csc324 Quiz #5 Tuesday 21 March 2000

Duration: 15 minutes

Aids allowed: None

Family Name: _____ **Lecturer:** Diane Horton

First Name: _____

Student #: _____

Tutor (circle one):

Ana Bezerianos	Diana Zaiu	Peeter Piegaze	Sean Thompson
A-F	G-Lee	Lef-Se	Sf-Z

Grade: _____

csc324 Quiz #5 Tuesday 21 March 2000

1. The predicate `sumto(N, Sum)` doesn't meet its specifications. It should succeed iff `N` has been instantiated to an integer, and `Sum` is the sum of the first `N` integers, (i.e., Sum $= \Sigma_{i=0}^{n} i$).

```
sumto(0, 0).

sumto(N, S+N) :- sumto(N-1, S).
```

Fix the code by making changes directly on it. For full marks, make sure that the predicate works properly if ";" is used to look for all possible answers.

2. Here is a Prolog predicate:

```
p(X, Y) :- not a(X), b(X,Y).
```

Recall that there are rules one should follow for the safe use of "not". Does this predicate use "not" safely? Circle yes or no, and then complete the sentence.

Yes, it is safe as it is, because:

No, it needs this precondition to be safe:

3. Consider the following Prolog code.

```
yummy(icecream).
yummy(chocolate).
healthy(X) :- not yummy(X).
```

What is the first answer Prolog would give to the query `healthy(chocolate).` _____

What is the first answer Prolog would give to the query `healthy(fruit).` _____

What is the first answer Prolog would give to the query `healthy(X).` _____

4. Consider the following Prolog code.

```
professor(rich).
professor(jan).
judge(david).
curator(jane).
city(jan, lascruces).
city(rich, toronto).
city(jane, forterie).
city(david, toronto).
```

What is the first answer Prolog would give to the query `city(professor(X), toronto).` _____

What is the first answer Prolog would give to the query `city(X, city(david, X)).` _____