RDBMS and SQL, Sep-Nov 2023

Assignment 1, 11 October 2023, due 18 October 2023

Consider the following relation schema from the university database discussed in the lectures.

```
instructor(ID,name,dept_name,salary)
department(dept_nane,building,budget)
course(course_id,title,dept_name,credits)
prerequisites(course_id,prereq_id)
section(course_id,sec_id,semester,year,biulding,room_number,time_slot_id)
teaches(ID,course_id,sec_id,semester,year)
student(ID,name,dept_name,tot_cred)
takes(ID,course_id,sec_id,semester,year,grade)
```

Here `student` contains information about students in the university, and `takes` contains information about course registrations by students.

Write relational algebra queries for the following.

1. Find all Physics faculty members who earn more than at least one Computer Science faculty member.
2. Find all Physics faculty who earn more than every Computer Science faculty member.
3. Find the faculty member(s) with the minimum salary.
4. Find all faculty members whose office is in the building `Taylor`.
5. Find all faculty members whose office is not in the building `Painter`.
6. Find all faculty members who teach exactly one course.
7. Find all courses that have more than one pre-requisite.
8. Find all courses that are pre-requisites for more than one course.
9. Find all students who are not registered for any course.
10. Find all students who are registered for at least three courses.
