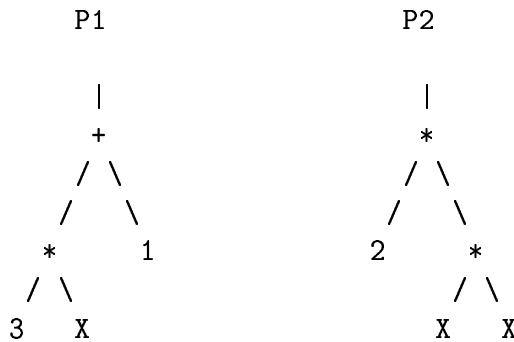# CSCI 4560/6560 Evolutionary Computation

Assignment Number 5: Due Tuesday 11/15/2005 (in class)

1. [**10 points**] Solve Problem 2 Page 86 in the text book.

2. [**10 points**] Solve Problem 4 Page 97 in the text book.

3. [**10 points**] Give a classifier system in the format used by the GIL program for each of the concepts C1 to C5 described in the classifier system handout on Page 268.

4. [**10 points**] Consider the following two genetic programming individuals:

```
      P1                    P2

      |                     |
      +                     *
     / \                   / \
    /   \                 /   \
   *     1               2     *
  / \                         / \
 3   X                       X   X
```

Assume the the fitness is based on the following set of I/O pairs:

X	F(X)
1	3
2	6
3	11
4	16

(a) If the fitness (to be maximized) is taken to be the number of pairs an individual computes correctly for all the I/O pairs, compute the fitness for P1 and P2.

(b) If the fitness (to be minimized) is taken to be the sum of the square errors for all the I/O pairs, compute the fitness for P1 and P2.

(c) Give 4 examples of individuals that may result from the crossover of P1 and P2.