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Department of Computer Science and Engineering

## **DATA BASE MANAGEMENT SYSTEMS (R13)**

### **QUESTION BANK**

#### **UNIT-I**

1. Make a comparison between Database system and File system. Explain the drawbacks of traditional file processing systems with examples.
2. What is a Data Model? Explain about a Relational Data Model.
3. Explain the three levels of data abstraction. Discuss functions of a Database Administrator in detail?
4. What are the different data models present and explain briefly?
5. Explain the merits and demerits of data base system.
6. What are the types of languages a database system provides? Explain with examples.
7. Explain the different types of integrity constraints with suitable examples.
8. What is storage manager? Briefly describe the components of storage manager.
9. What are the main components of a DBMS? Briefly explain them.
10. Describe the different types of Database users in detail.
11. Discuss Centralized and Client Server architecture for the database.
12. Explain in detail the Concept of Schema, Instance and data independence.

## UNIT-II

1. What is a Relational model? Discuss in detail.
2. Explain in detail about various Key constraints used in Database systems.
3. Explain the importance of Null values in Relational model.
4. Discuss in detail the operators SELECT, PROJECT, UNION with suitable example?
5. Explain about different DML operations.
6. What is the difference between a candidate key and a primary key for a given relation?
7. List the different types of attributes and explain in detail.
8. What is physical data independence? Briefly describe declarative DMLs.
9. What is an integrity constraint? Briefly describe different integrity constraints.
10. What is the difference between DELETE, TRUNCATE and DROP statements in SQL?
11. Discuss about SQL data types.

## UNIT-III

1. Explain the several choices and issues involved in Conceptual design with ER Model.
2. What are the two types of constraints in E.R diagram? Explain.
3. What is weak entity? With an example briefly describe Binary Vs Ternary relationships.
4. What is a view? What is data independence? In what way view is related to data independence?
5. Construct an ER diagram for university registrar's office. The office maintains data about each class, including the instructor, the enrollment and the time and place of the class meetings. For each student class pair a grade is recorded. Determine the entities and relationships.

6. Explain the following:
  - a) Ternary relationship, b) Weak entity set, c) Grouping, d) Aggregation.
7. With an example, briefly describe Entity vs Relationship and Entity vs Attribute.
8. What is relationship? Briefly describe the additional features of ER model.
9. Why is designing a Database for large Enterprise especially hard? Explain.
10. What are the SQL constructs to modify the structure of tables and destroy tables and views? Describe what happens when destroy a view.
11. What is join operation and why it is required? With an example, briefly describe condition join, natural join and equijoin.
12. What is an embedded SQL? Give examples.
13. With examples and syntax, briefly describe SQL aggregate operators.

#### **UNIT-IV**

1. What is dependency preservation? With an example, briefly describe functional dependencies.
2. What is decomposition and how it is related to redundancy? What problems may be caused by the use of decomposition?
3. What is functional dependency? Why some functional dependencies are called trivial?
4. What is attribute closure? Briefly describe about Armstrong's axioms.
5. What is lossless join? Briefly describe problems caused by redundancy.
6. Explain about Boyce-Codd normal form with an example.
7. Explain the concept of functional dependency with an example.
8. What is BCNF? What is the motivation for putting a relation in BCNF? What is the motivation for 3NF? In what way 3NF is different from BCNF.

9. Explain the 4NF. Why is it useful? Explain with example.
10. What is dependency? Briefly describe about multi-valued dependencies and Fourth Normal Form.

## UNIT-V

1. List the ACID properties. Explain the importance of each.
2. How the use of 2PL would prevent interference between two transactions.
3. What is log in DBMS? How does check point eliminate some of the problems associated with log based recovery?
4. Describe each of the following locking protocols:
  - a) 2PL. b) Strict 2PL. c) Conservative
5. What are triggers? Briefly describe uses of triggers.
6. When a system recovers from a crash? In what order must transaction be Undone and Redone? Why is this order important?
7. What are different Recovery Techniques used in Transaction Failures?
8. What is Serializability? With an example briefly describe conflict Serializability.
9. Explain the concept of transaction atomicity.
10. How does the two phase locking protocol ensures serializability.
11. Explain in detail about advanced recovery and Remote backup systems.

## UNIT-VI

1. Explain Heap File Organization with unclustered index.
2. Explain the differences between static hashing and dynamic hashing.

3. What is stable storage? Briefly describe stable storage implementation.
4. What is a heap file? What is data entry? What is an index? List the three main alternatives for what to store as a data entry in an index.
5. Briefly describe Tree-structured index.
6. What is hashing? With a neat diagram, briefly describe tree based indexing.
7. What is file organization? Describe the operations to consider for comparing file organizations.
8. Briefly describe heap files and sorted files.
9. What is indexed file organization? Briefly describe clustered indexes.
10. What is primary index? In what way primary index is different from secondary and unique indexes? Briefly describe hash based indexing.
11. Explain the distinction between closed and open hashing. Discuss the relative merits of each technique in database applications.
12. Explain about Variable-Length file organization with an example.
13. List the physical storage media available on the computers you use routinely. Give the speed with which data can be accessed on each medium.