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**BTECH**  
**(SEM V) THEORY EXAMINATION 2023-24**  
**DATA BASE MANAGEMENT SYSTEM**

TIME: 3 HRS

M.MARKS: 100

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

## SECTION A

1. Attempt *all* questions in brief.

2 x 10 = 20

| Q No. | Question  | Marks | CO |
|-------|---|-------|----|
| a.    | What is the concept of keys in database?                  | 2     | 1  |
| b.    | What is strong & weak entity set?                         | 2     | 1  |
| c.    | Explain referential integrity.                            | 2     | 2  |
| d.    | Explain entity integrity constraints.                     | 2     | 2  |
| e.    | Write different inference rule for functional dependency? | 2     | 3  |
| f.    | Why do we normalize database?                             | 2     | 3  |
| g.    | What do you mean by testing of serializability?           | 2     | 4  |
| h.    | Define replication in distributed database.               | 2     | 4  |
| i.    | Define concurrency control.                               | 2     | 5  |
| j.    | Define exclusive lock.                                    | 2     | 5  |

## SECTION B

2. Attempt any *three* of the following:

|    |   |    |   |
|----|---|----|---|
| a. | Discuss three level of abstractions or schemas architecture of DBMS.              | 10 | 1 |
| b. | What is Aggregate function in SQL? Write SQL query for aggregate function.        | 10 | 2 |
| c. | Describe the following terms: (i) Multivalued dependency (ii) Trigger             | 10 | 3 |
| d. | Discuss the procedure of deadlock detection and recovery in transaction?          | 10 | 4 |
| e. | Write the salient features of graph based locking protocol with suitable example. | 10 | 5 |

## SECTION C

3. Attempt any *one* part of the following:

|    |   |    |   |
|----|---|----|---|
| a. | State the procedural DML and nonprocedural DML with their differences.          | 10 | 1 |
| b. | Discuss the role of database administrator & explain the database architecture. | 10 | 1 |

4. Attempt any *one* part of the following:

|    |  |    |   |
|----|--|----|---|
| a. | What is ER Diagram? Explain different components of an ER Diagram with employee project Management system.     | 10 | 2 |
| b. | Write difference between cross join, Natural join, left outer join and right outer join with suitable example. | 10 | 2 |

5. Attempt any *one* part of the following:

|    |   |    |   |
|----|---|----|---|
| a. | What is functional dependency? Explain the procedure of calculating the canonical cover of a given functional dependency set with suitable example. | 10 | 3 |
|----|---|----|---|



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Subject Code: KCS501

Roll No:

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**BTECH**  
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**DATA BASE MANAGEMENT SYSTEM**

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|    |  |    |   |
|----|--|----|---|
| b. | Describe the term MVD in the context of DBMS by giving an example. Discuss 4NF and 5NF also. | 10 | 3 |
|----|--|----|---|

**6. Attempt any one part of the following:**

|    |   |    |   |
|----|---|----|---|
| a. | What is conflict serializable Schedule? Explain the difference between conflict and view serializable schedule using suitable example?  | 10 | 4 |
| b. | What is Log? How is it maintained? Discuss the features of deferred database modification and immediate database modification in brief. | 10 | 4 |

**7. Attempt any one part of the following:**

|    |  |    |   |
|----|--|----|---|
| a. | Discuss 2 phase commit (2PC) protocol and time stamp-based protocol with suitable example. How the validation-based protocols differ from 2PC?                         | 10 | 5 |
| b. | What are multi version schemes of concurrency control? Describe with the help of an example. Discuss the various Time stamping protocols for concurrency control also. | 10 | 5 |

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