T05: Network Layer I

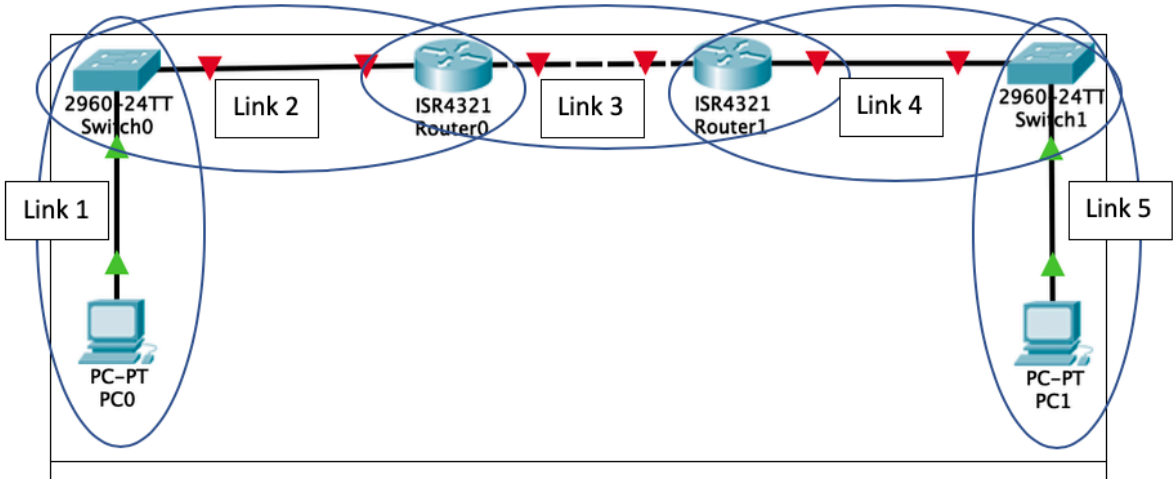
Q1: A router has the following (CIDR) entries in its routing table?

Address/mask	**Next hop**
129.47.104.0/21	Interface 0
129.47.112.0/21	Interface 1
190.34.116.0/22	Interface 2
129.47.192.0/19	Router 1
default Router	Router 2

For each of the following IP addresses, what does the router do if a packet with the following destination address arrives?

a. 129.47.85.10
b. 129.47.110.14
c. 129.47.221.2
d. 190.34.119.7
e. 190.34.106.7

Q2: Consider the network diagram below consisting of 5 links and 3 subnets. If PC0 sends an IP packet to PC1, what are the source and destination MAC and IP addresses on each link?



	MAC	**IP**
PC0	AA:AA:AA:AA:AA:AA	10.1.1.1
Switch 0 (PC side)	BB:BB:BB:BB:BB:BB	110.1.1.2
Router0 (Switch side)	CC:CC:CC:CC:CC:CC	10.1.1.3
Router0 (WAN side)	DD:DD:DD:DD:DD:DD	10.1.2.1
Router1 (WAN side)	EE:EE:EE:EE:EE:EE	10.1.2.2
Router1 (Switch side)	11:11:11:11:11:11	10.1.3.1
Switch 1 (PC side)	22:22:22:22:22:22	10.1.3.2
PC1	33:33:33:33:33:33	10.1.3.3

Complete the table below:

	Source MAC Address	Dest. Mac Address	Source IP Address	Dest. IP Address
Link 1	AA:AA:AA:AA:AA:AA		10.1.1.1	
Link 2				
Link 3		EE:EE:EE:EE:EE:EE		
Link 4				
Link 5		33:33:33:33:33:33		10.1.3.3

Q3: What is the special significance of the following addresses?

a. 0.0.0.0
b. 0.0.0.18
c. 255.255.255.255
d. 161.115.255.255

Q4: Suppose that a network with address 123.132.23.0/24 is to be split into 16 subnets. How many hosts can there be on each subnet?

Q5: Which of the following are valid IPv6 addresses. (Choose all those apply)?

a) ::192:168:0:1
b) 2002:c0a8:101::42
c) 2003:dead:beef:4dad:23:46:bb:101
d) ::
e) 2002::d01c:102::2