User ID:_____ CS-3160 In-Class Quiz #4 NAME:_____

#1 A nameless function is known as

(a) an abstract function.
(b) a first-order function.
(c) a prototype function.
(d) a zero-order function.
(e) a lambda function.

#2 A function that can take a function as an argument and/or return a function as its result is known as

(a) a first-class function.
(b) a higher-order function.
(c) a generator function.
(d) an abstract function.
(e) a composite function.

#3 Iteration is implemented in a functional language via

(a) iteration.
(b) repitition.
(c) composition.
(d) recursion or iteration, as appropriate.
(e) recursion.

#4 If a function always returns the same value, given the same parameters (and has no side effects), it is said to be

(a) coherent.
(b) first-order.
(c) fundamental.
(d) referentially transparent.
(e) concise.

#5 The EVAL function, by itself, serves as

(a) a standardizing force in the functional programming world.
(b) evidence that a compiler is superfluous to functional languages.
(c) a LISP interpreter.
(d) a means of defining anonymous functions.
(e) the primary means of executing iterative algorithms.

Enter the letter(s) of each answer below. You may choose multiple answers, but credit will be divided by the number of choices made.

1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8_____ 9_____ 10_____

#6 If a language treats functions the same way it treats data, then functions are said to be

(a) atomic.
(b) polymorphic.
(c) principle elements.
(d) first-class entities.
(e) anonymous.

#7 A function that returns a Boolean value is known as

(a) a logical function.
(b) a predicate function.
(c) a declarative function.
(d) a relational function.
(e) a Boolean function.

#8 The three flow control mechanism provided by Scheme are

(a) IF, COND, and recursion.
(b) IF-ELSE, FOR, WHILE.
(c) IF, SWITCH, WHILE.
(d) IF, COND, WHILE.
(e) COND, WHILE, recursion.

#9 The LET expression in LISP

(a) is a means of parameter selection at run-time.
(b) defines a local variable that can be used in an expression.
(c) violates the functional programming paradigm since it creates local memory storage.
(d) is simply a more readable/writable shorthand for a lambda expression applied to a parameter.
(e) creates a look-up table that is used to spead up expression evaluation.

#10 Scheme language requires that _____ functions be converted to iterative implementations.

(a) looping
(b) recursive
(c) counter-controlled looping
(d) tail-recursive
(e) head-recursive