Course Code: 25MC1T03

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

**(AUTONOMOUS)**

***I – MCA I - Semester Regular Examinations (BR25), February - 2026***

**DATABASE MANAGEMENT SYSTEMS (MCA)**

Time: 3 hours | Max. Marks: 60

---

***Answer any Five Questions One Question from One UNIT***
***ALL the Questions Carry Equal Marks***

---

| | | Marks | CO | BL |
|---|---|---|---|---|
| | **UNIT-I** | | | |
| 1.a) | Explain the purpose of database systems over file-based systems | 6M | CO1 | BL2 |
| b) | What is a relational database? Explain its basic components | 6M | CO1 | BL1 |
| | **OR** | | | |
| 2 | Describe ER diagrams in detail with symbols and examples. | 12M | CO1 | BL2 |
| | **UNIT-II** | **Marks** | **CO** | **BL** |
| 3.a) | Explain the division operator with an example. | 6M | CO2 | BL2 |
| b) | Implement SQL commands for creating, altering, and deleting tables and views in a database | 6M | CO2 | BL3 |
| | **OR** | | | |
| 4.a) | Explain set operations in relational algebra. | 6M | CO2 | BL2 |
| b) | Explain Views: Creation, Usage and advantages | 6M | CO2 | BL2 |
| | **UNIT-III** | **Marks** | **CO** | **BL** |
| 5.a) | Explain the set operations UNION, INTERSECT, **and** EXCEPT in SQL. | 6M | CO3 | BL2 |
| b) | Explain Complex integrity constraints in SQL | 6M | CO3 | BL2 |
| | **OR** | | | |
| 6.a) | Discuss First normal form, Second normal form and third normal form with an example | 6M | CO3 | BL6 |
| b) | What are functions in SQL? How do they differ from procedures? | 6M | CO3 | BL1 |
| | **UNIT-IV** | **Marks** | **CO** | **BL** |
| 7.a) | Explain Fourth Normal Form(4NF) and its significance | 6M | CO4 | BL2 |
| b) | Describe the implementation of atomicity and durability | 6M | CO4 | BL2 |
| | **OR** | | | |
| 8.a) | Define serializability and explain its importance | 6M | CO4 | BL2 |
| b) | Explain the process of granting locks in a DBMS | 6M | CO4 | BL2 |

| | UNIT-V | Marks | CO | BL |
|---|---|---|---|---|
| 9.a) | Define external storage and explain its role in database systems | 6M | CO5 | BL1 |
| b) | Differentiate between primary index and secondary index | 6M | CO5 | BL2 |
| | **OR** | | | |
| 10.a) | Explain the intuition behind tree structure indexes | 6M | CO5 | BL2 |
| b) | Compare a heap file organization and sorted file organization | 6M | CO5 | BL2 |

*********