Learning Objective Assessment: G5 (version 2)

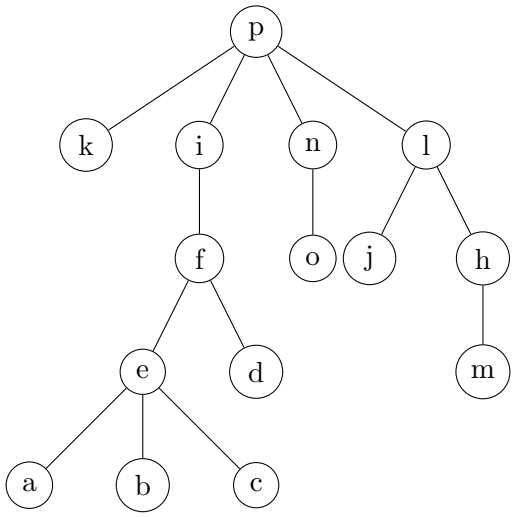
MATH2603: Discrete Mathematics

G5: I can list the nodes of a tree in the correct order when visited using preorder and postorder traversals. I can create a spanning tree for a graph using BFS or DFS algorithms.

Answer each question in the space provided below.

1. Consider the tree shown below:
   (a) Give the order in which the vertices of the tree are visited in a post-order traversal. You may assume all children are ordered from left to right.
   (b) Give the order in which the vertices of the tree are visited in a pre-order traversal. You may assume all children are ordered from left to right.
2. Question 2 on back.

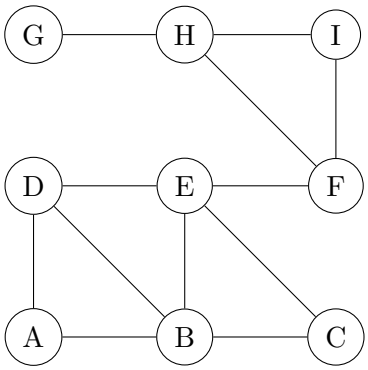
Place work in this box. Continue on back if needed.



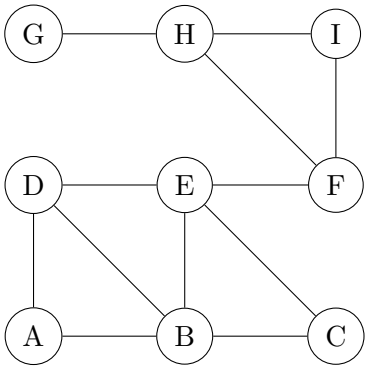
2. This question concerns the graph G shown below.
   (a) Mark the spanning tree for G obtained by performing a depth-first search starting at the vertex E, and using the convention that nearby vertices should be explored in a counter-clockwise fasion, beginning with east; so E comes first, then NE, then N, ...
   (b) Mark the spanning tree for G obtained by performing a breadth-first search starting at the vertex E, and using the convention that nearby vertices should be explored in a counter-clockwise fasion, beginning with east; so E comes first, then NE, then N, ...

Place work in this box. Continue on back if needed.

(a) You may draw your spanning tree directly on the graph G.



(b) You may draw your spanning tree directly on the graph G.



Criteria for Satisfactory: At least three of four responses must be correct.