1. Write a relational algebra expression to select all employees from the 'Engineering' department.

Answer: *σ*department\_name=′*Engineering*′​(departments⋈employees).

2. Perform a projection to display only the first names and salaries of all employees.

Answer: *π*first\_name, salary​(employees).

3. Write a relational algebra expression to find employees who are managers.

Answer: *σ*manager\_id IS NOT NULL​(employees).

4. Perform a selection to retrieve employees earning a salary greater than ?60000.

Answer: *σ*salary>60000​(employees).

5. Write a relational algebra expression to join employees with their respective departments.

Answer: departments⋈employees.

6. Perform a Cartesian product between employees and projects.

Answer: employees×projects.

7. Write a relational algebra expression to find employees who are not managers.

Answer: *σ*manager\_id IS NULL​(employees).

8. Perform a natural join between departments and projects.

Answer: departments⋈projects.

9. Write a relational algebra expression to project the department names and locations from departments table.

Answer: *π*department\_name, location​(departments).

10. Perform a selection to retrieve projects with budgets greater than ?100000.

Answer: *σ*budget>100000​(projects).

11. Write a relational algebra expression to find employees who are managers in the 'Sales' department.

Answer: *σ*department\_name=′*Sales*′∧manager\_id IS NOT NULL​(departments⋈employees).

12. Perform a union operation between two sets of employees from the 'Engineering' and 'Finance' departments.

Answer: employeesEngineering​ ∪ employeesFinance​

13. Write a relational algebra expression to find employees who are not assigned to any projects.

Answer: employees−(employees⋈projects).

14. Perform a join operation to display employees along with their project assignments.

Answer: employees⋈projects.

15. Write a relational algebra expression to find employees whose salaries are not within the range ?50000 to ?70000.

Answer: *σ*salary<50000∨salary>70000​(employees).