DBMD Sample Question Paper - II

Sample Question Paper 2

END TERM EXAMINATION
SIXTH SEMESTER [B.TECH] JUNE 2024
Paper Code: CIE-316 Subject: Database Modelling & Design
Time: 3 Hours Maximum Marks: 75

Note: Attempt five questions in all including question no.1 which is compulsory. Select one question from each unit.

Q1. Attempt all parts: (3x5=15 Marks)

a) List three advantages of using a Database Management System (DBMS).

b) Differentiate between a candidate key and a primary key.

c) Briefly describe the purpose of DCL (Data Control Language) commands with examples of `GRANT` and `REVOKE`.

d) Explain the concept of cardinality ratio and participation constraint in ER modeling.

e) How is a 1:N (One-to-Many) relationship mapped into relational tables? Provide an example.

UNIT-I

(Attempt one question from this unit)

Q2.

a) Discuss the different components of a database system environment with a neat diagram. **(8 Marks)**

b) Explain the concept of weak entity types in ER modeling. How are they identified and represented? Give an example. **(7 Marks)**

OR

Q3.

a) Elaborate on the Enhanced Entity-Relationship (EER) model concepts, including specialization, generalization, and aggregation. Provide examples for each. **(8 Marks)**

b) Explain "Connection Traps" (Fan trap and Chasm trap) in ER modeling. How can they be resolved? **(7 Marks)**

UNIT-II

(Attempt one question from this unit)

Q4.

a) How are specialization/generalization constructs from an EER model mapped to a relational schema? Discuss different strategies. **(8 Marks)**

b) Design an ER diagram for a "University Registration System" including entities like Student, Course, Instructor, and Enrollment. Map this ER diagram to a logical relational schema. **(7 Marks)**

OR

Q5.a

a) Explain Boyce-Codd Normal Form (BCNF) and Fourth Normal Form (4NF). Why is BCNF considered stricter than 3NF? Provide examples. **(8 Marks)**

b) What are insertion, deletion, and update anomalies? How does normalization help in overcoming these anomalies? **(7 Marks)**

UNIT-III

(Attempt one question from this unit)

Q6.

a) Explain the `ALTER TABLE` and `DROP TABLE` DDL commands in SQL with their various options and suitable examples. **(8 Marks)**

b) Discuss the operations involved in using a cursor (DECLARE, OPEN, FETCH, CLOSE, UPDATE/DELETE WHERE CURRENT OF). **(7 Marks)**

OR

Q7.

a) Explain INSTEAD OF triggers and DDL triggers. Provide use cases for each. **(8 Marks)**

b) What are stored procedures and functions in a database? Discuss their advantages. **(7 Marks)**

UNIT-IV

(Attempt one question from this unit)

Q8.

a) What are the guidelines for selecting which attributes to index in a database to optimize query performance? **(8 Marks)**

b) Discuss how views can be used as a security mechanism in databases. Explain row-level and column-level security using views. **(7 Marks)**

OR

Q9. Write short notes on any three of the following: (5x3=15 Marks)

a) Database Audit Trails

b) Fourth Normal Form (4NF)

c) Query Optimization basics

d) Composite Indexes

e) Transaction Management (Brief overview of ACID properties)