As usual, provide enough detail to support your answers. Make sure to answer all the questions. Also, if you are planning to submit your assignment handwritten, please write legibly. We encourage you to itemize your answers.

Most common errors were:

**Question 1**

- You were expected to provide the referential constraint violated by the operation (indicating the table and/or fields involved), and at least one way to enforce the constraint. Similar to the example that was in the statement (i.e. Delete the PROJECT tuple with Pname = ‘ProductX’).
- As guide, the referential integrity constraint for the COMPANY schema are defined in Figure 5.7.
- Some people thought that (c) was a violation because the project number didn’t exist in project_locations.

(a) There is no violation. Is safe to remove any tuple from WORKS_ON. No table reference WORKS_ON.
(b) There is a violation since the new Super_ssn does not exists an EMPLOYEE with that Ssn.
(c) There is a violation since the Dnum does not exists in DEPARTMENT. Even though that the Pname already exists (‘ProjectX’), there is no violation since the PK of the PROJECT table is Pnumber.
(d) There is a violation with multiple tables: DEPT_LOCATION, PROJECT, EMPLOYEE.

**Question 2**

- Some students did not provide clear scenarios where is useful to store the address in one attribute or multiple attributes.
- Some students did not provide another scenario for the use of composite attributes (e.g. SSN, Phone Number).
Question 3

Overall

- For minor typos in the SQL or syntax errors there are no points deduction. However, we deducted points for inconsistencies in the SQL statements (using EXIST clause incorrectly or having a subquery without a proper connection to the outer query).
- For queries (c) and (d) you should not use specific information from the database state to build the queries. Instead you should use subqueries or joins. For instance, in (d) getting manually the minimum or maximum salary from the database state shown in Figure 5.6 is not a valid answer (e.g. `SELECT * FROM Employee WHERE Salary > 40000`). Instead you should use a subquery to get the minimum/maximum salary and then use it to filter out tuples.

(c)

- Some students provide an SQL to delete tuples from EMPLOYEES instead of DEPENDENT
- Table DEPENDENT does not have a Salary field, instead you need to use subqueries to find the tuples that should be deleted.
- The use of inner joins is not accepted in the standard SQL definition, and just supported by some DBMS (Oracle is not one of them). In any case, we did not deducted points for its in use in this homework.