Computer Science Placement Exam Instructions

Time Limit: This is a timed exam. You will have 90 minutes to complete the exam. You can only take the exam one time. Do not start click the start exam button until you are ready to begin.

General Instructions: The code in all the questions in this exam are not written in any real programming language. This exam is designed to test your understanding of programming concepts rather than your knowledge of any specific programming language. Every question is multiple-choice and there is only one (1) right answer.

Variables: Variables are assumed to need no prior definition/declaration before being used. In this exam, variables can hold numeric values (whole numbers), or boolean values (true or false).
print is a generic term used as an instruction to display the output of the value of one or more variables that follows print.

Operators: = is used to indicate the assignment operator.
All arithmetic operators (symbols) are used (+, -, * and /). Note that the division / is assumed to be an integer division. That means the result of / is always an integer. The remainder is discarded. An additional operator mod is available to get the modulus or the remainder of a division.
eq is used to indicate the equality operator, which will return a Boolean value of true or false. Likewise, neq is used to indicate the "not equal to" operator.

While Loops: This exam uses a while (condition) loop construct that repeats a block of indented code found below it. The block ends when the indentation stops. This repetition structure is entry controlled - the block of code will be executed if the condition evaluates to true. The iteration control condition will be found within parenthesis right after while. Note that while (condition) does not allow the indented code block to execute when the condition evaluates to false.
For example:
while(x < 10) will execute the block of code as long as the condition "x < 10" evaluates to true, which means x is less than 10. It will not execute the code when x is greater than or equal to 10.

Array data structure: An arrays data structure stores items in cells. It is defined by a label as any other variable name, say arrayName. Each cell in an array is labeled by an index (a positive integer). The first cell in the array is at index = 0, the second at index = 1, and so on. The cell value at any index is accessed as arrayName[index].
So arrayName[0] will return the value stored in the first cell. This exam uses arrays of numbers and an array may be initialized by a sequence of numbers (num1, num2, num3,…).

Auxiliary Functions: An auxiliary function (or in short function) is a block of code that does some task, and has a name associated with it. In this exam, the keyword define begins a block of code that defines the function. A defined function has a parenthetical expression after the name that may have zero or more variables. These variables if exist are used to pass values to the block of code when the function is called. The format of the function definition is as follows: define functionName (var1, var2, …) where functionName is the name given to the function being defined, and var1, var2 … are the names of the variables in the function defined that will hold the values passed to the function when it is called. A function may return a value. An expression following a return in the block of code that defines the function indicates the value of the expression to be returned by the function.