Week-4 Problems

I. Write SQL Select Statements using Aggregate Functions, Group By and Having clauses for the following queries that retrieve data from university database:

1. Find the maximum and average capacity of buildings in the university.
2. Display the least budget of the departments.
3. Find the total number of courses and credits offered by Biology department.
4. Find the average salary of instructors in the Computer Science department.
5. Find the total number of instructors who teach a course in the Spring 2010 semester.
6. Find the average salary in each department.
7. Find the number of instructors in each department who teach a course in the Spring 2010 semester.
8. Find the department name and average salary of the department for only those departments where the average salary of the instructors is more than $42,000.
9. For each course section offered in 2009, find the average total credits (*tot_cred*) of all students enrolled in the section, if the section had at least 2 students.
10. For each department, find the maximum salary of instructors in that department. You may assume that every department has at least one instructor.
11. For the student with ID 12345 (or any other value), show the total number of credits scored for all courses (taken by that student). Don't display the tot_creds value from the student table, you should use SQL aggregation on courses taken by the student.
12. Display the total credits for each of the students, along with the ID of the student; don't bother about the name of the student. (Don't display the tot_creds value from the student table, you should use SQL aggregation on courses taken by the student. For students who have not registered for any course, tot_creds should be 0)

II. Write nested queries for answering the following queries that retrieve data from university database:

1. Find the total number of (distinct) students who have taken course sections taught by the instructor with ID 110011
2. Find the names of all instructors whose salary is greater than at least one instructor in the Biology department
3. Find the departments that have the highest average salary.
4. Find all the courses taught in the both the Fall 2009 and Spring 2010 semesters
5. Find all the courses taught in the Fall 2009 semester but not in the Spring 2010 semester.
6. Find all courses taught in both the Fall 2009 semester and in the Spring 2010 semester. (Write correlated nested Query)
7. Find all students who have taken all courses offered in the Biology department. (Write Correlated nested Query)
8. Find all courses that were offered at most once in 2009.
9. Find all courses that were offered at least twice in 2009"
10. Find the average instructors' salaries of those departments where the average salary is greater than $42,000.
11. Find the departments with the maximum budget.
12. Find the names of instructors who have not taught any course.
13. Find the IDs and names of all students who have not taken any course offering before Spring 2009.
14. Find the lowest, across all departments, of the per-department maximum salary computed.
15. Display the IDs and names of the instructors who have taught all Comp. Sci. courses.