CS 3516 (A18) – Quiz 8 –
October 4 Thursday, 2018

Student Name: _____

WPI Username: _____

Please answer the following questions using only the front side of this sheet of paper. **This quiz is closed book. One page (A4 size, 2-sided) cheat-sheet is allowed**. *We will not grade the backside or any additional sheets of paper.* We will scan the quiz and return it electronically. To ensure it is properly scanned, please avoid wrinkling, folding, or otherwise distorting the paper. *You can use the back of the paper for any calculations you might have to perform.* Please mark exactly which question/sub-question you are answering. (In total of 6 points + 2 bonus points.)

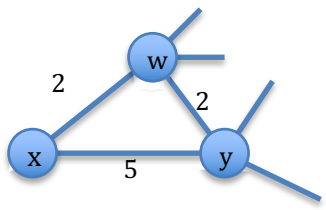
1. Consider a subnet with prefix 128.119.40.128/26. What is the range of IP addresses (of form a.b.c.d) that can be assigned to this network? (2 points)

Any IP in the range of
128.119.40.128 (1point) to **128.119.40.191 (1point)**

Note that if you mentioned that 128.119.40.128 and 128.119.40.191 are used for network ID and broadcasting, and the IP range for devices is from 128.119.40.129 to **128.119.40.190, it is also correct.**

if the student gives the answer in binary format, make sure that the binary values translate to the IP addresses listed above.

2. Consider the network fragment shown below. The node x has only 2 attached neighbors nodes y and w. The node w has a minimum-cost path to node u (not shown in the figure), of 5. Similarly, the node y has a minimum-cost path to node u (still not in the figure) of 6. The complete paths from w to u and from y to u are not shown. Assuming all link values are always positive, then:
If the distance vector routing algorithm in the network has converged, what is x's distance vector for destination w, y and u (given as D(w), D(y) and D(u))? (4 points)



D(w) = 2 **(1 point)**;
D(y) = 4 **(1 point);**
D(u) = 7 **OR** $D_x(u) = \min \{ c(x,w) + D_w(u), Dy(u) + c(x,y) \} = \min\{ 2+5, 5+6\}=\min\{ 7, 11\} =7$ **(2 point)**

3. Give two reasons for why IPv6 packets not have checksum? (2 bonus points)

Two reasons:

1) To enable **fast processing** of IP datagrams at the network layer **(1 point)**
2) **Checksums are available at other layers** or to **reduce redundancy (1 point)**