GEETHANJALI INSTITUTE OF SCIENCE AND TECHNOLOGY-NELLORE

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

II-YEAR-II-SEMESTER

DATABASE MANAGEMENT SYSTEM

UNIT-WISE LONG ANSWER QUESTIONS

UNIT-I

1. Define a Data Model. Explain about the different types of Data Models

2. Explain about Database Architecture or Explain about the System Structure of data base Management System.

3. Explain about the types of Database Users

4. Explain about the functions of DBA(Data Base Administrator)

5. Explain about Relational Algebra Operations

6. Explain about Tuple Relational Calculus

7. Explain about Domain Relational Calculus

8. Define a Key. Explain about the different types of Keys

9. Explain about the advantages of Database Management Systems over File Systems

10. Explain about the applications of Database Systems.

11. Define Data Abstraction and explain about the types of Data Abstraction

12. Define RDBMS. Explain about E.F.Codd Rules

13. Define Relational Model. Explain about the Relational Model

14. Explain about Database Design

15. Define the following terms

a. Data

b. Information

c. Database

d. Database Management System

e. Relation schema

f. Relation instance

UNIT-II

1.Explain about different types of SQL commands

2. Explain about the Set operations of SQL with examples.

3.Explain about the different types of Joins in SQL with examples.

4. Explain about different types of Integrity Constraints

5.Differntiate between Theta Join, Equii Join and Self Join

6. Explain about Aggregate Functions in SQL with examples.

7.Explain about the following clauses in SQL with examples.

a. Group by

b. Order by

c. Having

d. Exists

e. Any

8. Define a Procedure. Explain about the syntax for creating a Procedure and calling a procedure.

9. Define a Function. Explain about the syntax for creating a Function and calling a function

10. Define a Trigger. Explain about the different types of Triggers

11. Explain about the following

a. Nested Sub Queries

b. Correlated Sub Queries

c. Recursive Queries

12.Define a View. Explain about different types of views

13.Define Referential Integrity. Explain about it with an Referential Integrity

14. Explain about Dynamic SQL

15. Explain about Embedded SQL

UNIT-III

1. Define an E-R Model. Explain about the different symbols used in E-R model.

2. Define the following

a. Entity

b. Entity Set

c. Attribute

d. Simple Attribute

e. Composite Attribute

f. Derived Attribute

g. Multi valued Attribute

h. Relationship

i. Strong Entity Set

j. Weak Entity Set

3. Draw an E-R Diagram for banking enterprise and convert it into relational Model.

4. Draw an E-R Diagram for University

5. Define Normalization. explain about the different types of Normal Forms

6. Explain about Functional Dependency, Multi valued Dependency and Join Dependency with examples.

7.Differentiate between BCNF and 3 NF.

8. Explain about 3NF with an example

9.Define Dependency Preservation. Write an algorithm for Dependency Preservation.

10.Explain the algorithm for finding the Closure of a set of Functional dependencies.

11. Explain the algorithm for finding the Closure of a set of attributes.

12. Explain the algorithm for finding the Canonical Cover of a set of Functional dependencies.

13. Explain about Armstrong's Rules of Inference.

14. Define Decomposition of a Relation. Explain about the different types of decomposition.

15. Explain about Lossless Join decomposition.

UNIT-IV

1. Define Query Processing. Explain about the steps involved in Query Processing

2. Explain about the equivalence rules involved in transforming relational algebra expressions

3. Define Query Optimization. Explain about the different types of Query Optimization.

4. Define Query Cost. Explain about the factors that contribute to the query cost.

5. Explain about the following

a. Selection size estimation

b. Join size estimation

c. Projection size estimation

6. Explain about the process of converting a SQL query into relational algebra expression tree.

7. Explain about the different types of joins implemented in query processing

8. Explain about the different types of selection methods implemented in query processing.

9. Define DBMS Catalog. Explain about the information stored in DBMS Catalog.

10. Explain about Cost based Query Optimization

11. Explain about Heuristic based Query Optimization

12. Explain about Materialized Views

UNIT-V

1. Define a Transaction. Explain about the ACID properties of transactions.

2. Explain about the different states of a transaction with a neat diagram.

3. Define a Schedule. Explain about the different types of schedules with examples.

4. Define Conflict Serializable Schedule and explain about it with an example

5. Define View Serializable Schedule and explain about it with an example

6. Define a lock. Explain about the different types of locks and lock compatibility matrix.

7. Explain about Two-Phase Locking with an example.

8. Define Deadlock. Explain about Deadlock Prevention

9. Explain about Deadlock Detection and Recovery

10. Explain about Tree based Protocol.

11. Explain about Time stamp based ordering protocol

12. Explain about Validation based Protocol.

13. Explain about Multiple Granularity

14. Explain about ARIES recovery Algorithm

15. Explain about Log-based Recovery

16. Define a Failure and explain about different types of failures

17.Explain about Stable Storage System.

18. Define the following

a. Recoverable schedule

b. Cascade less schedule

c. Thomas Write Rule

d. Phantom phenomenon

e.Check Point

f. Fuzzy checkpoint

g. Dirty Page

19. Explain about the implementation of Atomicity and Durability