

5/06/2023

Time: 3 Hours

Max. Marks: 80

NB:

1. Question No. 1 is compulsory and solve any THREE questions from remaining questions
2. Assume suitable data if necessary
3. Draw clean and neat diagrams

Q.1 Attempt any four

- a. Explain weak entity with example. 5
- b. Define Generalization & Specialization. 5
- c. Compare traditional file system with DBMS. 5
- d. Explain Database Languages. 5
- e. Define Transaction & Concurrency control. 5

Q.2. a. List the functional dependencies which satisfy the relation: 10

x	y	z
X1	Y1	Z1
X1	Y2	Z1
X2	Y2	Z1
X2	Y2	Z1

b. Construct an EER diagram and convert into Relational Model for a library Management System. 10

Q.3.a Explain different types of operations in relational algebra. 10

b. Consider the following schema for institute Library. 10

Student (Rollno, Name, Father_name, Branch)

Book (ISBN, Title, Author, Publisher)

Issue (Rollno, ISBN, Date_of_Issue)

Write SQL queries for the following statements.

- i. List Roll Number and Name of all students of the branch CSE.
- ii. Find the name of students who have issued a book published by ABC publisher.
- iii. List title of all books and their author issued by student Prashant.
- iv. List title of all books issued on or before 1st FEB 2021.

Q.4.a. Consider a relation R with five attribute ABCDE. You are given the following dependencies:

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$A \rightarrow B$ $BC \rightarrow E$ $ED \rightarrow A$

- i. List all keys for R
 - ii. Is R in 3NF
 - iii. Is R in BCNF.
- b. What is Normalization? Explain 1NF,2NF,3NF with example.

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Q.5.a Explain types of Integrity Constraints with example.

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- b. What do you mean by deadlock with respect to transaction?

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Explain the procedure for deadlock handling.

Q.6 Write notes on **any two**

- a) Views in SQL.
- b) DDL commands.
- c) Triggers and transaction control commands.
- d) Cursor and its types with examples.

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