



R20 Regulation

Subject code: 3P4FC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, December 2025

**DATABASE MANAGEMENT SYSTEM
(IT)**

Maximum Marks: 70

Date: 20.12.2025

Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 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 (10X2M=20 Marks)		Marks	CO	BTL
1	Define data abstraction.	2M	1	L1
2	Differentiate the truncate and delete.	2M	1	L1
3	Define Entity set.	2M	2	L1
4	What does the cardinality ratio specify?	2M	2	L1
5	What are the different types of SQL constraints?	2M	3	L1
6	Define Trigger.	2M	3	L1
7	List transaction ACID properties.	2M	4	L1
8	Write about different types of locks?	2M	4	L1
9	What is linear hashing?	2M	5	L1
10	How to insert an element in B+ tree?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Explain the architecture of Database Management Systems with a neat diagram.	10M	1	L2
OR				
12	a) Explain Database administrator's responsibilities. b) Discuss in detail about DDL Commands.	10M 5M	1	L2
13	Describe about different key constraints in DBMS.	10M	2	L2
OR				
14	Develop logical database design for Banking enterprise system.	10M	2	L2
15	Consider the relational schema R = (ABCD) and the set of functional dependencies F = {AB->C, B->D, C->A}. a) Prove that R is not in BCNF. b) Suitably decompose R into appropriate relational schemas that are in BCNF. c) Is the obtained decomposition lossless? Is the obtained decomposition dependency preserving?	10M	3	L2

	d) If you were allowed to have relational schemas that are in 3NF, what would have been the decomposition (possibly containing schemas that are in 3NF but not in BCNF)?			
	OR			
16	Explain about dependency preserving decomposition and loss less join with example.	10M	3	L2
17	How will you determine whether a schedule is serializable or not. Discuss any locking Protocol how it resolves conflicts during concurrent execution of transactions?	10M	4	L2
	OR			
18	a) Discuss in detail validation-based protocols. b) Explain about Lock based protocol.	5M 5M	4	L2
19	Construct a B + tree to insert the following key elements (order of the tree is 3) 5, 9, 12, 16, 21, 25, 32, 34, 38, 42, 51, 55, 61, 65	10M	5	L2
	OR			
20	Explain static, extendable and linear hashing techniques briefly.	10M	5	L2