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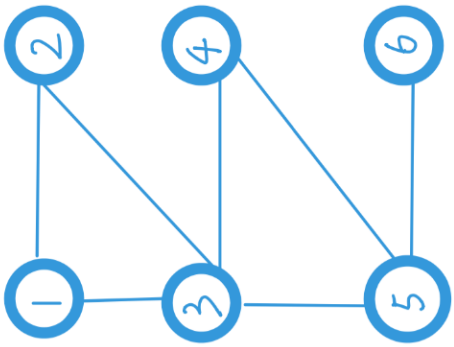
Program Structure and Algorithms (INFO 6205)
Quiz #4 – 30 points

Student NAME:

Student ID:

Question 1 (20 points). *Please refer to the graph G shown below. Break all ties lexicographically (i.e, according to alphabetical order).*



(a) *(8 points) Please execute DFS on G and fill the table below.*

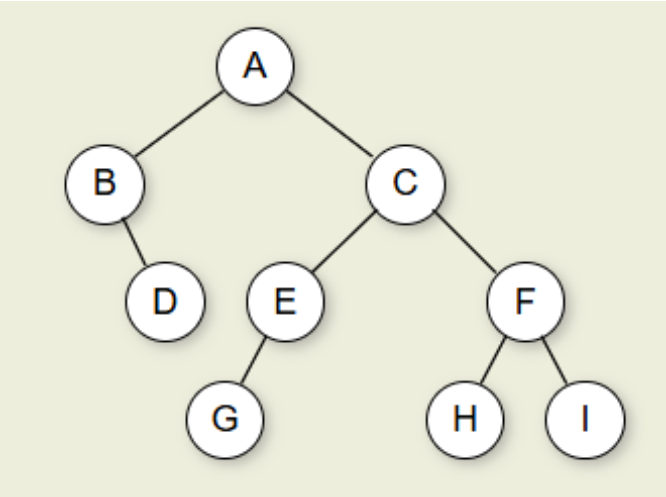
Vertex	*pre*	*post*	*parent/prev*
1			
2			
3			
4			
5			
6			

(b) *(2 points) If we remove exactly one edge from G, we obtain two connected components. Identify this edge.*

(c) *(10 points) Please fill the table below based on executing BFS on G starting at vertex 1 until the algorithm terminates. In the table below $d(\cdot)$ denotes the shortest path length from 1 to the vertex.*

Queue	$d(1)$	$d(2)$	$d(3)$	$d(4)$	$d(5)$	$d(6)$
[1]	*0*	∞	∞	∞	∞	∞
	0					
	0					
	0					
	0					
	0					
	0					
	0					

Question 2 (10 points). *Please refer to the binary tree T shown below.*



(a) *(9 points) Please list the vertices for preorder, inorder and postorder traversals.*

Preorder: _____

Inorder: _____

Postorder: _____

(b) *(1 point) In which of these traversals do we visit a subtree's root before we visit its children?*