CSc 8710 DDLP, Fall 2008 **Name:** _____
Take Home Exam
DUE: Thursday, December 8, 2016

1. (60 Points) Homework 5. Use the handin command and submit the following under assignment 5:

   (a) All source code.

   (b) A short report (1 to 2 pages) detailing the comparisons between the three methods (Nave, Semi-Nave, and Semi-Nave on Magic Set Transformed Rules).

   (c) Also, please drop by my office on or before December 13th to show me a demo of your code.

2. (15 Points) Paraconsistent Algebra. Consider the following two paraconsistent relations:

```
P+ = { (a,b), (b,c) }
P- = { (a,c), (c,a), (c,b) }
Q+ = { (c,b), (b,c) }
Q- = { (a,a), (c,c) }
```

   Compute the paraconsistent relation corresponding to the following expression:

$$\dot{\pi}_{X,Z}(P(X,Y)\dot{\bowtie}Q(Y,Z))$$

   Show results after application of each operator.

3. (25 Points) Let P be the following general deductive database:

```
r(1,2).
r(2,3).
r(3,4).
p(X) :- r(X,Y), not q(Y).
q(X) :- r(Y,X), not p(X).
```

   (a) Compute the weak well-founded model for the database using T_P^F operator. Show the work after each iteration.

   (b) Using the paraconsistent relational model and algebra compute the weak well-founded model. Write the algebraic expressions for paraconsistent relation P and Q. Then, turn the equations into assignment statements and execute it in a repeat-until loop till no changes. Show the work after each iteration including the intermediate steps (complement, join, project etc) of evaluating the algebraic expression.