**資工三 109590004 呂育瑋 計算機網路 Homework 4**

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.

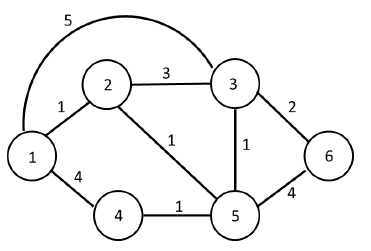
A: True，OSPF 是一個 Link-state Routing Protocol，把自己的Link-state advertisement(LSA)發送給與他

直連的 Router，其中的資料包含：資料發送者、連接了幾條 Link，每條 Link 的 cost 是多少，於

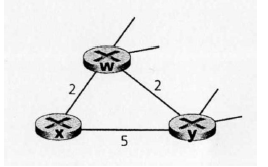
是 Router 就能以此計算 Route Table。

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

1. It is preferable to send SNMP messages in unreliable UDP datagram. Why do you think the designers of NMP chose UDP rather than TCP as the transport protocol of choice for SNMP?
2. 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.



1. 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.