

Reg. No.....

Name.....

M. Sc. DEGREE END SEMESTER EXAMINATION - APRIL 2025**SEMESTER 2 : Computer Science (Artificial Intelligence)****COURSE: 24P2CAIT08 : DATABASE DESIGN***(For Regular 2024 Admission)*

Time: Three Hours

Max. Weightage : 30

PART-A**Weight : 1****Answer any 8 Questions**

1. Discuss about functional dependencies in a relation with Example? (CO2, A)
2. Define Aggregate functions. Give 2 select statements using any of the aggregate functions ? (CO3, A)
3. Differentiate primary key, foreign key and candidate key with examples? (CO1, A)
4. Explain about anomalies? (CO2, U)
5. Differentiate sparse and dense index? (CO2, U)
6. Differentiate inter query evaluation and intra query evaluation? (CO4, U)
7. Write about nested query with example? (CO3, A)
8. Discuss about parallel databases? (CO4, U)
9. Differentiate Internal level and External level schema? (CO1, U)
10. Discuss about transactions? (CO1, U)

(1 x 8 = 8)**PART- B****Weights : 2****Answer any 6 Questions**

11. Explain about the different problems occurred when transaction executed concurrently and also explain different States in transaction with diagram? (CO2, A)
12. Explain relational algebra and relational calculus? (CO2, U)
13. Write short notes on different users? (CO1, A)
14. Differentiate homogeneous and heterogeneous distributed database? (CO4, U)
15. Explain the characteristics of database? (CO1, U)
16. Differentiate DDL and DML? (CO3, A)
17. Explain different operators in SQL? (CO3, A)
18. Explain Object-Oriented data model with its advantages and disadvantages? (CO4, U)

(2 x 6 = 12)**PART- C****Weights : 5****Answer any 2 Questions**

19. Explain the advantages of database over traditional file system? (CO1, A)
20. Explain the architectures for distributed database systems? (CO4, A)
21. Explain about ER Diagram and Draw an ER diagram for a hospital Database? (CO2, A)
22. Explain different types of Normalizations? (CO2, A)

(5 x 2 = 10)

		CL	Questions	Total weight
CO1	Define and explain the fundamental concepts of database management systems, including data organization, transaction properties, database architectures, DBMS components, and the principles of data abstraction and independence.	U	3,9,10,13, 15,19	12
CO2	Design and implement effective data models, including Entity-Relationship (E-R) diagrams and relational schemas, applying normalization techniques and integrity constraints to ensure data consistency and accuracy	A	1,4,5,11, 12,21,22	17
CO3	Construct and execute SQL queries, including advanced techniques such as subqueries, joins, and stored procedures, to effectively retrieve and manipulate data within relational databases	A	2,7,16,17	6
CO4	Design, analyze, and manage distributed database systems, including parallel query processing and data distribution, and demonstrate an understanding of emerging database technologies such as object-oriented and NoSQL databases, and their application	A	6,8,14,18, 20	11