R22 Regulation *Subject code:4E4FD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Regular/Supplementary Examinations, June 2026

DATABASE MANAGEMENT SYSTEMS

(IT)

Maximum Marks: 60 Date:12.06.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Define DBMS.	1M	1	L1
b)	What is an Entity Set?	1M	1	L2
c)	Define Relational Algebra.	1M	2	L1
d)	What is a Trigger in SQL?	1M	2	L2
e)	Define Functional Dependency	1M	3	L1
f)	What is BCNF?	1M	3	L2
g)	State any two ACID properties	1M	4	L2
h)	What is Deadlock?	1M	4	L1
i)	Define Query Optimization.	1M	5	L1
j)	What is Materialized View?	1M	5	L2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the architecture of DBMS with neat diagram. b) Explain different types of keys with examples.	5M 5M	1	L2 L2
	OR			
3	a) Explain the structure of Hierarchical and Network data models. b) Explain E-R diagram with suitable example.	5M 5M	1	L2 L3
4	a) Explain different operations of Relational Algebra with examples. b) Write SQL queries for the following: 1. Display all employee details. 2. Find average salary department wise. 3. Display employees whose salary is greater than 50000.	5M 5M	2	L3 L4
	OR			

5	a) Explain integrity constraints and authorization in relational databases. b) Discuss joins, aggregate functions and views in SQL with suitable examples.	5M 5M	2	L2 L3
6	a) Explain the need for normalization in database design. b) Explain 1NF, 2NF and 3NF with suitable examples.	5M 5M	3	L2 L3
	OR			
7	a) Explain Functional Dependencies and closure of attributes with example. b) Discuss BCNF and 4NF with suitable examples.	5M 5M	3	L2 L3
8	a) Explain transaction states with neat diagram. b) Discuss lock based protocols and deadlock handling techniques.	5M 5M	4	L2 L2
	OR			
9	a) Explain conflict serializability and view serializability. b) Discuss recovery system and recovery algorithms in DBMS.	5M 5M	4	L2 L2
10	a) Explain query processing and measures of query cost. b) Discuss selection, sorting and join operations used in query processing.	5M 5M	5	L2 L2
	OR			
11	a) Explain query optimization techniques in DBMS. b) Discuss transformation of relational expressions and evaluation plans.	5M 5M	5	L2 L2