R V College of Engineering
Department of Computer Science and Engineering
CIE - III(Improvement): Question Paper

Subject : (Code)	**Database Management Systems (CD252IA)**	**Semester :**	**5TH BE**
Date :/01/2025	**Duration :** 120 minutes	**Staff :Dr.HR/Dr.CNS/Dr.PD/Dr.SB/Dr.SNM/Dr.PH/Dr.PT/Dr.MNV**	
Name : Ananth	**USN :** 1RV22AI004	**Section :** AIML	**A/B/C/D/CD/CY/ISE/AIML**

S.N	PART-A	M	BT	Co
1.	What is the difference between lossless and lossy decomposition in DBMS?	2	L2	3
2.	List the two conditions for checking the Binary decomposition?	2	L1	2
3.	Define the Condition of 3NF?	2	L1	2
4.	Define a Transaction with example.	2	L1	1
5.	Elaborate and Define ACID properties	2	L1	1
	PART-B			
1a	Discuss the condition for two functional dependencies to be equivalent? Check whether relation R(A,B,C,D) having two FD sets FD1 = {A->B, B->C, AB->D} and FD2 = {A->B, B->C, A->C, A->D} are equivalent or not ?	5	L3	2
1b	Explain any 5 reasons for failure of transaction.	5	L2	4
2a	Explain the steps for finding Minimal Cover for Functional Dependencies. For the given set of FDs {A->C, AC->D, E->H, E->AD} find the minimal cover.	6	L3	2
2b	Write the algorithm for Testing whether a schedule is serializable or not.	4	L2	4
3a	Explain the properties of Attribute preservation and dependency preservation?	5	L2	3
3b	Given a relational schema R = { SSN, ENAME, PNUMBER, PNAME, PLOCATION, HOURS } and the decomposed table R1 = { ENAME, PLOCATION } and R2 = { SSN, PNUMBER, HOURS, PNAME, PLOCATION } and FD = { SSN → ENAME, PNUMBER → { PNAME, PLOCATION}, { SSN, PNUMBER } → HOURS }. Identify whether the given decomposition of R, R1 and R2 is lossless or lossy decomposition?	5	L3	4
4a	Given a relation R(A, B, C, D) and Functional Dependency set FD = { AB → CD, B → C }, determine whether the given R is in 2NF? If not convert it into 2 NF.	5	L3	1
b	With a transition diagram explain the states for transaction execution.	5	L2	2
5.	List and explain with examples the types of problems that can be encountered if two transactions are executing concurrently.	10	L2	1

Course Outcomes: After completing the course, the students will be able to:	
CO1	Understand and explore the needs and concepts of relational, NoSQL database and Distributed Architecture
CO2	Apply the knowledge of logical database design principles to real time issues.
CO3	Analyze and design data base systems using relational, NoSQL and Big Data concepts
CO4	Develop applications using relational and NoSQL database
CO5	Demonstrate database applications using various technologies.

BT-Blooms Taxonomy, CO-Course Outcomes, M-Marks

Marks Distribution	Particulars	CO1	CO2	CO3	CO4	CO5	L1	L2	L3	L4	L5	L6
	Test	19	20	7	14		8	31	21	-	-	-