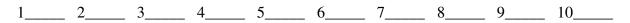
- (a) is often updated recursively as evaluate proceeds.
- (b) is unbound until needed.
- (c) cannot change throughout the evaluation process.
- (d) may only be changed when doing so will not affect the value the function evaluates to.
- (e) is statically bound to a value.
- #2 A Scheme lambda function that returns the cube of its first argument less the square of its second would be
 - (a) (LAMBDA (x,y) (x^3 y^2))
 - (b) (LAMBDA (x,y) (x * x * x y * y))
 - (c) (LAMBDA (x,y) (- ((* (x x x)) (* (y y)))))
 - (d) (LAMBDA (x,y) (- (^ x 3) (^ y 2)))
 - (e) (LAMBDA (x,y) (- (* x x x) (* y y)))
- #3 If a language treats functions the same way it treats data, then functions are said to be
 - (a) anonymous.
 - (b) first-class entities.
 - (c) atomic.
 - (d) higher order functions.
 - (e) polymorphic.
- #4 One of the main reasons that functional languages have not had the success that imperative languages have enjoyed is that
 - (a) imperative languages are much more strongly matched to the capabilities of the underlying hardware.
 - (b) functional languages seem too "foreign" to most programmers.
 - (c) functional languages can only be applied to a very narrow range of problems.
 - (d) functional languages lack the features that imperative languages require.
 - (e) imperative languages place fewer restrictions on the programmer.
- #5 Assuming n is a positive integer, what is returned by (define (fib n) (if (= n 1) n (* n (fib (- n 1))))) ?
 - (a) the product of the first n even integers
 - (b) the sum of the first n integers
 - (c) double the sum of the first n integers
 - (d) the factorial of n
 - (e) the nth fibonnacci number

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



CS-3160 IQ05 (Cont'd)

- #6 Scheme language requires that ______ functions be converted to iterative implementations.
 - (a) tail-recursive
 - (b) head-recursive
 - (c) recursive
 - (d) counter-controlled looping
 - (e) looping
- #7 The EVAL function, by itself, serves as
 - (a) evidence that a compiler is superfluous to functional languages.
 - (b) a LISP interpreter.
 - (c) the primary means of executing iterative algorithms.
 - (d) a standardizing force in the functional programming world.
 - (e) a means of defining anonymous functions.
- #8 A function that returns a Boolean value is known as
 - (a) a predicate function.
 - (b) a relational function.
 - (c) a declarative function.
 - (d) a logical function.
 - (e) a Boolean function.

#9 The basic data structure in LISP/Scheme/Racket is

- (a) the array
- (b) the atom
- (c) the string
- (d) the list
- (e) the cons cell

#10 What will be the result of (cons (list (cons 1 2) 3 4) 5)?

(a) (((1.2) (3 4).5)
(b) ((1.2).(3.4)5)
(c) (1 2 3 4 5)
(d) (((1.2) 3 4).5)
(e) (((1.2) (3.4).5)