COMP 599 Assignment 1,

Due 14:30 Thursday January 31st

1. Give as fast an algorithm as you can for H-minor containment when H is the graph obtained from K_5 by removing an edge.

2. Suppose we are given an instance (G,S,T) of 2k-DRP and a subdivision of a clique of size 3k in G such that there are 2k vertex disjoint paths from S union T to the set C of centers of the subdivision (i.e. C is the set of vertices of degree 3k-1 in the subdivision). Show that the desired k paths from S to T exist.

3. Let H be the star with k leaves. Show that there is a function f_H such that for all G which do not contain H as an induced subgraph, the chromatic number of H is bounded by f_H(the size of the largest clique in H).