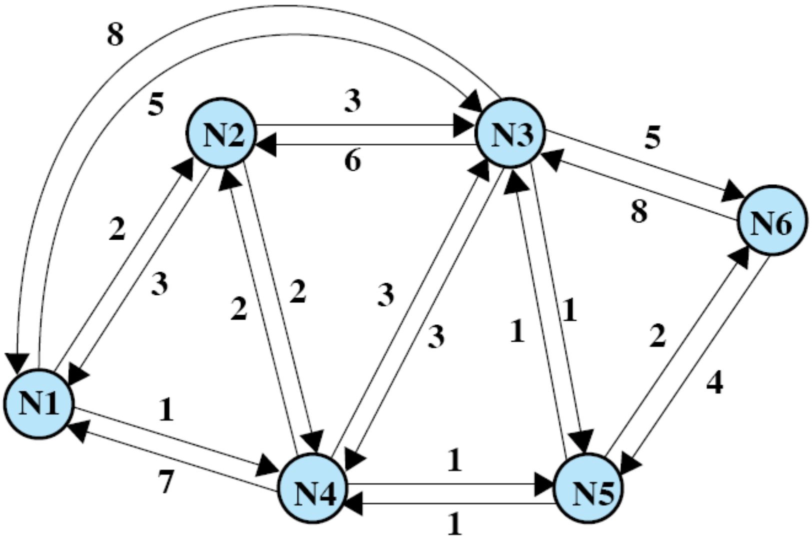
ITS 323 – ROUTING PRACTICE

1 Scenario

In the "Routing in Switched Networks" lecture notes we covered an example of "Link State Routing" for the network below.



In the lecture, we calculated the shortest path tree from node N1. That is, the least-cost paths from N1 to N2, from N1 to N3, and so on. We used Dijkstra's algorithm to calculated these paths.

2 Dijkstra's Algorithm for Finding Least-Cost Paths

In the same network as above, use Dijkstra's to calculate the least-cost paths from node N6. It is recommended you perform the steps manually, as in slide 38 of the lecture notes.

The answer that you should get (that is, the shortest paths), which you can check from the diagram above, is:

P(N1) = N6 → N5 → N4 → N2 → N1

P(N2) = N6 → N5 → N4 → N2

P(N3) = N6 → N5 → N3

P(N4) = N6 → N5 → N4

P(N5) = N6 → N5

3 Routing Table for Node N6

From the least-cost paths you calculated above, give the routing table to be stored at node N6. (Note, if you did not complete the Dijkstra's algorithm, then you can still answer this question, because I gave you the paths).

4 Flooding in the Example Network

Link state routing requires Link State Packets (LSP) to be sent through the network in order for nodes to discover the network topology. What is the cost of Node N6 sending a single LSP through the network? Assume the hop count (limit) in the LSP is 4.