

Homework II (due: 03/29/2010)
CIS 9590 Ad Hoc Networks

Name _____ Student Number _____

1. (Different types of routing)

- Describe the following concepts using your own words: unicasting, multicasting, broadcasting, geocasting, gossiping, and gathering.
- Describe the following concepts using your own words: reactive routing and proactive routing.

2. (Link reversal)

- For a given directed graph with edge set $E = \{(m, r), (n, r), (v, m), (v, n), (w, n), (y, w), (x, w), (y, x), (y, z), (z, x)\}$, apply both full reversal and partial reversal. Assume node r is the root and link (n, r) is a broken link. Show all details including the number of rounds and the number of times links are reversed. Note that (m, r) means a directed link from node m to node r .

3. (Connected dominating set)

- For a given connected graph with edge set $E = \{12, 25, 27, 28, 34, 36, 38, 45, 58, 67, 78\}$. find out the CDS using (1) marking process only, (2) marking process plus Rules 1 and 2, (3) marking process plus Rule k , and (4) replacement path. For each case, consider two situations (a) each node has 2-hop information and (b) each node has 3-hop information. 12 represents an undirected link between nodes 1 and 2. All methods can be found at

http://www.cis.temple.edu/wu/research/publications/Publication_files/TC0904.pdf

and its references [4] and [19] for extra information if needed.

4. (Clustering)

- For a given connected graph with edge set $E = \{12, 15, 23, 26, 34, 36, 37, 48, 56, 67, 68\}$. Show details how clusterheads and cores are selected using the traditional clustering method and core extraction method. Here node id is used as the priority: the smaller the id the higher the priority. Both methods can be found at

http://www.cis.temple.edu/wu/research/publications/Publication_files/rout3.pdf

and its references [10] and [25] for extra information if needed.