National University of Computer and Emerging Sciences, Lahore Campus

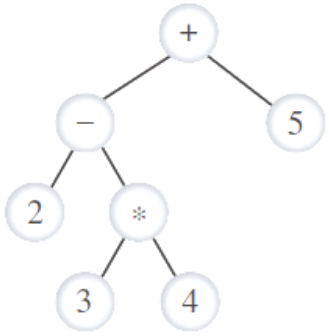
	Course:	Data Structure	Course Code:	
	Program:	BSCS	Semester:	4th
	Name:		Section:	4B
	Registration #:		Assessment	Quiz04
	Due Date:	16th June, 2020	Time Duration:	40 mins

Instruction/Notes:

1. Late submissions will not be entertained.

Q1: [5]

Given the following expression tree as an input. Write down pseudocode for print( ) function that prints parenthesized infix expression. For example the output of the code must be ((2-(3*4))+5)



Q2: [5]

Using the code already provided for AVL tree, Implement a deletion method, which deletes a node *x* by rotating it down the tree until it has at most one child, when it can be easily deleted. At each step rotate about *x* a child that is the root of a subtree that is deeper than the subtree rooted at the other child. Consider using a variant in which a child to be rotated about *x* is the root of a subtree with a larger number of nodes than the subtree rooted at the other child. The height of a subtree or the number of nodes should be computed upon deletion.

Q3: [5]

Suppose there are seven students with IDs 5701, 9302, 4210, 9015, 1553, 9902, and 2104. Suppose hash table, HT, is of the size 19, indexed 0,1,2, . . .,18. Show how these students' IDs, in the order given, are inserted in HT using the hashing function h(k) = k % 19. Use double hashing to resolve collision, where the second hash function is given by g(k) = (k+1) % 17. Draw the final Hash Table