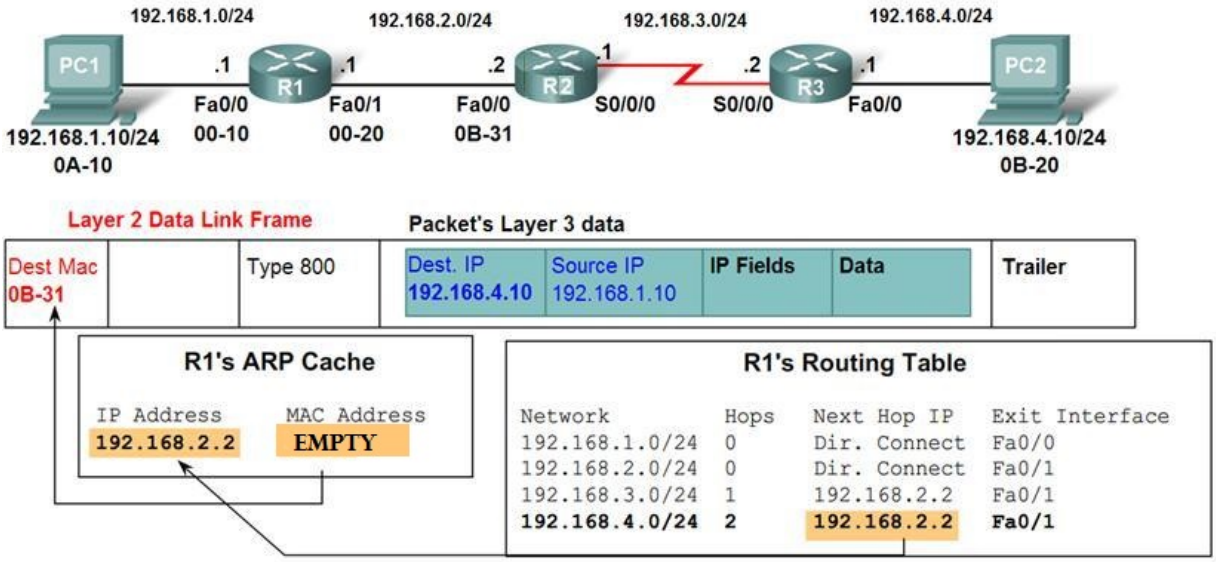
Quiz 7, November 12 2015

Left Neighbor: _____ Right Neighbor: _____

This is a closed book quiz



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WARNING: CORRECT ANSWERS MAY VARY FROM THE KEY, BUT THE GENERAL CONCEPT WILL BE THE SAME.

TA Name: _____ Name: _____

(10 points) On the opposite side is a familiar picture . Describe the (approximately 8) steps that take place on Router 1 (R1) when it receives an Ethernet frame that originated at PC1 and contains a datagram bound for PC2. To get full credit, you have to correctly use these terms in your steps: *MAC address, IP address, Routing Table, decapsulate, encapsulate, Layer 2, Layer 3, ARP, broadcast*. **BE SUCCINCT!** (TAs: 8 points for right concept, and 2 points for stating it directly and concisely.)

1) R1 router will get data from a Layer 2 media source.

2) R1 router will receive a Ethernet frame from PC1 and decapsulate the frame.

3) Inside the frame will be the destination IP address, source IP address and the datagram.

4) R1 router will look for the destination IP address in its Routing Table.

5) R1 router will see the Next Hop for destination IP address is not in its networks and must be sent to the Fa0/1 interface.

6) Before encapsulating the frame completely R1 router will send out a Layer 2 to 3 process: ARP to find the Mac Address for the associated destination IP address. (The ARP cache was empty and needed to send out an ARP to obtain the MAC address).

7) R1 router will wait for a response of the broadcast and find out that the destination Mac Address is 0B-31.

8) R1 router will then encapsulate the Ethernet frame fully with the destination Mac Address, Source Mac Address, Destination IP address and Source IP address.