Computer Networking

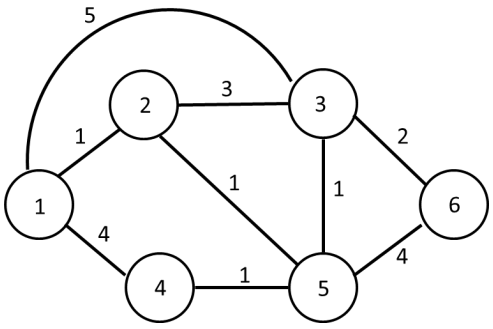
Homework#5

1. True or false: When an OSPF router sends its link information, it is sent only to those nodes directly attached neighbors. Explain the reason.

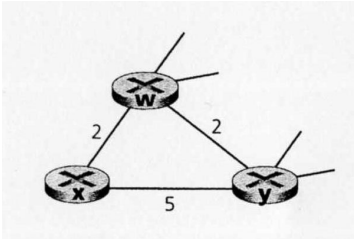
2. Will a BGP router always choose the loop-free route with the shortest AS path length? State your reason.

3. It is preferable to send SNMP messages in unreliable UDP datagram. Why do you think the designers of SNMP chose UDP rather than TCP as the transport protocol of choice for SNMP?

4. Use the Dijkstra's link-state algorithm to find the least-cost paths from Node 1 to all other nodes of the following graph. The number above each link is the associated cost of the link. **Show your results step by step.**



5. Consider the network fragment shown below. *x* has only two attached neighbors, *w* and *y*. *w* has a minimum-cost path to destination *u* (not shown) of 5, and *y* has a minimum-cost path to *u* of 6. The complete paths from *w* and *y* to *u* (and between *w* and *y*) are not shown. Assume all link costs have strictly positive integer values.



   a. Give *x*'s distance vector for destinations *w*, *y* and *u*.
   b. Discuss the condition where a link-cost change for either c(*x*,*w*) or c(*x*,*y*) will trigger *x* to inform its neighbors of a new minimum-cost path to *u* after

executing the distance-vector algorithm.