**Q1. You need to find out the names and IDs of the departments in which the least salary is greater than the highest salary in the department 10.**

SELECT d.dept\_id, d.dept\_name

FROM DEPARTMENTS d

WHERE (SELECT MIN(e.salary) FROM EMPLOYEES e WHERE e.dept\_id=d.dept\_id) >

(SELECT MAX(e.salary) FROM EMPLOYEES e WHERE e.dept\_id=10);

π dept\_id, dept\_name ((σ (MIN(salary) > MAX(salary) | dept\_id != 10) EMPLOYEES) ⨝ DEPARTMENTS)

**Q2. Write a query to find the employees whose salary is equal to the salary of at least one employee in department of id 10.**

SELECT \* FROM EMPLOYEES WHERE salary IN

(SELECT salary FROM EMPLOYEES WHERE dept\_id=10);

σ (salary IN (π salary (σ dept\_id=10 EMPLOYEES))) EMPLOYEES

**Q3. You need to find out all the employees who have salary greater than at least one employee in the department 10.**

SELECT \* FROM EMPLOYEES e1

WHERE EXISTS (SELECT \* FROM EMPLOYEES e2 WHERE e2.salary < e1.salary AND e2.dept\_id=10);

σ (∃(σ dept\_id=10 EMPLOYEES) (salary > salary EMPLOYEES)) EMPLOYEES

**Q4. You need to find out all the employees who have salary lesser than the salary of all the employees in the department 10.**

SELECT \* FROM EMPLOYEES e1

WHERE NOT EXISTS (SELECT \* FROM EMPLOYEES e2 WHERE e2.salary > e1.salary AND e2.dept\_id=10);

σ ¬(∃(σ dept\_id=10 EMPLOYEES) (salary < salary EMPLOYEES)) EMPLOYEES

**Q5. You need to find out all the employees who have their manager and department matching with the employee having an Employee ID of 121 or 200.**

SELECT \* FROM EMPLOYEES e1

WHERE EXISTS (SELECT \* FROM EMPLOYEES e2 WHERE e2.emp\_id IN (121,200) AND e2.mgr=e1.mgr AND e2.dept\_id=e1.dept\_id);

σ (∃(σ emp\_id=121 or emp\_id=200 EMPLOYEES) (mgr= mgr EMPLOYEES ∧ dept\_id= dept\_id EMPLOYEES)) EMPLOYEES

**Q6. You need to find the department name of an employee with employee ID 200.**

SELECT d.dept\_name FROM DEPARTMENTS d

JOIN EMPLOYEES e ON d.dept\_id=e.dept\_id

WHERE e.emp\_id=200;

π dept\_name ((EMPLOYEES ⨝ dept\_id=dept\_id DEPARTMENTS) ⨝ emp\_id=200 EMPLOYEES)

**Q7. You need to find the highest earning employee with the job ID as 'SA\_REP'.**

SELECT \* FROM EMPLOYEES WHERE job='SA\_REP' ORDER BY salary DESC LIMIT 1;

(σ job='SA\_REP' EMPLOYEES) ⟍\_(salary) 1

**Q8. You need to find the job which has at least one employee in it.**

SELECT DISTINCT job FROM EMPLOYEES;

π job (EMPLOYEES)

**Q9. You need to find the job which has no employees in it.**

SELECT DISTINCT job FROM EMPLOYEES

WHERE job NOT IN (SELECT DISTINCT job FROM EMPLOYEES);

π job ((EMPLOYEES) - π job (EMPLOYEES))

**Q10. You need to find the 3rd maximum salary from the EMPLOYEES table.**

SELECT salary FROM EMPLOYEES ORDER BY salary DESC LIMIT 2, 1;

(EMPLOYEES)⟍\_(salary) 3⟍\_(salary) 1