CSCI 320 Concepts of Programming Languages
Spring 2019
G. Pothering
Assignment 1 – **Due February 7, 2019**

The purpose of this assignment is to give you practice programming in Scheme. Please put all of your code in a file **CSCI320-S19-Assign1-*yourInitials.rk***t. Note, since this is an assignment, you are expected to do all of your own work on this is specified in the syllabus.

1. Define a Scheme function **make_list_of_size** that takes as parameters an integer **n** and a expression **e** and constructs a list consisting of n copies of the value of **e**. Thus `(make_list_of_size 4 2)` would yield as its return value the list `(2 2 2 2).` Similarly `(make_list_of_size 3 '(1 a))` would yield as its return value `((1 a) (1 a) (1 a)).` On the other hand, `(make_list_of_size 3 (+ 3 2))` would yield as its return value the list `(x5 5 5)`

2. Define a Scheme function **zeros** that returns the number of zeros in a given simple list of numbers ("simple list" means no lists within lists, etc.)

3. Define a Scheme function **power** that takes two numeric atoms a and b, where b is an integer, and returns **a** raised to the **b** power. Note, 0 and negative integers are valid values for b.

4. Define a Scheme function **remove** that takes a list and an atom as parameters and returns a list that is identical to the given one except with all top-level instances of the given atom deleted. Thus, `(remove '(1 2 a (a b) a 3) 'a)` would return the list `'(1 2 (a b) 3).`

5. Define a Scheme function **largest** that takes a simple list of numbers as a parameter (possibly empty) and returns the largest value in this list. If the given list is empty, return the empty list.

You should submit your assignment to OAKS.