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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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| | | | |
|----|--|----|---|
| 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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