Unit 1: File structure and organization

Q.1 Short answer question **[2*10=20M]**

1. What are logical and physical files?
2. Explain object and physical files.
3. Explain Basic file operation.
4. What is file organization? Explain the sequential file organization.
5. What do you mean by Indexing? Explain sparse Indexing.
6. What is file? Explain file structure.
7. Explain the Dense and sparse Index.
8. Explain sequential file organization.
9. What are Hashed files?
10. What is file and what are different types of files?

Important Question

Q.2 Long answer. **[4*10=40M]**

1. What is the effect of file size on the choice of file organization?
2. What are different types of records?
3. What is an Index and explain its types?
4. Explain Index file organization.
5. Explain field structure in brief.
6. Explain different types of indexes with example.
7. Write advantages and disadvantages of index file organization.
8. Explain field structure in brief.
9. Compare variable-length record and fixed length record.
10. Explain different types of indexed with example.

Unit 2: Database Management system.

Q.1 Short answer question [2*10=20M]

1. List various users of DBMS and specify their jobs.

2. Explain advantages and disadvantages of DBMS.

3. Explain the term entity.

4. What do you mean by data model? Explain entity relationship data model with example.

5. Differentiate between Network model and Relational model.

6. Write a note on Relational model and Hierarchical model.

7. Explain the following terms with example:

1. Generalization.

2. Specialization.

8. Explain the role of a DBA.

9. Write a short note on Data Abstraction.

10. What are the different types of relationship?

Q.2 Long answer. **[4*10=40M]**

1. "Star" is an agency for flat booking and it has number of builders and agents who are jointly working. A customer can get a flat for residential or commercial Purpose. If customer is approached through an agent the agency and builders are giving some commission to the agent. Agent shows various flats and sites within various locations.

Study the case and do the following:

1. Identify all entities.

2. Identify all relationships.

3. Draw ER diagram.

2. Design database for banking enterprise which records information about an employee of the bank can be customer of bank.

There are two types of accounts, saving and current account.

A database should provide the following details:

1. Identify all entities.
2. Identify all relationship.
3. Draw ER Diagram.

3.'ABC' is ice-cream manufacturing firm having many distributors located in different area. Marketing manager would like to know the demand of products in market and so what discount strategies should be followed and also how much sale perform by each marketing representative. A database should provide the following details:

1. Identify all entities.
2. Identify all relationship.
3. Draw ER Diagram.
4. What are strong and weak entities?
5. Explain Aggregation and Generalization.
6. Explain Data Models and explain any one detail.
7. What are the different types of relationship?
8. Explain the views of Database Management system
9. Write a short note on Data Abstraction.
10. Explain the following terms:

- Record-
- Data Dictionary

Unit 3 : Relational Model

Q.1 Short answer question [2*10=20M]

1. Define the term:
    1. Attribute.
    2. Cardinality.
2. Define the term:
    1. Primary Key.
    2. Foreign Key.
3. Define the term.
    1. Candidate Key.
    2. Super Key.
4. Explain Unary and Binary relations.
5. Explain the Natural join and Cartesian product with example.
6. Explain select and project operations in Relational Algebra.
7. What is Domain and Cardinality? Explain with suitable example.
8. Define entity and attributes and explain its types.
9. Explain the terms Tuple.
10. What is Domain and cardinality?

Q.2 Long answer. **[4*10=40M]**

1) Consider the following Entities and Relationships [30 Marks]

Customer (cust_no, cust_name, address, city)

Loan (loan_no, loan_amt)

Relation between Customer and Loan is Many to Many

Constraint: Primary key, loan_amt should be > 0.

Create a Database in 3NF & write queries for following.

- Find details of all customers whose loan is greater than 10 lakhs.
- List all customers whose name starts with 'ba'.
- List names of all customers in descending order who has taken a loan in Nasik city.
- Calculate total of all loan amount.

2) Consider the following relational database:

Customer (Cno,cname,city)

Quotation(qno,qdate, description, amt,cno) customer and quotation are related with one many relationship.

Write queries

1. Display customer names having quotation for ‘LCD’
2. List all the customer bearing quotation dated “20 May 2010”
3. List all the customer who live in ‘M.P’ or ‘U.P’
4. Display customers of amt 15,000

3. Consider relational database:

Room (roomno, desc, rate)

Guest (gno, gname, no_of_days)

Relation between Room and Guest is One to One.

Constraint: Primary key, no of days should be > 0.

Create a Database in 3NF & write queries for following.

1. Display room details according to its rates in ascending order.
2. Find the names of guest who has allocated room for more than 3 days.
3. Find no. of AC rooms.
4. Display total amount for NON-AC rooms.
5. Find names of guest with maximum

4. What is a select operation? How it is represented? Explain with an example.

5. Enlist the steps followed for conversion of ER to relational model.

6. What is an attribute? Explain with it types.

7. Explain select and project operation in Relational algebra.

8. Consider the database and write relational algebraic expression

Patient Master (Patient No. Patient Name, Sex, Address, Allergy, Chief complaints)

1. Display all patients whose allergy is “Nimesulide”.
2. Display all male patients from city Calcutta.
3. Update all patients whose sex is “M” with “Male”.
4. List all patients whose chief complaint is “fever”.

9. Consider the following Entities and Relationships [30 Marks]

Book (Book_no, title, author, price, year_published)

Customer (cid, cname, addr)

Relation between Book and Customer is Many to Many with quantity as

descriptive attribute.

Constraint: Primary key, price should be >0.

Create a Database in 3NF & write queries for following.

- Display customer details from ' Mumbai'
- Display author wise details of book.
- Display all customers who have purchased the books published in the year
- 2013.
- Display customer name that has purchased more than 3 books.
- Display book names having price between 100 and 200 and published in the
- year 2013.

10. What is Domain and Cardinality? Explain with suitable example.

Unit 4: SQL

Q.1 Short answer question [2*10=20M]

1. List various DDL commands. Explain any one with example.
2. What is different aggregate function in sql.
3. Explain Group by function.
4. What is DML? Explain any one with example.
5. Explain the following operations.

1. String operations.
2. Predicates and join.

6. Explain the terms of 'Order by'
7. Define the terms DDL, DML
8. Define the terms predicate, varchar, constraint, primary key
9. Define key foreign key, unique key.
10. Explain set comparison operation

Q.2 Long answer. **[4*10=40M]**

1. How tables are created and maintained by using SQL.

2. How database manipulation is carried out using SQL.

3. What are nested queries? How would you use the operators, IN,EXISTS, UNIQUE , ANY,ALL in writing nested queries?

4. Consider the following database.

Customer (cust_no,cust_name,addr)

Plant (plant_code,pl_name,pl_type,pl_cost)

Nutrients (N_name,N_quantity,time)

Customer and plants are related with one-to – many and plant and nutrients are also related with one- to many relationship

Create RDB and answer following queries.

1. List the customer who purchase plant ‘rose’
2. List the plants whose cost is more than Rs 500/-
3. List all those plants to which nutrient ‘manure’ is given.

5. Explain Referential Integrity with example.

6. Explain the various DML commands with examples.

7. Explain the following operation

1. String operation

2. Predicates and join

3. Set membership

4. Aggregate function

8. What is grouping? Discuss the interaction of the having and where clauses.

9. How database manipulation is carried our using SQL.

10. Explain the syntax of ALTER table.

Unit 5: Relational Database Design

Q.1 Short answer question **[2*10=20M]**

1. Define terms RDBMS
2. Define Normalization.
3. What is data dependency?
4. What is decomposition in DBMS?
5. Define Redundancy, data integrity.
6. Define normal form.
7. Define decomposition.
8. Which are needs of normalization?
9. Define the normalization rules of BCNF
10. Define the normalization rules of 2NF

Important Question

Q.2 Long answer. [4*10=40M]

1. Write a note on normalization.
2. Explain the normalization process.
3. Explain different anomalies related with normalization.
4. Explain BCNF with suitable example
5. Explain 1 NF with suitable example
6. Explain 2NF with suitable example.
7. Explain 3 NF with suitable example.
8. Explain update anomaly with suitable example.
9. Explain different anomalies related with normalization.
10. Consider a relational database customer.
    Customer(cno,cname ,city,branch,br_no,loan_no,loan_amt,assets)
    Decompose this relation into sub relation.