Roll No: | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2024-25
DATA BASE MANAGEMENT SYSTEM

TIME: 3 HRS   **M.MARKS: 100**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 10 = 20**

Q no.	Question	CO	Level
a.	Differentiate between a database system and a file system	1	K4
b.	Define schema and instance in a database.	1	K1
c.	List the types of SQL commands.	2	K1
d.	Define a view in SQL?	2	K1
e.	State lossless joins decomposition?	3	K1
f.	Define a checkpoint in recovery?	4	K1
g.	Mention two types of locking protocols.	5	K2
h.	Define serializability in transactions? Give example	4	K1
i.	Briefly discuss validation-based protocol.	5	K2
j.	Differentiate between 2NF and 3NF	3	K3

SECTION B

2.   **Attempt any *three* of the following:**   **10 x 3 = 20**

a.	Discuss how you convert an ER diagram into relational tables? Illustrate with an example.	1	K3
b.	Explain relational algebra operations with suitable examples.	2	K1
c.	Describe the steps to normalize a database using functional dependencies and multi-valued dependencies	3	K3
d.	Discuss the different types of failures in transaction systems and how recovery is achieved.	4	K2
e.	Describe time-stamping protocols and their importance in transaction management.	5	K3

SECTION C

3.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Discuss the concept of generalization and aggregation with examples.	1	K2
b.	Write a detailed note on data definition and data manipulation languages	1	K1

4.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Write an SQL query to demonstrate the use of joins, unions, and intersections.	2	K1
b.	Discuss the aggregate functions in SQL with examples.	2	K2

5.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Explain the process of normalization with an example for 1NF, 2NF, and 3NF.	3	K2
b.	Write a note on BCNF and its importance in database design.	3	K1

6.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Write a detailed note on log-based recovery in databases.	4	K2
b.	Explain conflict "serializability" and "view serializability" with examples.	4	K2

7.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Discuss the multiple granularity locking protocol in detail.	5	K3
b.	Write a detailed note on recovery with concurrent transactions	5	K2