COEN 280 **Database Systems** **Spring 2023**

Assignment 1 (50 pts) **Due: 18th April (10 AM)**

This assignment will require queries to be written using **Relational Algebra.**

Use the schemas of the relations below to answer questions 1 to 5. **All questions carry 10 pts each**.

Employee (EmpName, SSN, PhoneNo, Salary, DeptNo, SupervisorSSN)

Department (DeptName, DeptNo, ManagerSSN)

DeptLocations (DeptNumber,location)

Project (ProjectName,ProjNumber,location,DeptNum)

Works_On(EmpSSN,ProjNumber,Hours)

Dependent (EmployeeSSN,dependentName,BirthDate)

Question 1

Show the name and phoneNo of all employees who work for Department with DeptName,"R&D".

Question 2

For every project located in "Santa Clara", show the project number, projectName, controlling Department Number and the name of the manager of that department.

Question 3

Find the names of all employees who work on **all** projects located in "Santa Clara"

Question 4

Show the names of employees with two or more dependents.

Question 5

Show the names of employees with no dependents.

What to submit:

Note: Please write the question number, the question and your answer (Relational Algebra query). You are allowed to write the query in multiple steps to improve readability. For each of the steps, include comments as to what you plan to accomplish in that step.

Please type your answers . Please feel free to use the Relational Algebra symbols given below. You are also free to type them using an equation or symbol editor. Make sure you include your name on the document.

Create **a single pdf document** with your answers (as described above) and submit it on Camino.

Relational Algebra Symbols

Unary Operators

Selection	σ
Projection	π
Renaming	ρ

Binary Operators

Union	∪
Intersection	∩
Difference	—
Cartesian product	×
Join	⋈