

CS343 H1 Y Section 5101 & 2002 First Term Test Fall 2003

October 8th 2003

This is a **closed** book, notes, neighbors exam. You have 50 minutes for a total of 150 points. Write your answers in the space provided after each question. You will not be given any credits for anything written outside the page.

Print your First name: _____

Print your Last name: _____

Print your student number: _____

Circle your Tutorial Room: **WI 524** **UC 52**

I do not know rule If for any questions I write the following sentence "I do not know the answer" I will be automatically rewarded by a mark equal to 20% of the mark of the question.

I acknowledge and SIGN that this booklet is complete (7 pages, 5 Questions):

Question	Points	Maximum points
1		30
2		30
3		30
4		30
5		30
Total		150

Schema

Consider the following relational schema describing a movie database (this schema is extracted from the book *Foundations of Database* by S. Abiteboul, R. Hull and V. Vianu).

```
Schedule(Theater, Title, Time)
Movies(Title, Director, Actor)
Produced(Producer, Title)
See(Spectator, Title)
Liked(Spectator, Title)
```

A movie is directed by only one director but can be produced by several Producers. A spectator may like a movie without having seen it.

Relational Algebra and SQL

Write the following 3 queries in both Relational Algebra and SQL. In relational algebra you are **not** allowed to use linear notation and renaming of *relations* used in some text books. You may use renaming of attributes. You may use numerical comparisons (e.g. $R.A > 5$) in both SQL and Relational Algebra.

Each question is worth 30 points (15 for SQL, 15 for Relational Algebra)

Question 1 (30 points)

List the theater name and time where I can see the movie "Shrek" after 18 hours.

Relational Algebra

SQL

Question 2 (30 points)

List people who liked movies that they have not seen.

Relational Algebra

SQL

Question 3 (30 points)

List the producers who produced a movie that does not appear in a theater.

Relational Algebra

SQL

Relational Algebra and Relation Calculus

Write the following two queries in both Relational Algebra and Relational Calculus. Same rules as before apply to Relational Calculus queries.

Each question is worth 30 points (15 for Relational Algebra, 15 for Relational Calculus)

Question 4 (30 points)

List the producers who have seen at least one movie that they have produced?

Relational Algebra

Relational Calculus

Question 5 (30 points)

List the spectators who do not like a single movie that they saw?

Relational Algebra

Relational Calculus