

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZIANAGARAM**  
**II B. Tech II Semester Supplementary Examinations NOV-2025**  
**DATABASE MANAGEMENT SYSTEMS**  
**(CSE,CSE(AI,AI&ML,DS,CS,AI&ML) )**

**Time: 3 hours****Max. Marks: 70****The Question paper consists of Part A & Part B.****Part A is compulsory, Answer all questions. Part B Answers any one question from each unit.****\*\*\*\*\***

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|---|--|-----------|
| 1 | <b>PART-A</b>  | (20Marks) |
|   | a) Differentiate between schema and instance.                        | [2]       |
|   | b) Define weak entity and give an example.                           | [2]       |
|   | c) What is the purpose of views in SQL?                              | [2]       |
|   | d) Explain super key with example.                                   | [2]       |
|   | e) What is the significance of join operations in SQL?               | [2]       |
|   | f) Define functional dependency.                                     | [2]       |
|   | g) What is the difference between serial and serializable schedules? | [2]       |
|   | h) Explain the term "checkpoint" in DBMS.                            | [2]       |
|   | i) Define OLAP.  | [2]       |
|   | j) What are fact and dimension tables?                               | [2]       |
|   | <b>PART-B</b>  | (50Marks) |
|   | <b>Question from Unit - I</b>  |           |
| 2 | a) Describe the types of database users with examples.               | [5]       |
|   | b) Explain different types of DBMS models in detail.                 | [5]       |
|   | (OR)   |           |
| 3 | a) Explain the database system environment.                          | [5]       |
|   | b) Describe the database life cycle with a neat diagram.             | [5]       |
|   | <b>Question from Unit - II</b>                                       |           |
| 4 | a) Explain the mapping cardinalities in ER model with diagrams.      | [5]       |
|   | b) Differentiate between relational algebra and relational calculus. | [5]       |
|   | (OR)   |           |
| 5 | a) Write relational algebra expressions for:                         | [5]       |
|   | i. Retrieve names of students enrolled in "CSE"                      |           |
|   | ii. List all employees in department 10 with salary > 40000          |           |
|   | b) Design an ER model for an online bookstore.                       | [5]       |
|   | <b>Question from Unit - III</b>                                      |           |
| 6 | a) Discuss subqueries and nested queries with examples.              | [5]       |
|   | b) What are aggregate functions in SQL? Explain with examples.       | [5]       |
|   | (OR)   |           |
| 7 | a) Write SQL queries for:  | [5]       |
|   | i. Find average salary by department                                 |           |
|   | ii. Display names of employees who joined after 2020                 |           |
|   | b) Explain join operations with examples.                            | [5]       |
|   | <b>Question from Unit - IV</b>                                       |           |
| 8 | a) What is lossless join decomposition? Explain with an example.     | [5]       |
|   | b) Compare 3NF and BCNF.   | [5]       |

(OR)

- 9    a)    What is the need for normalization? Explain with an example.    [5]  
      b)    Explain multivalued dependency and 4NF.    [5]

Question from **Unit - V**

- 10   a)    Discuss ACID properties with suitable examples.    [5]  
      b)    Explain different concurrency control techniques.    [5]

(OR)

- 11   a)    What is a data warehouse? Explain its architecture.    [5]  
      b)    Explain different recovery techniques in DBMS.    [5]

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