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ANSWERS:

3.11)a)

```
SELECT DISTINCT student.name
FROM ((student JOIN takes USING(ID))
JOIN course
USING(course_id))
WHERE course.dept_name='Comp. Sci.';
```

3.11)b)

```
SELECT DISTINCT student.id, student.name
FROM student
WHERE student.ID
NOT IN (( SELECT DISTINCT(student.id)
          FROM (student JOIN takes USING(ID))
          WHERE year <2009));
```

3.11)c)

```
SELECT DISTINCT dept_name,max(salary)
AS Max_Salary
FROM instructor
GROUP BY dept_name;
```

3.11)d)

```
SELECT min(Max_Salary) as Minimum_Sal
FROM(SELECT DISTINCT dept_name,max(salary)
      AS Max_Salary
      FROM instructor
      GROUP BY dept_name)
AS Min_Salary;
```

3.12)a)

```
INSERT INTO course(course_id,title,credits)
VALUES('CS-001','Weekly Seminar',null);
```

3.12)b)

```
INSERT INTO section(course_id,sec_id,semester,year)
VALUES('CS-001','1','Fall',2009);
```

3.12)c)

```
INSERT INTO takes (SELECT DISTINCT student.id,'CS-001','1','Fall',2009
                     FROM student WHERE dept_name='Comp. Sci.');
```

3.12)d)

```
DELETE FROM takes
WHERE takes.course_id='CS-001'
AND takes.sec_id='1'
AND takes.semester='Fall'
AND takes.year=2009
AND takes.ID=(SELECT student.id
               FROM student
               WHERE STUDENT.name='Chavez' and dept_name='Comp. Sci.');
```

3.12)e)

```
DELETE FROM course
WHERE course_id='CS-001';
```

The course gets deleted even without deleting the offerings(i.e. section data corresponding to the course CS-001)

3.12)f)

```
DELETE FROM takes  
WHERE takes.course_id IN (SELECT course.course_id  
                           FROM course  
                           WHERE course.title ILIKE '%database%');
```

4.5)

```
CREATE VIEW student_grades(ID,GPA)
AS (SELECT ID, SUM(credits *points)/SUM(credits)
    AS GPA
    FROM (takes NATURAL JOIN course)
    LEFT OUTER JOIN grade_points ON(takes.grade=grade_points.grade)
    GROUP BY ID UNION (SELECT ID, null as GPA
                        FROM student
                        WHERE NOT EXISTS ( SELECT * FROM takes
                        WHERE takes.ID= student.ID)));
```