Name _____ **Active Learning – L2 Switching and VLANs – (25 Points)**

For this active learning module, you will:

1. Create a network topology within Cisco Packet Tracer using the following information:

   - ✓ PC1's RS-232 connection is connected to the console line on Switch1
   - ✓ PC3's RS-232 connection is connected to the console line on Switch3
   - ✓ PC1's FastEthernet connection is connected to interface F0/11 on Switch1
   - ✓ PC2's FastEthernet connection is connected to interface F0/12 on Switch1
   - ✓ PC3's FastEthernet connection is connected to interface F0/13 on Switch3
   - ✓ PC4's FastEthernet connection is connected to interface F0/14 on Switch3
   - ✓ PC5's FastEthernet connection is connected to interface F0/15 on Switch3
   - ✓ Switch1's interface F0/21 is connected to interface F0/21 on Switch3
   - ✓ Switch3's interface F0/22 is connected to interface F0/22 on Switch1
   - ✓ PC1's IP Address is 172.27.13.101/24
   - ✓ PC2's IP Address is 172.27.24.102/24
   - ✓ PC3's IP Address is 172.27.13.103/24
   - ✓ PC4's IP Address is 172.27.24.104/24
   - ✓ PC5's IP Address is 172.27.1.105/24
   - ✓ Switch1's administrative vlan interface IP Address is 172.27.1.11/24
   - ✓ Switch3's administrative vlan interface IP Address is 172.27.1.13/24

   Your switches should be Cisco 2960s for this assignment. You should specify all of your IP Addresses and subnet masks (in bit notation) within individual text boxes on your topology diagram for each interface or device that has one assigned. Since we have not used a /24 subnet mask yet, the dotted decimal notation of /24 = 255.255.255.0.

2. Recreate the same topology that you just created in Cisco Packet Tracer using Microsoft Visio using the standardized logical diagram symbols we discussed in class. You will find these within the resources folder of ilearn.
    a) Save this file as "AL-L2-VLANs-YourLastName.vsdx"

3. Using the network topology in Cisco Packet Tracer, complete the following:

    a) On each PC, configure:
        - ✓ IP Address
        - ✓ Subnet Mask

    b) On Switch1, configure:
        - ✓ hostname
        - ✓ an encrypted privileged mode password of 'cisco'
        - ✓ create VLAN 13 and name it 'PC1+PC3'
        - ✓ create VLAN 24 and name it 'PC2+PC4'
        - ✓ setup the interfaces of the switch that are connected to Switch3 as trunk ports.
        - ✓ setup the interface of the switch that PC1 is connected to as an Access port.
        - ✓ assign this interface to VLAN 13
        - ✓ setup the interface of the switch that PC2 is connected to as an Access port.
        - ✓ assign this interface to VLAN 24
        - ✓ set the ip address and subnet mask on the administrative vlan
        - ✓ enable this interface
        - ✓ enable 'logging synchronous' on the console line
        - ✓ password of 'cisco' on the console line
        - ✓ enable a login prompt to appear when consoling into the router from the PC
        - ✓ enable 'logging synchronous' on the first five virtual terminal lines
        - ✓ password of 'cisco' on the first five virtual terminal lines
        - ✓ enable a login prompt to appear when using the first five virtual terminal lines (ie: when you telnet into the switch from PC5 you should receive a login prompt)
        - ✓ save your current configuration file to nvram (ie: the filename should be 'startup-config)
        - ✓ display your vlans
        - ✓ display your interfaces in use in an abbreviated format (ie: show ip int brief)

    c) On Switch3, configure:
        - ✓ hostname
        - ✓ an encrypted privileged mode password of 'cisco'
        - ✓ setup the interfaces of the switch that are connected to Switch1 as trunk ports.
        - ✓ setup the interface of the switch that PC3 is connected to as an Access port.
        - ✓ assign this interface to VLAN 13
        - ✓ setup the interface of the switch that PC4 is connected to as an Access port.
        - ✓ assign this interface to VLAN 24
        - ✓ set the ip address and subnet mask on the administrative vlan

- ✓ enable this interface
- ✓ enable 'logging synchronous' on the console line
- ✓ password of 'cisco' on the console line
- ✓ enable a login prompt to appear when consoling into the router from the PC
- ✓ enable 'logging synchronous' on the first five virtual terminal lines
- ✓ password of 'cisco' on the first five virtual terminal lines
- ✓ enable a login prompt to appear when using the first five virtual terminal lines (ie: when you telnet into the router from PC5 you should receive a login prompt)
- ✓ save your current configuration file to nvram (ie: the filename should be 'startup-config)
- ✓ display your vlans
- ✓ display your interfaces in use in an abbreviated format (ie: show ip int brief)
- ✓ display your interfaces that are trunks. Go back to Switch1 and issue the same command.

d) Verify PC1 is able to reach PC3.
e) Verify PC2 is able to reach PC4.
f) Verify PC5 is able to reach Switch1 and Switch3

Please make sure you are using the Windows CLI commands you learned in class. You may provide a screen capture of the output within your lab journal for the verification or simply copy and paste the text.

g) Save this file as "AL-L2-VLANs-YourLastName.pkt"

Please NOTE: Download and install Cisco Packet Tracer from software folder within the resources section of this iLearn course shell or from cisco.netacad.com. This software is supported on Windows or Linux. You may install it within VMware Fusion or Parallels or Virtual Box on MAC OS; however there are problems running it natively on MAC OS. Some have it working; however I have experienced odd behavior with it. So, if I'm using my MacBook I tend to use VMware Fusion with a Windows instance for Packet Tracer. Feel free to try out different scenarios if you wish...

Please NOTE: The switch model you will be using is the 2960 Layer 2 Switch. If you choose to use the 3560 Layer 3 switch for this assignment, make sure you are configuring trunks with the appropriate encapsulation.

4. Make sure you use the Active Learning Journal Template and complete all sections.

5. Upload the following files to this assignment within iLearn:
   a) Your .docx file
   b) your .pkt file
   c) your .vsdx file

Good Luck with your active learning module!