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

For this active learning module, you will:

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

   - ✓ 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
   - ✓ Switch1's interface F0/1 is connected to interface F0/0 on Router1
   - ✓ Switch3's interface F0/21 is connected to interface F0/21 on Switch1
   - ✓ Switch1's interface F0/22 is connected to interface F0/22 on Switch3
   - ✓ 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
   - ✓ 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
   - ✓ Router1's interface F0/0 IP Address is 172.27.1.1/24
   - ✓ Router1's interface S0/0/0 (DCE) is connected to Router3's interface S0/0/1
   - ✓ Router1's interface S0/0/0 IP Address is 172.27.113.201/30
   - ✓ Router3's interface S0/0/1 IP Address is 172.27.113.202/30

   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.

2. Using the network topology from above, complete the following:

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

   b) On Switch1, configure:
      - ✓ hostname
      - ✓ an encrypted privileged mode password of 'cisco'
      - ✓ setup VTP so this switch is a server with the domain of ‘INETLAB’ and the password of ‘cisco’
      - ✓ create VLAN 13 and name it ‘PC1+PC3’
      - ✓ create VLAN 24 and name it ‘PC2+PC4’
      - ✓ 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
      - ✓ setup the interface of the switch that is connected to Router1 as a trunk port. Make sure the encapsulation is statically configured if this switch is a 3560 model switch.
      - ✓ 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 the PC you should receive a login prompt)
      - ✓ save your current configuration file to nvram (ie: the filename should be 'startup-config)
      - ✓ display the status of your VTP configuration
      - ✓ 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 VTP so this switch is a client with the domain of ‘INETLAB’ and the password of ‘cisco’
      - ✓ setup the interface of the switch that is connected to Switch1 as a trunk port. Make sure the encapsulation is statically configured if this switch is a 3560 model switch.
      - ✓ 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 the PC you should receive a login prompt)
- ✓ save your current configuration file to nvram (ie: the filename should be 'startup-config)
- ✓ display the status of your VTP configuration
- ✓ 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) On each Router, configure:

- ✓ hostname
- ✓ an encrypted privileged mode password of 'cisco'
- ✓ remove the IP Address from the physical interface F0/0
- ✓ create subinterfaces for each VLAN you are using within the topology
- ✓ set the encapsulation to IEEE 802.1q and the appropriate vlan for each subinterface
- ✓ set the IP Address and Subnet Mask for each subinterface in use
- ✓ enable the physical interface used for all of the subinterfaces in use
- ✓ configure the clock rate of 2000K on the DCE interfaces
- ✓ 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 the PC you should receive a login prompt)
- ✓ enable EIGRP routing using AS#3456 and make sure you disable automatic summarization
- ✓ save your current configuration file to nvram (ie: the filename should be 'startup-config)
- ✓ display your interfaces in use in an abbreviated format (ie: show ip int brief)
- ✓ display your routing table
- ✓ Go back to Switch1 and display your interfaces that are trunks.

e) Verify PC1 is able to reach PC3.

f) Verify PC2 is able to reach PC4.

g) Verify all PCs are able to reach their default gateway (ie: the closest router to that PC that is also on the same subnet/network that the PC belongs to) in the topology 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.

h) Verify connectivity from the Router3 to all PCs.

i) You should still have full connectivity. Save this file as "YourFirstNameYourLastName-L2Switching-w-InterVLANRouting.pkt"

Please NOTE: Download and install Cisco Packet Tracer from software folder within the resources section of this iLearn course shell. 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 router model you will be using in Cisco Packet Tracer is the 2811 Router. Remember to add the WIC-2T modules in the bottom right to module slots (Slot 0, Module 0 and Slot 0, Module 1). 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.

3. Upload the following files to this assignment within iLearn:
   a) your .pkt file

Good Luck with your active learning module!