

Short answer

- 1) State characteristics of database
- 2) Role of DBA
- 3) View of Data
- 4) 3 tier architecture
- 5) Database Users
- 6) Foreign Key
- 7) primary Key
- 8) secondary key
- 9) super key
- 10) candidate key
- 11) rename operation
- 12) set difference
- 13) unions
- 14) Explain View

Long Answer

- 1) Consider a database used to record the marks that students get in different exams of different course offerings. Draw the E-R diagram
- 2) Design an E-R diagram for keeping track of the exploits of your favourite sports team. You should store the matches played, the scores in each match, the players in each match and individual player statistics for each match. Summary statistics should be modeled as derived attributes.
- 3) Define the concept of aggregation. Draw an example of ER diagram of where this concept is useful.
- 4) Consider a university database for the scheduling of classrooms for final exams. This database could be modeled as the single entity set exam, with attributes course-name, section-number, room-number, and time. Alternatively, one or more additional entity sets could be defined, along with relationship sets to replace some of the attributes of the exam entity set, as
 - course with attributes name, department, and c-number
 - section with attributes s-number and enrollment, and dependent as a weak entity set on course
 - room with attributes r-number, capacity, and buildingShow an E-R diagram illustrating the use of all three additional entity sets listed.

5) Evaluate the following Queries by considering the Loan and Borrower table given below.

Loan(Branch Name, Loan_no, Amount)

Borrower(Customer_Name, Loan_no)

(i) Find the names of all the customers who have a loan at the Perryridge branch.

(ii) Find the names of all customers who have loan at the bank, and find the amount of loan using Natural join

6) Suppose we have the following relational database:

employee (person name, street, city)

works(person name, company name, salary)

company (company name, city)

(a) Find the names of all employees who live in city 'Miami'.

(b) Find the names of all employees whose salary is greater than \$100,000.

(c) Find the names of all employees who live in 'Miami' and whose salary is greater than \$100,000.

7) employee (person-name, street, city)

works (person-name, company-name, salary)

company (company-name, city)

manages (person-name, manager-name)

a. Find the names of all employees who work for First Bank Corporation.

b. Find the names and cities of residence of all employees who work for First Bank Corporation.

c. Find the names, street address, and cities of residence of all employees who work for First Bank Corporation and earn more than \$10,000 per annum.

d. Find the names of all employees in this database who live in the same city as the company for which they work.

- e. Find the names of all employees who live in the same city and on the same street as do their managers.
- f. Find the names of all employees in this database who do not work for First Bank Corporation.
- g. Find the names of all employees who earn more than every employee of Small Bank Corporation.
- h. Assume the companies may be located in several cities. Find all companies located in every city in which Small Bank Corporation is located.