The University of British Columbia

Computer Science 304

Midterm Examination March 17, 2010

Time: 50 minutes

Total marks: 30

Instructor: Rachel Pottinger

Name		Student No		
(PRINT)	(Last)	(First)		
Signature				

This examination has 3 doublesided pages.

Check that you have a complete paper.

This is a closed book, closed notes exam. No books or other material may be used.

Answer all the questions on this paper.

Give very **short but precise** answers.

State any assumptions you make

Work fast and do the easy questions first. Leave some time to review your exam at the end.

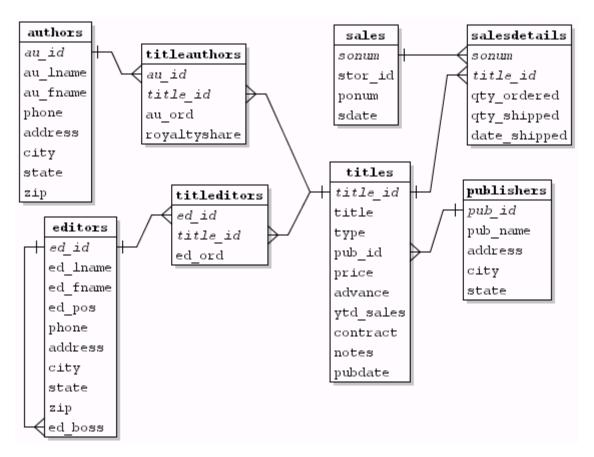
Good Luck

Question	Mark	Out of
1.a		5
1.b		5
2.a		5
2.b		5
2.c		5
2.d		5
TOTAL		Out of 30

```
All queries for this exam use the same schema as in the SQL tutorials: authors( <u>au_id</u>, au_lname, au_fname, phone, address, city, state, zip) titleauthors( <u>au_id</u>, title_id, <u>au_ord</u>, royaltyshare) sales( <u>sonum</u>, stor_id, ponum, sdate) salesdetails( <u>sonum</u>, qty_ordered, qty_shipped, <u>title_id</u>, date_shipped) editors ( <u>ed_id</u>, ed_lname, ed_fname, ed_pos, phone, address, city, state, zip,ed_boss) titleditors( <u>ed_id</u>, title_id, ed_ord) titles( <u>title_id</u>, title, type, pub_id, price, advance, ytd_sales, contract, notes, pubdate) publishers( pub_id, pub_name, address, city, state)
```

The schema will be repeated on following pages for easy reference

Foreign Keys are shown in the following diagram, where the referring attribute is marked by a + and the referencing attribute is marked by a \leftarrow (e.g., au_id in titleauthors references au_id in authors)



The schema again:

```
authors(<u>au_id</u>, au_lname, au_fname, phone, address, city, state, zip)
titleauthors(<u>au_id</u>, <u>title_id</u>, <u>au_ord</u>, royaltyshare)
sales(<u>sonum</u>, stor_id, ponum, sdate)
salesdetails(<u>sonum</u>, qty_ordered, qty_shipped, <u>title_id</u>, date_shipped)
editors (<u>ed_id</u>, ed_lname, ed_fname, ed_pos, phone, address, city, state, zip)
titleditors(<u>ed_id</u>, <u>title_id</u>, ed_ord)
titles(<u>title_id</u>, title, type, pub_id, price, advance, ytd_sales, contract, notes, pubdate)
publishers(<u>pub_id</u>, pub_name, address, city, state)
```

- 1. {10 marks} Relational Algebra. For each query return EXACTLY the following:
 - a. Find the first name of all of the authors who have publishers in the city "Boston"

b. Return the last names of the authors and the editors of the book titled "You Can Combat Computer Stress!" Your answer should be a single list of the last names.

Page 3

The schema again:
authors(<u>au_id</u>, au_lname, au_fname, phone, address, city, state, zip)
titleauthors(<u>au_id</u>, title_id, <u>au_ord</u>, royaltyshare)
sales(<u>sonum</u>, stor_id, ponum, sdate)
salesdetails(<u>sonum</u>, qty_ordered, qty_shipped, <u>title_id</u>, date_shipped)
editors(<u>ed_id</u>, ed_lname, ed_fname, ed_pos, phone, address, city, state, zip)
titleditors(<u>ed_id</u>, title_id, ed_ord)
titles(<u>title_id</u>, title, type, pub_id, price, advance, ytd_sales, contract, notes, pubdate)
publishers(pub_id, pub_name, address, city, state)

- 2. {20 marks} SQL Queries. For each query return EXACTLY the following:
 - a. "List the last names of all authors who have a letter 'k' in their last name?" If a last name occurs more than once, only list it once

b. List editor phone numbers and how many editors share that number, but don't list those lines where there is only one editor with that number.

Page 4

The schema again:

```
authors( <u>au_id</u>, au_lname, au_fname, phone, address, city, state, zip)
titleauthors( <u>au_id</u>, <u>title_id</u>, <u>au_ord</u>, royaltyshare)
sales( <u>sonum</u>, stor_id, ponum, sdate)
salesdetails( <u>sonum</u>, qty_ordered, qty_shipped, <u>title_id</u>, date_shipped)
editors ( <u>ed_id</u>, ed_lname, ed_fname, ed_pos, phone, address, city, state, zip)
titleditors( <u>ed_id</u>, <u>title_id</u>, ed_ord)
titles( <u>title_id</u>, title, type, pub_id, price, advance, ytd_sales, contract, notes, pubdate)
publishers( pub_id, pub_name, address, city, state)
```

c. How many editors have not edited a book?

d. Find the names of all publishers who have had more than 200 books ordered (note that a publisher may publish more than one book)

Page 5

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