

The Database Engine used is MySQL (using **WAMP server** -> MySQL Console).

PLEASE NOTE: in case a query does not work properly, then kindly copy it in a notepad file and replace the single quotes (") of MS Word by the single quotes (' ') of the notepad, and/or change the font to **Lucida Console**. For some reason the single quotes of the Calibri Font result in syntax error in MySQL of the WAMP server.

Solution a.

```
SELECT dept_name
FROM instructor
GROUP BY dept_name
ORDER BY AVG(salary) DESC
LIMIT 1;
```

Solution b.

```
SELECT course_id, sec_id, AVG(tot_cred)
FROM(
    SELECT DISTINCT course_id, sec_id, takes.ID, tot_cred
    FROM takes, student
    WHERE takes.id=student.id AND takes.course_id IN
    (
        SELECT course_id
        FROM takes
        WHERE year= 2009
        GROUP BY course_id
        HAVING COUNT(DISTINCT ID) > 1
    )
) AS t
GROUP BY course_id, sec_id;
```

Solution c.

```
SELECT COUNT(DISTINCT t2.ID)
FROM teaches AS t1, takes AS t2
WHERE t1.ID=10101 AND t1.course_id=t2.course_id AND t1.semester=t2.semester AND t1.year=t2.year;
```

Solution d.

```
SELECT s1.course_id
FROM section AS s1
WHERE EXISTS(
    SELECT course_id
    FROM section
    WHERE s1.semester='Fall' AND s1.year=2009 AND s1.course_id NOT IN(
        SELECT course_id
        FROM section
        WHERE semester='Spring' AND year=2010
    )
);
```

Solution e.

```
SELECT course_id
FROM section
WHERE semester='Fall' AND year=2009 AND course_id IN(
    SELECT course_id
    FROM section
    WHERE semester='Spring' AND year=2010
);
```

Solution f.

```
SELECT dept_name, COUNT(DISTINCT teaches.ID)
FROM course, teaches
WHERE course.course_id = teaches.course_id AND teaches.year=2010
GROUP BY dept_name;
```

Solution g.

```
SELECT DISTINCT s1.course_id
FROM section AS s1
WHERE s1.year=2009 AND s1.course_id IN(
    SELECT s2.course_id
    FROM section as s2
    WHERE s2.year=2009 AND s1.course_id=s2.course_id AND (s1.sec_id <> s2.sec_id OR s1.semester
    <> s2.semester)
);
```

Solution h.

```
SELECT dept_name
FROM(
    SELECT dept_name, cid
    FROM
    (
        SELECT dept_name, AVG(salary) AS avgsal, count(ID) AS cid
        FROM instructor
        GROUP BY dept_name
    ) AS t1
    WHERE avgsal > 42000
) AS t2
WHERE dept_name LIKE '%i%' AND cid > 1
ORDER BY dept_name DESC;
```

[illegible][illegible]