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# **Department of Computer Science & Engineering**

**QUESTION BANK FOR VSEMESTER (Term: Oct 2021 – Feb 2022)**

**Database Systems Laboratory (CSL57)**

**I.A. Marks: 50 Exam Hours: 03**

**Credits: 0:0:1 Exam Marks: 50**

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| **Sl. No.** | **Question** |
| 1. a) | Consider the Employee database given below. The primary keys are underlined.  Assume relevant data types for attributes.  EMPLOYEE (employee-name, street, city)  WORKS (employee-name, company-name, salary)  COMPANY (company-name, city)  MANAGES (employee-name, manager-name)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.  1. Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than $10,000.  2. Find the names of all employees in the database who live in the same cities as the companies for which they work.  3. Find the average salary company wise and display it with the heading “Average Salary”. |
| 1.b) | Consider a restaurant database with the following attributes -  Name, address – (building, street, area, pincode), id, cuisine, nearby landmarks, online delivery- yes/no, famous for (name of the dish)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List the name and address of all restaurants in Bangalore with Italian cuisine 2. List the name, address and nearby landmarks of all restaurants in Bangalore where north Indian thali(cuisine) is available. |
| 2. a) | Consider the Order-Shipment database given below. The primary keys are underlined. Assume relevant data types for attributes.  CUSTOMER (cust #, cname, city)  ORDER (order #, odate, cust #, ord-Amt)  ORDER – ITEM (order #, Item #, qty)  ITEM (item #, unit price)  SHIPMENT (order #, warehouse#, ship-date)  WAREHOUSE (warehouse #, city)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. List the no. of order placed by customer no. 5. 2. List customer details who have the largest order amount. 3. List the names of customers who have ordered at least 10 items. |
| 2. b) | Consider a restaurant database with the following attributes -  Name, address – (building, street, area, pincode), id, cuisine, nearby landmarks, online delivery- (yes/no), famous for (name of the dish)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List the name, address and nearby landmarks of all restaurants in Bangalore where north Indian thali(cuisine) is available 2. List the name and address of restaurants and also the dish the restaurant is famous for, in Bangalore. |
| 3.a) | Consider the Employee database given below. The primary keys are underlined.  Assume relevant data types for attributes.  EMPLOYEE (employee-name, street, city)  WORKS (employee-name, company-name, salary)  COMPANY (company-name, city)  MANAGES (employee-name, manager-name)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. Find the names of all employees in the database who live in the same cities and on the same streets as do their managers. 2. Find the names of all employees in the database who do not work for 'First Bank Corporation‘ 3. Find the names of all employees in the database who earn more than every employee of 'Small Bank Corporation'. Assume that all people work for at most one company. |
| 3.b) | Consider a restaurant database with the following attributes -  Name, address – (building, street, area, pincode), id, cuisine, nearby landmarks, online delivery- (yes/no), famous for (name of the dish)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List the name, address and nearby landmarks of all restaurants in Bangalore where north Indian thali(cuisine) is available. 2. List the name and address of restaurants and also the dish the restaurant is famous for, in Bangalore where online delivery is available. |
| 4.a) | Consider the Bank database given below. The primary keys are underlined. Assume relevant data types for attributes.  BRANCH (branch\_name, branch\_city, assets)  CUSTOMER (customer\_name, customer\_street, customer\_city)  ACCOUNT (account\_number, branch\_name, amount)  LOAN (loan\_number, branch\_name, amount)  DEPOSITOR (customer\_name, account\_number)  BORROWER (customer\_name, loan\_number)  EMPLOYEE (employee\_name, branch\_name, salary)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. Find the names of all customers whose balance is less than 500. 2. Find all employees whose salary is greater than 1400 and working branch is not ‘Downtown’ 3. Calculate the average salary of all employees and display the average salary as “Avg\_Salary” |
| 4.b) | Consider a Tourist places database with the following attributes -  Place, address – (state), id, tourist attractions, best time of the year to visit, modes of transport (include nearest airport, railway station etc), accommodation, food - what not to miss for sure  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the tourist places of Karnataka. 2. List the tourist attractions of Kerala. Exclude accommodation and food. |
| 5.a) | Consider the Order-Shipment database given below. The primary keys are underlined. Assume relevant data types for attributes.  CUSTOMER (cust #, cname, city)  ORDER (order #, odate, cust #, ord-Amt)  ORDER – ITEM (order #, Item #, qty)  ITEM (item #, unit price)  SHIPMENT (order #, warehouse#, ship-date)  WAREHOUSE (warehouse #, city)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. List the number of orders placed by each customer. 2. List the customer names who have not ordered for item no. 10. 3. List the names of customers who have ordered at least 10 items. |
| 5.b) | Consider a Tourist places database with the following attributes -  Place, address – (state, id), tourist attractions, best time of the year to visit, modes of transport (include nearest airport, railway station etc.), accommodation, food - what not to miss for sure  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List the tourist attractions of Kerala. Exclude accommodation and food. 2. List the places sorted state wise. |
| 6.a) | Consider the Bank database given below. The primary keys are underlined. Assume relevant data types for attributes.  BRANCH (branch\_name, branch\_city, assets)  CUSTOMER (customer\_name, customer\_street, customer\_city)  ACCOUNT (account\_number, branch\_name, amount)  LOAN (loan\_number, branch\_name, amount)  DEPOSITOR (customer\_name, account\_number)  BORROWER (customer\_name, loan\_number)  EMPLOYEE (employee\_name, branch\_name, salary)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. Find the names of all customers whose city is not Brooklyn. 2. Find the names of all customers who have taken loans. 3. Display all account numbers, branch name and corresponding branch city. |
| 6.b) | Consider a Tourist places database with the following attributes -  Place, address – (state, id), tourist attractions, best time of the year to visit, modes of transport (include nearest airport, railway station etc), accommodation, food - what not to miss for sure  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the tourist places of Karnataka 2. List the places sorted state wise |
| 7.a) | Consider the Order-Shipment database given below. The primary keys are underlined. Assume relevant data types for attributes.  CUSTOMER (cust #, cname, city)  ORDER (order #, odate, cust #, ord-Amt)  ORDER – ITEM (order #, Item #, qty)  ITEM (item #, unit price)  SHIPMENT (order #, warehouse#, ship-date)  WAREHOUSE (warehouse #, city)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. List item numbers and their quantity for order number 5. 2. Display the average order amount for day wise orders. 3. List the number of orders placed by each customer. |
| 7.b) | Consider a Movie database with the following attributes -  Actor\_name, Actor\_id, Actor\_birthdate, Director\_name, Director\_id, Director\_birthdate, film\_title, year of production, type (thriller, comedy, etc.)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the movies acted by John in the year 2018. 2. List only the actors names and type of the movie directed by Ram. |
| 8.a) | Consider the Employee database given below. The primary keys are underlined.  Assume relevant data types for attributes.  EMPLOYEE (employee-name, street, city)  WORKS (employee-name, company-name, salary)  COMPANY (company-name, city)  MANAGES (employee-name, manager-name)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. Find the names, street address, and cities of residence for all employees who work for 'First Bank Corporation' and earn more than $10,000 and less than $20,000. 2. Find the names of all employees in the database who live in the same cities as the companies for which they work. 3. Find the names of all employees in the database who earn more than every employee of 'Small Bank Corporation'. Assume that all people work for at most one company. |
| 8.b) | Consider a Movie database with the following attributes -  Actor\_name, Actor\_id, Actor\_birthdate, Director\_name, Director\_id, Director\_birthdate, film\_title, year of production, type (thriller, comedy, etc.)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the movies acted by John and Elly in the year 2012. 2. List only the name and type of the movie where Ram has acted sorted by movie names. |
| 9.a) | Consider the Order-Shipment database given below. The primary keys are underlined. Assume relevant data types for attributes.  CUSTOMER (cust #, cname, city)  ORDER (order #, odate, cust #, ord-Amt)  ORDER – ITEM (order #, Item #, qty)  ITEM (item #, unit price)  SHIPMENT (order #, warehouse#, ship-date)  WAREHOUSE (warehouse #, city)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. List the number of orders placed by customer no. 5. 2. Find the total order amount for each day. 3. List the customer details who has the largest order amount. |
| 9.b) | Consider a Movie database with the following attributes -  Actor\_name, Actor\_id, Actor\_birthdate, Director\_name, Director\_id, Director\_birthdate, film\_title, year of production, type (thriller, comedy, etc.)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the movies acted by John in the year 2018. 2. List only the actors names and type of the movie directed by Ram. |
| 10.a) | Consider the Bank database given below. The primary keys are underlined. Assume relevant data types for attributes.  BRANCH (branch\_name, branch\_city, assets)  CUSTOMER (customer\_name, customer\_street, customer\_city)  ACCOUNT (account\_number, branch\_name, amount)  LOAN (loan\_number, branch\_name, amount)  DEPOSITOR (customer\_name, account\_number)  BORROWER (customer\_name, loan\_number)  EMPLOYEE (employee\_name, branch\_name, salary)  Create the above tables in SQL. Specify primary and foreign keys properly. Enter at least 5 tuples in each table with relevant data. Solve the following queries.   1. Find the names of all customers who have not taken loans. 2. Display all loan numbers sorted by branch. 3. Display the names of Employees who earn the maximum salary. |
| 10.b) | Consider a Movie database with the following attributes -  Actor\_name, Actor\_id, Actor\_birthdate, Director\_name, Director\_id, Director\_birthdate, film\_title, year of production, type (thriller, comedy, etc.)  Create 10 documents with data relevant to the following questions. Write and execute MongoDB queries:   1. List all the movies acted by John and Elly in the year 2012. 2. List only the name and type of the movie where Ram has acted, sorted by movie names. |

**Note:**

* **Student is required to solve one problem including both PART-A and   
  PART-B.**
* **The questions are allotted based on lots.**

**Marks Distribution:**

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| **Conduction and Result** | **Write-Up** | **Execution** | **Viva/Demo** | **Change of Question** | **Total** |
| **Part – A** | **05** | **25** | **07** | **-5 Marks for each Part A and Part B** | **50 Marks** |
| **Part – B** | **03** | **10** |