4.10)

    a. SELECT DISTINCT e.fname, e.lname
        FROM employee e, project p, works_on w
        WHERE e.dno=5 AND w.essn=e.ssn AND p.pname='ProductX' AND
        w.pno=p.pnumber AND hours>10;

    b. SELECT DISTINCT e.fname, e.lname
        FROM employee e, dependent d
        WHERE e.fname=d.dependent_name AND e.ssn=d.essn;

    c. SELECT DISTINCT e.fname, e.lname
        FROM employee e, employee s
        WHERE e.superssn=s.ssn AND s.fname='Franklin' AND s.lname='Wong';

4.15)

    a. When the command is executed everything is deleted out of the database because everything is linked to 'Borg' either directly or indirectly because he is the head of the company.

    b. It is better to SET NULL in the case of EMPSUPERFK constraint ON DELETE because whenever an employee is deleted, where they are referenced from the FK is set to null rather than deleting everything linked to it.

5.5)

    a. SELECT dname, COUNT(*) num_of_employees
        FROM employee, department
        WHERE dno=dnumber AND (SELECT AVG(salary) FROM employee)>30000
        GROUP BY dname;

DNAME	NUM_OF_EMPLOYEES
Administration	3
Headquarters	1
Research	4

    b. We can specify this query in SQL but a nested query is not needed here since we are looking at individual salaries and not average salaries of the males.

        SELECT dname, COUNT(*) num_of_males
        FROM employee, department
        WHERE dno=dnumber AND sex='M' AND salary>30000
        GROUP BY dname;

DNAME	NUM_OF_MALES
Research	2
Headquarters	1

5.7)

a. SELECT fname, lname
   FROM employee
   WHERE dno=(SELECT dno
                    FROM employee
                    WHERE salary=(SELECT MAX(salary)
                                         FROM employee));

b. SELECT fname, lname
   FROM employee
   WHERE superssn IN (SELECT ssn
                          FROM employee
                          WHERE superssn ='888665555');

c. SELECT fname, lname
   FROM employee
   WHERE salary>10000+(SELECT MIN(salary)
                          FROM employee);

5.8)

a. CREATE VIEW department1(department, manager_first, manager_last, salary)
   AS SELECT dname, fname, lname, salary
   FROM employee, department
   WHERE ssn=mgrssn;

b. CREATE VIEW research_dept(efirst, elast, sfirst, slast, esalary)
   AS SELECT e.fname, e.lname, s.fname, s.lname, e.salary
   FROM employee e, employee s, department
   WHERE dname='Research' AND e.dno=dnumber and s.ssn=e.superssn;

c. CREATE VIEW project1(pname, dname, num_of_employees, total_hours)
   AS SELECT pname, dname, COUNT(*), SUM(hours)
   FROM department, project, works_on
   WHERE dnum=dnumber AND pno=pnumber
   GROUP BY pname, dname;

d. CREATE VIEW project2(pname, dname, num_of_employees, total_hours)
   AS SELECT pname, dname, COUNT(*), SUM(hours)
   FROM department, project, works_on
   WHERE dnum=dnumber AND pno=pnumber
   GROUP BY pname, dname
   HAVING COUNT(*)>1;

5.9)

a. The query is allowed.

D	C	TOTAL_S	AVERAGE_S
1	1	55000	55000
5	4	133000	33250
4	3	93000	31000

b. The query is allowed.

D	C
5	4

c. The query is allowed

D	AVERAGE_S
5	33250

d. The update is not allowed. "ORA-01732: data manipulation operation not legal on this view".

e. The update is not allowed. "ORA-01732: data manipulation operation not legal on this view".