Name (PRINTED): _____

Student ID #: _____

Section # (or TA's: name and time) _____

CMSC 250 Quiz ANSWERS #2 Wednesday, Sept. 7, 2005

Write all answers legibly in the space provided. The number of points possible for each question is indicated in square brackets – the total number of points on the quiz is 30, and you will have exactly 15 minutes to complete this quiz. You may not use calculators, textbooks or any other aids during this quiz.

1. [10 pnts.]Determine if the following three statements are logically equivalent by using a SINGLE, COMPLETE truth table. Use 1 for "true" and 0 for "false" to complete the truth table.

   a. $(p \wedge r) \vee r$

   b. $(p \vee r) \wedge (\sim p \vee r)$

   c. r

p	r	$\sim p$	$p \wedge r$	$(p \wedge r) \vee r$	$p \vee r$	$\sim p \vee r$	$(p \vee r) \wedge (\sim p \vee r)$
1	1	0	1	1	1	1	1
1	0	0	0	0	1	0	0
0	1	1	0	1	1	1	1
0	0	1	0	0	0	1	0

_____YES _____(Yes or No) These statements are logically equivalent.

2. [6 pnts.]Give one possible value for the integer n in each of the following which would make the statement true. (If there is no possible value, write the word "impossible".)

   - p = $(n \leq 1)$
   - q = $(n \neq 3)$
   - r = $(n \geq 7)$

   a. $\sim (p \vee \sim q)$ _____$\{2, 4, 5, ...\}$_____

   b. $(p \wedge r) \wedge q$ _____impossible_____

↓ TURN OVER ↓

3. [14 pnts.] Give the complete truth table of the following statement. Then answer the question posed below based on your results.

$(\sim (a \vee \sim b) \wedge (a \vee \sim c)) \wedge (b \wedge a)$

						x	y	w	z	
a	b	c	$\sim b$	$\sim c$	$a \vee \sim b$	$\sim (a \vee \sim b)$	$a \vee \sim c$	$x \wedge y$	$b \wedge a$	$w \wedge z$
1	1	1	0	0	1	0	1	0	1	0
1	1	0	0	1	1	0	1	0	1	0
1	0	1	1	0	1	0	1	0	0	0
1	0	0	1	1	1	0	1	0	0	0
0	1	1	0	0	0	1	0	0	0	0
0	1	0	0	1	0	1	1	1	0	0
0	0	1	1	0	1	0	0	0	0	0
0	0	0	1	1	1	0	1	0	0	0

Give values for each of the following variables to describe one situation where this statement would be true. Indicate the value of that variable by circling either the true or the false on that line.

ANSWER : NONE

a	TRUE	FALSE
b	TRUE	FALSE
c	TRUE	FALSE

4. Give an alias - a madeup name you will associate with yourself - under which you would like your grades posted. If you do not want to have your grades posted, specify the alias "None".