

CS 386: Quiz 1, 11 April 2006Name: _____ **KEY** _____

No books or notes. Work individually.

Question 1 (6 points): Below is an instance of a table *census* that keeps track of the number of male and female fish in different fish tanks:

<u>Fish</u>	<u>Tank</u>	<u>Num-Males</u>	<u>Num-Females</u>
Guppy	T1	2	2
Guppy	T2	1	0
Tetra	T1	2	3
Tetra	T3	4	6
Tetra	T4	0	1
Gold	T1	3	1
Gold	T3	0	4
Gold	T4	5	2

For each group of columns below, say whether it could be a key for this table or not (based just on this instance).

- (a) Fish *Not a key, two "Guppy" rows, for example*
- (b) Tank *Not a key, two "T1" rows, for example*
- (c) Fish Tank *Is a key*
- (d) Fish Tank Num-Males *Is a key (If you add columns to a key, it's still a key.)*
- (e) Tank Num-Males *Not a key, two <"T1", 2> rows*
- (f) Num-Males Num-Females *Is a key*

Question 2 (4 points): Below is a different instance of the *census* table. This instance does not satisfy the key Fish Tank. Change this instance so it does satisfy this key. Try to make as few changes as possible. *The smallest change to make is to modify values in the Fish or Tank columns. Removing or merging rows can also fix the problem, but is a larger change.*

<u>Fish</u>	<u>Tank</u>	<u>Num-Males</u>	<u>Num-Females</u>
Guppy	T1	2	2
Guppy	T2	1	0
Guppy	T2 T3	2	0
Tetra	T1	3	2
Tetra	T3	4	2
Gold	T3	2	2
Gold	T3 T1	5	3