1311E1129

Candidate's Seat No :_____

B.Sc. (NEP) Sem.-5 Examination
DSC-C-351
Computer Science
November-2025

Time : 2-00 Hours] **[Max. Marks : 50**

[Q-1] a) Discuss the different levels of data abstraction with a neat diagram. **[5]**

b) Describe the components of DBMS architecture. **[5]**

Or

a)Explain Codd's 12 rules for relational databases.

b) Explain business rules and their role in defining database constraints.

[Q-2] a)Write a short note on data independence and its types. **[5]**

b)Explain nested subqueries with examples. **[5]**

Or

a)Explain Transaction Management and the properties of transactions (ACID).

b)Explain views and discuss their advantages and limitations.

[Q-3] a)Explain join operations (inner join, outer join, cross join) with examples. **[5]**

b)Explain the steps of Normalization up to BCNF with suitable examples. **[5]**

Or

a)Write SQL queries for:

Creating a table

Inserting records

Updating and deleting data

Using WHERE clause

b)Discuss SQL aggregate functions with examples.

[Q-4] a) Draw and explain an ER diagram for a "Student–Course–Instructor" database. **[5]**

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b) Differentiate between Relational Algebra and Relational Calculus.**[5]**

Or

a)Discuss various types of constraints in the relational model.

b)Explain the types of data models with examples.

[Q-5] **b) Answer the following. Each question carries 1 marks.[10]**

1.What is data abstraction?

2.Write the full form of ERD.

3.What is a primary key?

4.What is normalization?

5.What is the purpose of a database system?

6.Write the difference between DDL and DML.

7.Define null value in SQL.

8.What is a candidate key?

9. Write one difference between table and view.

10.Write the syntax for SQL SELECT command.

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