports Gi1/0/3 – 20 assigned to VLAN 1	Assign to correct VLANs or shut them down if unused
VLAN 278 missing	vlan 278 name Crazy
Port assignments incomplete	Verify and assign actual end-device ports using switchport access

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

b) Based on the **show vlan brief** output, is the **VLANs and VLAN membership** configuration correct on **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(1 mark)

```
Moe#show vlan brief

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, Fa0/21, Fa0/22
                                                Fa0/23, Fa0/24, Gi0/1, Gi0/2
5    Three                            active    Fa0/13, Fa0/14, Fa0/15, Fa0/16
45   Stooges                          active    Fa0/17, Fa0/18, Fa0/19, Fa0/20
278  Crazy                            active
451  Management                       active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup
```

Error Description	**Re-configuration Command(s)**
VLAN 451 has no ports assigned	int vlan 451 ip address 83.174.16.164 255.255.255.248
VLAN 278 missing port assignments	int range fa0/21-24 switchport access vlan 278

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

Q3. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **802.1q trunking** troubleshooting.

a) Based on the **show interfaces trunk** output, is 802.1q trunking configured following best practices on **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(1 mark)

Note: assume that EtherChannel settings have not been configured yet.

```
Moe#show interfaces trunk

Port        Mode             Encapsulation  Status        Native vlan
Fa0/1       auto             802.1q         trunking      1
Fa0/2       auto             802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       1-4094
Fa0/2       1-4094

Port        Vlans allowed and active in management domain
Fa0/1       1,5,45,278,451
Fa0/2       1,5,45,278,451

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       1,5,45,278,451
Fa0/2       45,278
```

Error Description	**Re-configuration Command(s)**
Ports are in "auto" mode, not best practice	interface range fa0/1-2 switchport mode trunk switchport nonegotiate
Native VLAN not set to 451	switchport trunk native vlan 451

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

b) Based on the **show interfaces trunk** output, is 802.1q trunking correctly configured on **Curly**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(2 marks)

Note: assume that all required interfaces, on all devices, are enabled and in the up/up status and that EtherChannel settings have not been configured yet.

```
Curly#sh int trunk

Port        Mode             Encapsulation  Status        Native vlan
Gi1/0/1     on               802.1q         trunking      1
Gi1/0/2     on               802.1q         trunking      451

Port        Vlans allowed on trunk
Gi1/0/1     1-4094
Gi1/0/2     1-4094

Port        Vlans allowed and active in management domain
Gi1/0/1     1,5,45,278,451
Gi1/0/2     1,5,45,278,451

Port        Vlans in spanning tree forwarding state and not pruned
Gi1/0/1     1,5,45,278,451
Gi1/0/2     5
```

Error Description	**Re-configuration Command(s)**
Gi1/0/1 native VLAN is 1 (default)	interface gi1/0/1 switchport trunk native vlan 451
VLANs not forwarding properly on Gi1/0/2	interface gi1/0/2 switchport trunk allowed vlan add 5,45,278,451

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

Q4. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **inter-VLAN routing** troubleshooting.

a) Based on the **show ip route, show ip interface brief** and **sh running-config** outputs, are all **Larry** interfaces, sub-interfaces and loopback interfaces configured correctly? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(4 marks)

```
Larry#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

      83.0.0.0/8 is variably subnetted, 6 subnets, 4 masks
C        83.174.0.0/20 is directly connected, GigabitEthernet0/0/1.45
L        83.174.15.0/32 is directly connected, GigabitEthernet0/0/1.45
C        83.174.16.0/25 is directly connected, GigabitEthernet0/0/1.5
L        83.174.16.126/32 is directly connected, GigabitEthernet0/0/1.5
C        83.174.16.128/27 is directly connected, GigabitEthernet0/0/1.278
L        83.174.16.158/32 is directly connected, GigabitEthernet0/0/1.278
      93.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C        93.216.87.0/28 is directly connected, Loopback0
L        93.216.87.1/32 is directly connected, Loopback0
```

```
Larry#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   unassigned      YES unset  administratively down down
GigabitEthernet0/0/1   unassigned      YES unset  up                    up
Gi0/0/1.5              83.174.16.126   YES manual up                    up
Gi0/0/1.45             83.174.15.0     YES manual up                    up
Gi0/0/1.278            83.174.16.158   YES manual up                    up
Serial0/1/0            unassigned      YES unset  administratively down down
Serial0/1/1            unassigned      YES unset  administratively down down
GigabitEthernet0       unassigned      YES unset  administratively down down
Loopback0              93.216.87.1     YES manual up                    up
```

```
Larry#show running-config | section interface
interface Loopback0
 ip address 93.216.87.1 255.255.255.240
interface GigabitEthernet0/0/0
 no ip address
 shutdown
 negotiation auto
interface GigabitEthernet0/0/1
 no ip address
 negotiation auto
interface GigabitEthernet0/0/1.5
 encapsulation dot1Q 50
 ip address 83.174.16.126 255.255.255.128
interface GigabitEthernet0/0/1.45
 encapsulation dot1Q 45
 ip address 83.174.15.0 255.255.240.0
interface GigabitEthernet0/0/1.278
 encapsulation dot1Q 278
 ip address 83.174.16.158 255.255.255.224
--More--
```

Error Description	**Re-configuration Command(s)**
Wrong dot1Q ID on Gi0/0/1.5 (was 50)	interface gi0/0/1.5 encapsulation dot1Q 5
Interface Gi0/0/0 is down	interface gi0/0/0 no shutdown
Missing sub-interface for VLAN 451	interface gi0/0/1.451 encapsulation dot1Q 451 ip address 83.174.16.166 255.255.255.248

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

Q5. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **switch management IP settings** troubleshooting.

a) Based on the **show ip interface brief** outputs, is the VLAN interfaces configuration correct on both **Curly** and **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(1 mark)

```
Curly#show ip interface brief
Any interface listed with OK? value "NO" does not have a valid configuration

Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down up
Vlan451                83.174.16.165   YES manual up                    up
GigabitEthernet0/0     unassigned      NO  unset  administratively down down
GigabitEthernet1/0/1   unassigned      YES unset  up                    up
GigabitEthernet1/0/2   unassigned      YES unset  up                    up
--More--
```

```
Moe#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down
Vlan278                83.174.16.156   YES manual up                    up
Vlan451                83.174.16.164   YES manual up                    up
FastEthernet0/1        unassigned      YES unset  up                    up
FastEthernet0/2        unassigned      YES unset  up                    up
FastEthernet0/3        unassigned      YES unset  administratively down down
--More--
```

Error Description	**Re-configuration Command(s)**
Curly: Vlan1 should be shut down	interface vlan1 shutdown
Moe: Vlan1 should be shut down	interface vlan1 shutdown
Moe: Missing no shutdown on Vlan278	interface vlan278 no shutdown

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

b) Based on the **show ip interface brief** and **show ip default-gateway** outputs, are the management IP settings correct on both **Curly** and **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it. (1 mark)

```
Curly#show ip interface brief
Any interface listed with OK? value "NO" does not have a valid configuration

Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down up
Vlan451                83.174.16.165   YES manual up                    up
GigabitEthernet0/0     unassigned      NO  unset  administratively down down
GigabitEthernet1/0/1   unassigned      YES unset  up                    up
GigabitEthernet1/0/2   unassigned      YES unset  up                    up
--More--
```

```
Curly#show ip default-gateway
0.0.0.0
```

```
Moe#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES unset  administratively down down
Vlan451                83.174.16.164   YES manual up                    up
FastEthernet0/1        unassigned      YES unset  up                    up
FastEthernet0/2        unassigned      YES unset  up                    up
FastEthernet0/3        unassigned      YES unset  administratively down down
--More--
```

```
Moe#show ip default-gateway
83.174.16.166
```

Error Description	**Re-configuration Command(s)**
Curly default gateway not set	ip default-gateway 83.174.16.166
Moe default gateway already correct	No action required

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

Q6. Refer to **Sample Final Skills Exam A** and answer the following questions regarding **redundancy and port-security** troubleshooting.

a) Based on the **show spanning-tree** outputs, is the STP configuration for the **Stooges VLAN** correct on both **Curly** and **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(2 marks)

```
Curly#show spanning-tree vlan 45

VLAN0045
  Spanning tree enabled protocol rstp
  Root ID    Priority    32813
             Address     501c.b070.7f80
             Cost        19
             Port        1 (GigabitEthernet1/0/1)
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32813  (priority 32768 sys-id-ext 45)
             Address     b4de.31e7.2600
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  300 sec

Interface           Role Sts Cost      Prio.Nbr Type
------------------- ---- --- --------- -------- --------------------------------
Gi1/0/1             Root FWD 19        128.1    P2p Peer(STP)
Gi1/0/2             Altn BLK 19        128.2    P2p Peer(STP)
Gi1/0/11            Desg FWD 4         128.11   P2p
```

```
Moe#show spanning-tree vlan 45

VLAN0045
  Spanning tree enabled protocol ieee
  Root ID    Priority    32813
             Address     501c.b070.7f80
             This bridge is the root
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32813  (priority 32768 sys-id-ext 45)
             Address     501c.b070.7f80
             Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  300 sec

Interface           Role Sts Cost      Prio.Nbr Type
------------------- ---- --- --------- -------- --------------------------------
Fa0/1               Desg FWD 19        128.1    P2p
Fa0/2               Desg FWD 19        128.2    P2p
```

Error Description	Re-configuration Command(s)
Both Curly and Moe have same bridge priority	Set distinct priorities: Moe: spanning-tree vlan 45 priority 24576 Curly: spanning-tree vlan 45 priority 28672

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

b) Based on the **show running-config** and **show etherchannel summary** outputs, is the EtherChannel configuration correct on both **Curly** and **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it. (2 marks)

```
Curly#show running-config interface gigabitEthernet 1/0/1
Building configuration...

Current configuration : 90 bytes
!
interface GigabitEthernet1/0/1
 switchport mode trunk
 channel-group 1 mode active
end
```

```
Curly#show running-config interface gigabitEthernet 1/0/2
Building configuration...

Current configuration : 124 bytes
!
interface GigabitEthernet1/0/2
 switchport trunk native vlan 451
 switchport mode trunk
 channel-group 1 mode active
end
```

```
Moe#show running-config interface fastEthernet 0/1
Building configuration...

Current configuration : 85 bytes
!
interface FastEthernet0/1
 switchport mode trunk
 channel-group 1 mode active
end
```

```
Moe#show running-config interface fastEthernet 0/2
Building configuration...

Current configuration : 119 bytes
!
interface FastEthernet0/2
 switchport trunk native vlan 451
 switchport mode trunk
 channel-group 1 mode active
end
```

```
Curly#show etherchannel summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      f - failed to allocate aggregator

        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port

        A - formed by Auto LAG


Number of channel-groups in use: 1
Number of aggregators:           1

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
1      Po1(SU)         LACP      Gi1/0/1(P)  Gi1/0/2(s)
```

```
Moe#show etherchannel summary
Flags:  D - down        P - bundled in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3      S - Layer2
        U - in use      f - failed to allocate aggregator

        M - not in use, minimum links not met
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port


Number of channel-groups in use: 1
Number of aggregators:           1

Group  Port-channel  Protocol    Ports
------+-------------+-----------+-----------------------------------------------
1      Po1(SU)         LACP      Fa0/1(P)    Fa0/2(s)
```

Error Description	**Re-configuration Command(s)**
Curly Gi1/0/2 shows " s " (suspended)	Ensure same config on both ports: int gi1/0/2 switchport trunk native vlan 451
Moe Fa0/2 also suspended	int fa0/2 switchport trunk native vlan 451

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.

c) Based on the **show port-security** output, is the port-security configuration correct on **Moe**? If not, use the table to list the error(s). For each error, specify the configuration command(s) that must be used to fix it.
(3 marks)

```
Moe#show port-security
Secure Port  MaxSecureAddr  CurrentAddr  SecurityViolation  Security Action
                (Count)       (Count)          (Count)
---------------------------------------------------------------------------
     Fa0/17              1            0                  0         Shutdown
     Fa0/18              1            0                  0         Shutdown
     Fa0/19              1            0                  0         Shutdown
     Fa0/20              1            0                  0         Shutdown
     Fa0/21              4            0                  0         Restrict
     Fa0/22              4            0                  0         Restrict
     Fa0/23              4            0                  0         Restrict
     Fa0/24              4            1                  0         Restrict
---------------------------------------------------------------------------
Total Addresses in System (excluding one mac per port)     : 0
Max Addresses limit in System (excluding one mac per port) : 8192
```

Error Description	**Re-configuration Command(s)**
Fa0/17 – 20 using shutdown instead of protect	int fa0/17-20 switchport port-security violation protect
Fa0/21 – 24 not learning MACs (0 shown)	Ensure hosts are connected and active to trigger learning

Note: you might not need to use all rows.

Note: the re-configuration commands must display device name and configuration mode.