SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517 583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Database Management Systems (18MC9108) **Course & Branch :** MCA

Year & Sem : I Year & II Sem **Regulation:** R18

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 Normal forms

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

Dr. A. Swarupa Rani

(Dept. of MCA)