MATH 4473, Seminar - Discrete Mathematical Structures
Quiz 4, Spring 2010

This is a closed book, closed note test, and should be your work only. Calculators are permitted.

There are questions on both sides.

1. Consider the following expression:

   \[(A \cap B) - (A \cup (B - A))\]

   a. Represent this expression using an ordered rooted tree.

   ![Tree Diagram]

   b. Write this expression using prefix notation.

   \[- \cap \ A \ B \ U \ A - B A\]

   c. Write this expression using postfix notation.

   \[A B \cap A B A - U -\]
2. Consider the following graph.

![Graph Image]

a. Use the depth-first search to produce a spanning tree for the above graph. Choose a as the root and assume that the vertices are ordered alphabetically.

![Spanning Tree Image]

b. Use the breadth-first search to produce a spanning tree for the above graph. Choose a as the root and assume that the vertices are ordered alphabetically.

![Spanning Tree Image]