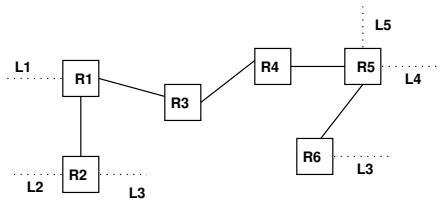
Put your name on the back in the upper right-hand corner and fold your quiz lengthwise - Thanks.

CS 440
Quiz 10

1. **Given the following network, answer the questions assuming Distance-Vector routing.**



   (a) **Assuming all routers start at the same time and exchange tables simultaneously, what are the routing tables R3, R4 and R5 after two exchanges?**

R3			R4			R5		
L1	R1	2	L4	R5	2	L4	direct	1
L2	R1	3	L5	R5	2	L5	direct	1
L3	R1	3	L3	R5	3	L3	R6	2
L4	R4	3						
L5	R4	3						

   (b) **If a link from R4 to R6 is added, how long does it take for all routers to know about it?**

   4 will pass it to R3, then to R1, then to R2. R6 and R4 will tell R5, so it will take 3 exchanges.

   (c) **If the link from R5 to R6 goes down, what can slow convergence cause to happen at R4?**

   R4 might hear from R5 that it no longer has a link to R6, but it could hear from R3 that it has a route. Since it doesn't know that the route is through R4, it accepts it, and possibly even tells R5 about it.

   (d) **Explain Hold Down.**

   When a router uses Hold Down, it delays the acceptance of any new route for a period of time to insure that any disruptions in network connectivity have time to propogate. If the new route still exists, it accepts it.

2. **In the network above, if Link-State routing is used, what does R4 receive from R6, if anything?**

   That R6 is connected to R5 and to L3.

3. **What is the use of the TOS field in the IP protocol packet?**

   So that it can support quality-of-service routing that allows packets to have precedence and to request, low delay, high throughput and/or high reliability.

4. **What is the class of the IP address 133.192.128.224?**

   Class B. The first byte is between 128 and 191 inclusive.