Login name _____ **Quiz 2** **Name** _____

CSE 131B

Signature _____ **Spring 2004** **Student ID** _____

1. Project I Semantic Type Checking. Consider the following Oberon code:

```
VAR i : INTEGER;
VAR b : BOOLEAN;
VAR r : REAL;
```

Example 1:

```
i := b + r;
```

How many errors (if any) would this statement generate? Describe the error(s) / error message(s) in general terms or why there are no errors. (3 points)

Example 2:

```
i := i + r;
```

How many errors (if any) would this statement generate? Describe the error(s) / error message(s) in general terms or why there are no errors. (3 points)

Example 3:

```
PROCEDURE P ( x : REAL; VAR y : INTEGER );
BEGIN END P;

BEGIN
   P( r-i, b+i );
END.
```

How many errors (if any) would this code generate? Describe the error(s) / error message(s) in general terms or why there are no errors. (6 points)

2. Consider the following Oberon pseudocode: (15 points)

```
TYPE X = INTEGER;
TYPE Y = POINTER TO X;

VAR a, b  : X;
VAR c     : INTEGER;
VAR d     : Y;
VAR e     : POINTER TO INTEGER;
VAR f     : Y;
```

Which variables are considered equivalent under strict name equivalence?

_____ _____ _____ _____
group 1 group 2 (opt) group 3 (opt) group 4 (opt)

Which variables are considered equivalent under loose name equivalence?

_____ _____ _____ _____
group 1 group 2 (opt) group 3 (opt) group 4 (opt)

Which variables are considered equivalent under structural equivalence?

_____ _____ _____ _____
group 1 group 2 (opt) group 3 (opt) group 4 (opt)

The C compiler uses _____ equivalence for all types except _____

for which the C compiler uses _____ equivalence. (3 points – 1 point each)

What 4 operators in C or in our nano-Oberon implementation result in a modifiable l-value? (4 points)

1) 3)

2) 4)

It seems we do not have an appropriate error message in ErrorMsg.java for an array declaration with a size that is not greater than zero. For example,

```
VAR   a : ARRAY 0-10, 10 OF INTEGER;
```

What do you think we should do? _____ (1 point)

A) Add a new error message in Check 10 Array Declaration for this
B) Use an existing error message from Check 11 Array Usage about index out of bounds
C) Just state we will not be testing this particular case

Majority rules!