PART A – DATABASE DESIGN

Create a database:

CREATE DATABASE company_db;
USE company_db;

PART B – TABLE CREATION

Create the following tables with constraints:

1. EMPLOYEE

Field Type Constraint

emp_id INT PRIMARY KEY

emp_name VARCHAR(30) NOT NULL

dept_id INT

salary INT CHECK (salary > 0)

city VARCHAR(20)

doj DATE

2. DEPARTMENT

Field Type Constraint

dept_id INT PRIMARY KEY dept_name VARCHAR(30)

UNIQUE

location VARCHAR(20)

3. PROJECT

Field   Type   Constraint   proj_id   INT   PRIMARY   KEY

proj_name VARCHAR(30)

dept_id INT FOREIGN KEY references

DEPARTMENT

4. WORKS_ON

Field Type Constraint

emp_id INT FOREIGN KEY references EMPLOYEE

proj_id INT FOREIGN KEY references PROJECT

hours INT CHECK (hours > 0)

PART C – DATA REQUIREMENTS

Students must insert:

- Minimum **6 employees**
- Minimum **3 departments**
- Minimum **4 projects**
- Minimum **10 records in WORKS_ON**

PART D – QUERIES

LEVEL 1 – BASIC WITH JOINS

1. Display employee name, department name and salary.
2. Display all projects along with their department name.
3. Display employee name, project name and hours worked.
4. List employees working in a particular department (of your choice).

LEVEL 2 – AGGREGATE + JOIN

5. Find total salary paid in each department.
6. Find the number of employees in each department.
7. Display project name and total hours worked on each project.
8. Find average salary department-wise.

LEVEL 3

9. Display details of employees who earn more than the average salary of all employees.
10. Display the employee(s) who earn the **maximum salary**.
11. Display employees who work in the same department as a given employee (use subquery).
12. Display employees who are working on at least one project.
13. Display employees who are **NOT working on any project**.
14. Display department name where the highest salary employee work.

LEVEL 4

15. Display employees whose salary is greater than the average salary of their own department.
16. Find departments where more than 2 employees are working.
17. Display the project having maximum total hours.
18. Display employee name who works on more than one project.
19. Find the department which has the highest total salary.
20. Display employees who work on **all projects of their department**.

LEVEL 5

21. Display employee names who work on the same project as employees with emp_id = 101 (use subquery).
22. Display second highest salary employee.
23. Find employees who earn more than every employee in 'Sales' department.
24. Display project names which have no employees assigned.
25. Find department names where average salary is greater than company average salary.

PART E – UPDATE / DELETE

26. Increase the salary of employees in a particular department by 15%.
27. Delete employees who are not working on any project.
28. Change the department of an employee and reflect in all related tables.