COP 4710 – Database Systems – Fall 2013

Homework #2 - 150 points -

KEY

Due: Friday October 4, 2013 by 11:59 pm NO LATE ASSIGNMENTS ACCEPTED

Answer each of the following questions completely. Make sure that your answers are **neatly written and very readable**. Points will be deducted if your assignment is not presented in a neat format. Submit your assignment via WebCourses.

- (50 points total 10 points each) Given the relational schemas and instances shown below, construct relational algebra queries, using only the five fundamental operators, that will correctly produce the results for each of the queries (a)-(e).
 - S = STUDENTS(<u>s#</u>, name, age, major, gpa, hours_completed)

C = COURSES(<u>c#, term</u>, name, dept, enrollment)

P = PROFESSORS(<u>p#</u>, name, dept, yrs_teaching, area)

TA = TAKES(<u>s#, c#, term</u>, grade)

TE = TEACH(p#, c#, term)

- (a) List the s# and name of those students who took COP4710 in Fall 2013 term.
- (b) List the s# and name for those students who have not taken COP4710.
- (c) List the p# and name of every professor who has taught the student with s# = 12.
- (d) List the p# and names of professors who have only taught students who are CS majors.
- (e) List the s# for those students who have taken every course.
- (50 points total 10 points each) Produce relational algebra query expressions for each of the queries (a)-(e) in Question 1 above, but this time use the redundant relational algebra operators whenever possible.
- (50 points total 10 points each) Produce tuple relational calculus expressions for each of the queries (a)-(e) in Question 1 above.