



Sagar Institute of Research & Technology, Bhopal  
IIMid Semester Examination, December-2024

SEMESTER: V

BRANCH: CSE

Subject Code/ Name: DBMS-502 (Database Management Systems)

Time: 3:00 Hrs.

Max. Marks: 40

NOTE: Attempt all questions. Internal choice is provided in each question.

Q. No.		Question Description	COs (Course Outcomes)	Level (Bloom's Taxonomy)	Marks
Q. 1	(A)	Define Normalization and explain its importance. Illustrate with an example.	CO3	L2	8
	(A)	OR Define Functional Dependency and describe its role in database design. Provide a relevant example.	CO3	L2	
Q. 2	(A)	Explain the steps involved in Query Optimization. Solve an example of a SELECT operation using heuristic-based methods.	CO4	L3	16
	(B)	Discuss Dependency Preservation and Lossless Join properties with examples. Why are they crucial in database decomposition?			
Q. 3	(A)	OR Explain the concept of Indexing in databases. Discuss different types of indexing methods with practical use cases.	CO4	L5	16
	(B)	Consider a relation R with five attribute A, B, C, D, E having following dependencies : $A \rightarrow B$ , $BC \rightarrow E$ and $ED \rightarrow A$ i) List all keys for R ii) In which normal form table is			
Q. 3	(A)	Differentiate between Conflict Serializable Schedules and View Serializable Schedules. Provide examples for each type.	CO5	L4	16
	(B)	Design a recovery strategy for transaction failures using log-based recovery and checkpoints. Include steps and a sample transaction.			
Q. 3	(A)	OR Examine the Concurrency Control Techniques used in DBMS. Compare Locking Techniques and Time-Stamping Protocols with examples.	CO5	L4	16
	(B)	Write short notes on 1- Distributed databases 2- OODBMS VS RDBMS			