Quiz 3 2004-11-05 11:30am–12:30pm

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NAME _____

ROLL ____

This quiz has 2 printed page/s. Write your answer clearly within the spaces provided and on any last blank page. Start with rough work elsewhere, but do not attach rough work. Use the marks alongside each question for time management. You may your own class notes only. **NOTE:** Illogical or incoherent answers are worse than wrong answers or even *no* answer, and may fetch negative credit.

1. Convert the following code to continuation-passing style; i.e., all calls must be tail-recursive.

```
(define append (el li)
  (if (null? li)
      (list el)
      (cons (car li) (append el (cdr li)) ) ))
```



```
(define reverse (li)
    (if (null? li) li (append (car li) (reverse (cdr li)))))
```

3.	Reconstruct the type of the following expression and all its subexpressions, or justify why the
	type cannot be reconstructed within the ${\mathcal R}$ framework we have developed to support parametric
	polymorphism:

```
(let ((id (lambda (x) x)))
( (id id) 1) )
```



4. Show important steps during the reconstruction of the type of variables and subexpressions of the following expression, and write down the type of the overall expression.

3

Total: 10