Course Code: 23ES3T05

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

II-B.Tech I-Semester Supplementary Examinations (BR23), Mar - 2026

Database Management Systems (CSE-AI&DS)

Time: 3 hours Max. Marks: 70

Question Paper consists of Part-A and Part-B

*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Define a database system.	(2M)	CO1	BL1
b)	What is a DBMS?	(2M)	CO1	BL1
c)	What is integrity constraint?	(2M)	CO2	BL1
d)	Define relational algebra.	(2M)	CO2	BL1
e)	What is a nested query?	(2M)	CO3	BL1
f)	What is a subquery?	(2M)	CO3	BL1
g)	Define Second Normal Form (2NF).	(2M)	CO4	BL1
h)	Define Third Normal Form (3NF).	(2M)	CO4	BL1
i)	What is concurrent execution of transactions?	(2M)	CO5	BL1
j)	Define serializability.	(2M)	CO5	BL1

PART–B (5X10 = 50M)

2a.	Describe the three-schema architecture for achieving data independence.	(5M)	CO1	BL2
b.	Explain centralized database architecture.	(5M)	CO1	BL2
	(OR)			
3a.	Explain specialization and generalization in ER model.	(5M)	CO1	BL2
b.	Explain the advantages of database systems over file systems	(5M)	CO1	BL1
4a.	Explain different types of constraints in the relational model.	(5M)	CO2	BL2
b.	Describe domain constraints and key constraints with examples.	(5M)	CO2	BL2
	(OR)			
5a.	Write SQL commands to create a table and modify it using ALTER command.	(5M)	CO2	BL3

b	Explain different SQL data types with examples.	(5M)	CO2	BL2
6 a.	Describe the implementation of key and integrity constraints in SQL.	(5M)	CO3	BL3
b	Explain nested queries with examples.	(5M)	CO3	BL3
	(OR)			
7a.	Explain SQL functions with suitable examples.	(5M)	CO3	BL2
b.	Describe Date and Time functions in SQL.	(5M)	CO3	BL2
8a.	Explain multi valued dependency with example.	(5M)	CO4	BL2
b.	Explain Fourth Normal Form (4NF) with example.	(5M)	CO4	BL3
	(OR)			
9a.	Explain different normal forms (1NF, 2NF, 3NF) with suitable examples	(10M)	CO4	BL3
10a	Explain deadlocks and their causes in DBMS.	(5M)	CO5	BL2
b	Describe failure classification in database systems.	(5M)	CO5	BL2
	(OR)			
11a	Describe operations on B+ Trees (insertion, deletion, searching).	(5M)	CO5	BL3
b.	Explain hash-based indexing.	(5M)	CO5	BL2

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