**Your Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Instructions:**

Insert your responses in a **bold red type face** after each line item. Be sure to use all of your own words that demonstrate your understanding of the subject matter.

**Assignment:**

When VLANs are configured into the switches of a network, the sender and receiver may be on the same VLAN or different VLANs, and may be on the same VLAN enabled switch or on separate VLAN enable switches. Hence, there are four scenarios:

1. Sender and receiver on same VLAN and same switch
2. Sender and receiver on different VLANs and same switch
3. Sender and receiver on same VLAN and different switches
4. Sender and receiver on different VLAN and different switches

Using the figure below, identify the step-by-step processes of communicating across different VLANs and different switches where the **sender is 179.58.11.20**, and the **receiver is 179.58.10.101**.



Different Switch, Different VLAN

Here is the order the communication happens in

**179.58.11.20 – VLAN ID: 20**

**VLAN SWITCH 3**

**VLAN SWITCH 1**

**ROUTER**

**VLAN SWITCH 1**

**179.58.10.101 – VLAN ID: 10**

**Sender: 179.58.11.20 – VLAN ID: 20**

**Receiver: 179.58.10.101 – VLAN ID: 10**

**I believe my answer is close, but I honestly don’t understand the VLAN Id’s for this purpose. I don’t know if the VLAN id’s were generated by communication between the nodes we are using, or if they are for other portions.**

**Here is the step by step process:**

1. Switch 3 receives Ethernet frame from sender w/o VLAN tags  
2. Switch 3 recognizes destination MAC as the router  
3.Switch 3 rebuilds Ethernet frame, adding VLAN Tag and ID , recalculates CRC-32  
4.Switch 3 is configured to send frames for the router to switch 1

5. Switch 1 determines frame is for the router, and the router is connected to switch 1  
6. Switch 1 rebuilds Ethernet frame w/o VLAN tag and ID, recalculates CRC-32  
7. Switch 1 forwards Ethernet frame to switch port where router is connected  
8. Router, at level 3, reads IP packet, determines destination IP is reachable via  
router port where switch 1 is connected  
9. Router creates new Ethernet frame with destination MAC address and  
recalculates CRC-32

(Might be missing a step or steps, not sure about the VLAN ID switchover at this point)

10. Router forwards Ethernet frame to switch 1 w/o VLAN Tag & ID

11. Switch 1 recognizes destination IP as being on the port the MAC connected to the receiver.

(probably missed something about returning to the VLAN here)

12. Switch 1 is configured to send frames from the router to the receiver.

13. Switch 1 forwards Ethernet frame to receiver.