R18 Regulation *Subject code: 2P4ED & 2P4FC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, July 2024

Database Management Systems
(Common to CSE & IT)

Maximum Marks: 70 Date:23.07.2024 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 which carries 10M.
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)		CO	Bloom Tx
1	What are the types of languages a database system provides?	1	L1
2	Explain levels of data abstraction.	1	L1
3	Explain two types of participation constraints?	2	L1
4	List the data structures implemented by the storage manager?	2	L1
5	What is meant by loss less join decomposition?	3	L1
6	What is foreign key?	3	L1
7	Discuss the Procedure to test Serializability?	4	L1
8	Discuss different phases of transactions?	4	L1
9	What is primary index?	5	L1
10	What is and index on file of records?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)				
11	What is view on tables? Explain with suitable query? Write a query for creating and updating a view? [10M]	1	L2
	OR		
12	Draw and explain architecture of a data base [10M]	1	L2
13	Consider the following relations P(ABC), Q(ABD) and R(AE): [10M]	2	L2

P(ABC)

A1	B1	C1
A2	B1	C2
A3	B3	C2

Q(ABD)

A1	B1	2
A1	B2	5
A2	B1	6
A3	B3	1

^{T} R(AE)

A1	E1
A3.	E2
A4	E3
A4	NULL

a)What is the result of the following relational algebra expression?
$\Pi ACD[(\sigma(B=B3 \vee C=C2)[p \bowtie q]) \bowtie (\sigma(D>1)[Q \bowtie R])]$
b)Write the tuple relational calculus and domain relation calculus expressions equivalent to the above relational algebra expression.

	OR		
14	Consider the following relational database: [10M] Employee (employee-name, street, city) Works (employee-name, company-name, salary) Company (company-name, city) Manages (employee-name, manager-name) Give an SQL DDL definition of this database. Identify referential-integrity constraints that should hold, and include them in the DDL definition.	2	L2
15	Consider the relation S(A,B,C,D), with functional dependencies *B* ->*C* and *D* ->A. [10M] Consider the decomposition of *S* into *Sl(A, B, C)* and *S2(AD).* i. Define BCNF ii. Is S1 in BCNF? Is S2 in BCNF? iii. Is the decomposition lossless? Briefly justify. iv. Is the decomposition dependency preserving? Briefly justify	3	L2
	OR		
16	Explain different normal forms based on functional dependencies? [10M]	3	L2
17	Discuss in detail Multiple Granularity? [10M]	4	L2
	OR		
18	Explain in detail Storage structure? [10M]	4	L2
19	Write in detail about index data structures? [10M]	5	L2
	OR		
20	Why are tree-structured indexes good for searches especially range selections? [10M]	5	L2