



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

ASSIGNMENT QUESTIONS

Name of Course Instructor: Dr O Rama Devi

Course Name & Code : DBMS & 20CS03

L-T-P Structure : 3-0-0

Program/Sem/Sec : B.Tech/III/A&B

Reg :23

Cycle :1

Credits: 3

A.Y : 2025-26

Q.No	Question Description	Unit #	CO#	BL
1	a) Analyze a real-world scenario where using a file system would be inefficient compared to a DBMS. Justify your reasoning b) Design a DBMS-based solution for a university management system. Highlight the advantages over traditional methods.	1	1	3
2	a) Compare and contrast the relational and object-oriented DBMS models in terms of data handling and application suitability. b) Evaluate how logical and physical data independence contribute to system scalability and maintenance..	1	1	2
3	a) Analyze the role of each component in the DBMS structure and explain how they interact during query processing. b) Create a diagrammatic representation of DBMS architecture and explain how it supports data abstraction and independence	1	1	3
4	a) Discuss how the three-tier schema architecture facilitates data abstraction and improves system flexibility. b) Evaluate the effectiveness of schema mapping in maintaining consistency across different user views	1	1	2
5	a) Assess the limitations of centralized DBMS architecture in a distributed enterprise environment. b) Design a hybrid DBMS architecture combining features of client-server and distributed models. Justify your design choices	1	1	3
6	a) Design an ER diagram for a hospital management system. Justify your choice of entities, attributes, and relationships. b) Evaluate the impact of using weak entities in a database design. Provide a scenario where weak entities are essential.	2	2	3
7	a) Compare the use of inheritance in object-oriented databases with traditional relational databases. What are the advantages and limitations? b) Design a class hierarchy for an educational institution using superclass and subclass concepts. Explain how inheritance simplifies data modeling.	2	2	2

8	a) Critically evaluate the use of generalization and specialization in ER modeling. How do they affect schema design? b) Discuss how key constraints and domain constraints ensure data integrity. Provide examples from a banking system. c) Propose a schema where specialization improves query performance. Justify your design.	2	2	2
9	a) Create a set of relational algebra queries for a university database. Explain how each operation contributes to data retrieval. b) Evaluate the role of integrity constraints in maintaining consistency during concurrent transactions.	2	2	3
10	a) Compare Tuple Relational Calculus and Domain Relational Calculus in terms of expressiveness and usability. Provide examples. b) Design a query using both tuple and domain relational calculus to retrieve student records with GPA above 8.0. Discuss the differences in approach.	2	2	3

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr.O.Rama Devi	Dr.O.Rama Devi	Dr D.Srinivasa Rao	Dr.P Bhagath
Signature				