Name (PRINTED): _____

Student ID #: _____

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

CMSC 250 Quiz #5 Wed., Sept. 29, 2004

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. [6 pnts.] Use an Euler diagram to determine if each of the following represents a valid argument. Make sure to label the parts of the diagram.

No children like me. All people who like me are under 3 feet tall. ——— therefore: No children are under 3 feet tall.	Some pigs fly. All things that fly migrate. ——— therefore: Porky Pig (one of the pigs) must migrate.
Circle One: `Valid` `Invalid`	Circle One: `Valid` `Invalid`

2. [10 pnts.] For each of the following, translate the argument to symbolic notation using quantification. The quantification must indicate that the objects come from the domain "U" which includes all things. Then tell if the argument given matches the form: Universal Modus Ponens, Universal Modus Tollens, or NONE (if it matches neither). You must use a universal quantifier if at all possible since that is the only way it could directly match one of these argument forms.

Premises: Conclusion:	No dogs like cats. Snoopy does not like cats. ——————— Snoopy is not a dog.	————————
Argument Form:		

Premises: Conclusion:	All dogs have 2 ears and eat Alpo. Snoopy is a dog. ——————— Snoopy has 2 ears.	————————
Argument Form:		

↓ TURN OVER ↓

3. [14 pnts.] For each of the following prove that it is a Valid Argument by telling what rules would need to be applied. You may assume a is an element in $\mathbf{D}$.

a.

P1	$\forall x \in D, \sim (\sim M(x) \wedge \sim Q(x))$
P2	$\forall y \in D, Q(y) \rightarrow \sim P(y)$
P3	$P(a)$
	$- - - - - - - - - - - - - - - - - -$
	therefore $R(a) \vee M(a)$

Line #	Logical Statement	Name of Rule	Line Numbers Used
1			
2			
3			
4			
5			
6			
7			
8			

b.

P1	$\forall x \in D, P(x) \rightarrow Q(x)$
P2	$\forall x \in D, R(x) \rightarrow \sim Q(x)$
P3	$\exists y \in D, R(y) \wedge M(y)$
P4	$\forall y \in D, \sim R(y) \rightarrow \sim M(y)$
	$- - - - - - - - - - - - - - - - - -$
	therefore $\forall m \in D, \sim (P(m) \wedge M(m))$

Line #	Logical Statement	Name of Rule	Line Numbers Used
1			
2			
3			
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