CMSC 417 Computer Networks **Spring 2000**

Project 5 — Distance Vector Routing Extension

Assigned: March 14 *Due: March 27th, Midnight.*

1 Extensions to Distance Vector Routing

Extend your previous assignment to handle two new mechanisms:

- Counting up to infinity (for two nodes): Detect the counting up to infinity problem and implement poison reverse.
- Node Failure: Add a heartbeat message to your protocol. The heartbeat message should be sent periodically. Devise a mechanism using the heartbeat messages to detect when a peer is no longer reachable and tear-down all links to that peer. Your DV implementation should eventually converge and find routes to all reachable destinations.

We will test your program by manually stopping specific nodes. The remaining nodes should detect the set of nodes that are no longer reachable and re-configure routing tables as necessary.

Note that you will have to devise the format of the heartbeat message and neighbor reachability protocol yourself. Please justify the inclusion and length of each field in the heartbeat message; you will need to write up a brief description of the mechanism you use to detect node failure.