**Relational Algebra** **Practical Exercises**

1 Consider the following relations (primary keys are underlined):

AUTHOR (AName, Address, Specialism)
PUBLISHER (PName, Location)
BOOK (Title, AName, PName)

Use Relational Algebra to represent the following queries:

(a) What are all titles published by *Pitman* ?
(b) What are the specialisms of authors publishing a book with *MIT Press*?
(c) What is the location of the publisher of the book *A Guide to OODB?*
(d) Get the names of all publishers who have published a book by *Smith* and a book by *Jones*
(e) What are the addresses of all the authors publishing a book with all the publishers located in *Paris*

2 Consider the following relations:

DEPARTMENT (DeptNo, DeptName, ManagerNo, Location)
EMPLOYEE (EmpNo, EmpName, Position, Salary, DeptNo)

Use Relational Algebra to represent the following queries:

(a) List all the employees who work for department of *R/D*
(b) Get the manager's name of an employee *Smith* who works in *Geneva*
(c) What are the salaries of all employees working in *New York*?

3 Consider the following three relations:

TAPE (Catalogue # ,Title, Purchase-Price, Rent-per-Day, Date-Bought)
MEMBER (Id, Name, Address, Join-Date)
BORROWING (Member-Id, Catalogue#, Borrow-Date, Return-Date)

Use Relational Algebra to represent the following queries:

(a) What different titles does the club have?
(b) Does the club have a video tape entitled Quadrophenia?
(c) Is a copy of Quadrophenia available for rental?
(d) Who has borrowed Paradise Lost?
(e) List all the titles that have not been borrowed for the last 2 years.

4 Use LEAP to answer/verify your answers to Exercises 1-3