

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY
Department of Electrical Engineering and
Computer Science
6.001—Structure and Interpretation of
Computer Programs
Fall Semester, 2001

Quiz 2

NAME: SAMPLE SOLUTIONS

Section Number: Tutor's Name:

PART	Value	Grade	Grader
1	14		
2	13		
3	26		
4	15		
5	20		
6	12		
Total	100		

If you wish to write a note on any problem, put a check in the box next to the problem number, and use the space provided at the end of the answer sheet. *Notes written outside the answer boxes on this page will be ignored.*

PART 1 (14 points)

1.(1) mine

2.(3)

```
(lambda (val)
  (cond ((null? mine)
        (set! mine val)
        val)
        (else 'already-set)))
```

3.(1) left

4.(1) right

5.(1) 'already-there

6.(7)

```
(cond ((null? left)
      (set! left (make-unit))
      ((left 'set!) val))
      (else ((left 'insert) val)))
```

PART 2 (13 points)

- 7.(1) E2
- 8.(1) GE
- 9.(1) GE
- 10.(1) E3
- 11.(1) E2
- 12.(1) E3
- 13.(1) GE
- 14.(1) none
- 15.(1) P2
- 16.(1) P1
- 17.(1) P3
- 18.(1)
- 19.(1) 5

PART 3 (26 points)**20.(3)**`(eval-sequence body env)`**21.(5)**

```
(eval-sequence body
  (extend-environment
    (list (clause-variable (first-clause clauses)))
    (list (meval (clause-value
                  (first-clause clauses))
            env))
    env))
```

22.(5)

```
(eval-let*-helper
  (rest-clauses clauses)
  body
  (extend-environment
    (list (clause-variable (first-clause clauses)))
    (list (meval (clause-value
                  (first-clause clauses))
            env))
    env))
```

23.(3)`(list 'let '() (sequence->exp body))`**24.(5)**

```
(list 'let
  (list (first-clause clauses))
  (sequence->exp body))
```

25.(5)

```
(list 'let
  (list (first-clause clauses))
  (let*-help (rest-clauses clauses)
    body))
```

PART 4 (15 points)

- 26.(3) ((a c) (a b))
- 27.(3) ((a c) (c))
- 28.(3) #f
- 29.(3) 6
- 30.(3) 15

PART 6 (12 points)

- 43.(2) 6
- 44.(2) 8
- 45.(2) 11
- 46.(2) 11
- 47.(2) 6
- 48.(2) 8

PART 5 (20 points)

- 31.(1)
aardvark
- 32.(2)
original name: aardvark
child
- 33.(1)
barracuda
- 34.(2)
name: barracuda
original name: barracuda
child
- 35.(1)
forever
- 36.(1)
barracuda
- 37.(3)
name: barracuda
original name: barracuda
child
- 38.(1)
cougar
- 39.(3)
name: cougar
original name: cougar
child
- 40.(1)
forever
- 41.(1)
catfish
- 42.(3)
name: catfish
original name: cougar
child