SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR

Siddharth Nagar, Narayanavanam Road – 517 583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: Database Management Systems (16MC807)   **Course & Branch:** MCA

Year & Sem: I Year & II Sem   **Regulation:** R16

Question Bank (Descriptive)

UNIT–I: Introduction to Database Systems

1. Define Database and DBMS. Explain the importance of database design   12M
2. What are the problems in file system data management? Explain in detail with relevant example.   12M
3. A. Define Data Model. Explain the importance of data models.   7M
    B. Write briefly about business rules while data modeling.   5M
4. A. What are the different types of data model? Explain each briefly.   6M
    B. Briefly explain basic building blocks of data modeling.   6M
5. Explain the Three Schema Architecture of a database with neat diagram   12M
6. What are the various components of a DBMS? Explain with neat diagram   12M
7. Define E/R Model. Explain the following: 3M
    a. Entities and Relationships   4M
    b. Attributes and different types of attributes in details   5M
8. Write about the following:
    a. Query Processor   4M
    b. Data Manipulation Language Processor   4M
    c. Data Dictionary   4M
9. Write about the following:
    a. Simple Attribute   3M
    b. Derived Attribute   3M
    c. Multi-Valued Attribute   3M
    d. Composite Attribute   3M
10. Write about various notations of E/R diagram   12M

UNIT–II: Relational Data Model

1. A. Explain Relational Data model and its concepts   5M
    B. Briefly explain different types of keys in Relational data model   7M
2. Describe about various keys in relational model. Explain in detail.   12M
3. What are the different types of Relation Algebra Operators? Explain in detail 12M

4. Explain the following:
   a. Tuple Relational Calculus   6M
   b. Domain Relational Calculus   6M
5. Draw an ER diagram for the relations Employee and Department with relevant relationships.
                                                                         12M

6. Explain the following terms:
   a. Required and optional attribute   3M
   b. Identifiers   3M
   c. Composite identifier   3M
   d. Simple and Composite attribute   3M
7. Explain the following briefly:
   a. Entity integrity   6M
   b. Referential Integrity   6M
8. Explain the differences between the following:
   a. Super key   3M
   b. Candidate key   3M
   c. Primary key   3M
   d. Secondary key   3M
9. Explain about integrity rules in detail.   12M
10. Discuss about Codd's relational database rules in brief.   12M

UNIT–III: Structured Query Language (SQL)

1. Explain various Data Definition Commands in details with syntax& examples   12M
2. Briefly explain about Data Manipulation Commands with syntax and examples.   12M
3. Explain Aggregate functions, GROUP BY, HAVING Clause with example.   12M
4. What you meant by Nested, Correlated & Uncorrelated queries?   6M
   Explain with suitable examples?   6M
5. Explain SELECT query using Relational and Logical with syntax and examples. 12M
6. Classify SQL Functions. Explain numeric functions with explanations.   12M
7. Explain advanced SELECT Queries with examples.   12M
8. Write queries using Relational Set operators and SQL Join operators.   12M
9. Write queries using Sub queries and correlated queries.   12M
10. Discuss about different advanced Data Definition Commands.   12M

UNIT–IV: Dependencies and Normalforms

1. What are the problems caused by Redundancy? Explain about Normalization and need for
   normalization.   12M
2. A. Define Functional Dependencies.   3M
   B. Discuss about different functional dependencies   9M
3. Define Normalization.   3M
   Explain about 1NF, 2NF with relevant examples.   9M
4. Explain about 3NF and BCNF with relevant table structure.   12M
5. Discuss about higher level normal forms with suitable table.   12M

6. Explain the following terms:
   a. Fully functional Dependencies   6M
   b. Transitive Dependencies   6M
7. Discuss about schema refinement in database design.   12M
8. Explain the following: Multi-valued dependencies and fourth normal forms.   12M
9. Explain the steps to improving the design.   12M
10. Discuss about renormalization in detail.   12M

UNIT–V: Data Storage and Indexes

1. What is meant by File Organization? Briefly discuss different types of file organization 12M
2. Write about Index file organization. Explain various index structures   12M
3. Discuss about Hashing in detail. Write merits and demerits   12M
4. Discuss about B-Tree. Write applications, merits and demerits of B+TREE.   12M
5. What is transaction? Explain the ACID Properties with neat diagram.   12M
6. Define Concurrency control. Explain different concurrency control.   12M
7. Explain various concurrent control mechanisms in detail.   12M
8. Explain lock-based concurrency control mechanisms with diagram in detail.   12M
9. Explain about concurrency control based on time-stamp ordering.   12M
10. Explain log-Based Recovery in detail.   12M

Prepared by

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