ICS 253–Discrete Structures I, Winter 2008

Quiz: 2 Section: 2 Time: 10 minutes

Name: ID#:

Question 1: [**4 marks**]

Translate the following statements into logical expressions, ***but without using the negation symbol*** $\neg$***.***

1. "Not every real number has a multiplicative inverse."

2. "Every student in this course owns a car or has a friend who owns a car." *Use the predicates* $P(x) =$ *"x owns a car",* $Q(x, y) =$ *"x is a friend of y", where the domains of* x *and* y *are all students in this course.*

Question 2: [**6 marks**]

Explain what rules of inference are used in the following argument form to obtain the conclusion.

$\neg p \longrightarrow q$

$p \longrightarrow r$

$\neg q$

$\neg r \vee s$

$- - - - -$

$\therefore s$