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BTECH
(SEM IV) THEORY EXAMINATION 2023-24
BASICS OF DATABASE MANAGEMENT SYSTEMS

TIME: 3 HRS

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt all questions in brief.** **2 x 7 = 14**

a.	Differentiate between logical and physical data independence?
b.	Give an example of a schema in a relational database?
c.	Define primary key?
d.	What does the SELECT statement do in SQL?
e.	Name one characteristic of SQL as a language?
f.	Name one inference rule used to derive FDs?
g.	Name one property of ACID?

SECTION B

2. **Attempt any three of the following:** **7 x 3 = 21**

a.	Provide examples of mapping constraints and explain their impact on database design?
b.	Provide an example and describe how SELECT filters rows from a relation?
c.	How does the ORDER BY clause work in SQL? Provide an example?
d.	Explain the conditions for a relation to satisfy 5NF and provide examples?
e.	Describe the concept of Time Stamping and how it is used to manage concurrent transactions?

SECTION C

3. **Attempt any one part of the following:** **7 x 1 = 7**

(a)	Outline the major modules in a database management system (DBMS) and their functions?
(b)	Explain the rules and conventions for creating ER diagrams, including proper use of symbols and notation?

4. **Attempt any one part of the following:** **7 x 1 = 7**

(a)	Explain the basic concept and structure of the Relational Data Model?
(b)	Compare and contrast Relational Algebra with SQL in terms of query capabilities and syntax?

5. **Attempt any one part of the following:** **7 x 1 = 7**

(a)	Discuss the importance of choosing appropriate data types in database design?
(b)	Explain the syntax and usage of CREATE, SELECT, INSERT, DELETE, and UPDATE statements in SQL?

6. **Attempt any one part of the following:** **7 x 1 = 7**

(a)	Define multi-valued dependencies and explain their role in database design?
(b)	Explain the concept of normalization and its importance in relational database design?

7. **Attempt any one part of the following:** **7 x 1 = 7**

(a)	Define Conflict Serializability and View Serializability and explain their differences?
(b)	Explain how transaction scheduling affects the execution of transactions in a database system?