csc324 Quiz #2 Tuesday 01 February 2000

Duration: 15 minutes

Aids allowed: None

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Student #: ______________________

Tutorial (circle one): A-F G-Lee Lef-Se Sf-Z

Grade: ____________

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1. What is the value of each of these expressions?

`( (lambda (a b) (cond ((> a b) (- a b)) (t (- b a)))) 3 7 )` Answer:

`( (lambda (car cdr) (cons car cdr)) '(1 2 3) '(p q r) )` Answer:

2. Consider the following functions:

```
(defun sum (list)
    (cond ( (null list) 0 )
          ( (>= (sum (cdr list)) 0)
                 (sum (cdr list))
          )
          ( t -1 )
    )
)
```

What is the value of `(sum '(1 2 -5 -1 3))`? Answer:

What is the big-oh time complexity of a call to `sum` with a list of length n, in the worst case?

Answer:

3. Consider the following pair of functions:

```
(defun doit (list1 list2)
    (cond ( (null list1) nil )
          ( (help (car list1) list2)
              (doit (cdr list1) list2)
          )
          ( t  (cons (car list1) (doit (cdr list1) list2))
          )
    )
)

(defun help (x y)
    (cond ( (null y) nil )
          ( (equal x (car y))  t )
          ( t  (help x (cdr y))  )
    )
)
```

What is the value of `(doit '(a b c d e) '(b a e))`? Answer:

What is the value of `(doit '(1 2) '(8 7 6 5 4 3 2 1))`? Answer:

What is the value of `(doit '(p q r) '(s t u))`? Answer: