

**BONAMVENKATACHALAMAYYAINSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

II-BCAI-Semester Model Paper (BR24), JAN-2026

Database Management Systems (BCA)

Time: 3 hours

Max.Marks:70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A(10X2 =20M)

| | | Marks | CO | BL |
|------|---|-------|-----|-----|
| 1.a) | What is a database system? | (2M) | CO1 | BL1 |
| b) | Define schema and instance.? | (2M) | CO1 | BL1 |
| c) | Define Entity and list types of entity? | (2M) | CO2 | BL2 |
| d) | What is ER Diagram? | (2M) | CO2 | BL1 |
| e) | What is Referential Integrity constraint? | (2M) | CO3 | BL1 |
| f) | Write syntax for Drop table and Alter table by adding a column? | (2M) | CO3 | BL2 |
| g) | Write Set Operations? | (2M) | CO4 | BL1 |
| h) | what are Nested queries? | (2M) | CO4 | BL1 |
| i) | Define the term "Normalization". | (2M) | CO5 | BL1 |
| j) | What is partial dependency? | (2M) | CO5 | BL1 |

PART-B(5X10=50M)

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|------|--|--------------|-----|-----|
| 2 | Explain in detail the architecture and functions of a DBMS. | (10M) | CO1 | BL2 |
| (OR) | | | | |
| 3 | Explain different database languages: DDL, DML, DCL, TCL with syntax and examples. | (10M) | CO1 | BL3 |
| 4 | Explain additional features of ER model: weak entity sets, composite attributes, multivalued attributes, and derived attributes. | (10M) | CO2 | BL2 |
| (OR) | | | | |
| 5a. | Explain database design and the role of ER diagrams. | (5M) (5M) | CO2 | BL3 |
| b. | Describe the steps in conceptual design using ER-model. Describe the steps in conceptual design using ER model. | | | |
| 6 | Explain different types of keys in Relational Model: Super key, Candidate key, Primary key, Alternate key, Composite key, and Foreign key with examples. | (10M) | CO3 | BL3 |
| (OR) | | | | |
| 7 | Explain the Relational Model in detail. Discuss its components, characteristics, and advantages. | (10M) | CO3 | BL |

| | | | | |
|------|---|--------------|-----|-----|
| 8 | (a) Explain UNION and INTERSECT with examples. (b) Explain COUNT, SUM, AVG, MIN, MAX operators. | (5M) (5M) | CO4 | BL3 |
| (OR) | | | | |
| 9 | (a) What is a trigger? Explain BEFORE and AFTER triggers with examples (b) Explain PL/SQL procedures with syntax and examples. | (5M) (5M) | CO4 | BL2 |
| 10 | What is Normalization? Explain 1NF, 2NF, 3NF, BCNF with examples. | (10M) | CO5 | BL4 |
| (OR) | | | | |
| 11 | Explain schema refinement and the need for it. Discuss redundancy, anomalies, and decomposition. | (10M) | CO5 | BL3 |
