

Dr. Babasaheb Ambedkar Open University
Term End Examination February – 2026

Course	: BCAR	Date	: 21-02-2026
Subject Code	: BCAR-302	Time	: 11:30am to 01.45pm
Subject Name	: Relational Database Management System	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three)

(30)

1. Define DBMS. Explain the Three-Schema Architecture (Internal, Conceptual, and External levels) and the concept of Data Independence.
2. What is an Entity-Relationship (ER) Model? Explain the various components of an ER diagram: Entities, Attributes, and Relationships with examples.
3. Define Normalization. Explain the First, Second, and Third Normal Forms (1NF, 2NF, 3NF) with suitable examples and their importance in reducing redundancy.
4. What is PL/SQL? Explain the basic structure of a PL/SQL block and discuss the various data types used in PL/SQL.
5. Explain the concept of Transaction Management. Describe the ACID properties (Atomicity, Consistency, Isolation, Durability) in detail.

Section B

Answer the following (Attempt any four)

(20)

1. Differentiate between File Processing Systems and Database Management Systems.
2. Explain the different types of Keys: Primary Key, Candidate Key, Foreign Key, and Super Key.
3. Discuss various SQL Joins (Inner, Left, Right, and Full Outer Join) with syntax and examples.
4. What is an Exception in PL/SQL? Differentiate between System-defined and User-defined exceptions.
5. Explain the role and features of a Database Administrator (DBA).
6. Describe the Aggregate functions in SQL (SUM, AVG, MIN, MAX, COUNT) with examples.

Section C

Part – A (Multiple Choice Questions)

(10)

- 1 Which of the following is considered the "Heart of the Database"?

A. Hardware
B. Data
C. Users
D. Software

- 2 In an ER Diagram, an Ellipse represents:
- A. Entity
 - B. Attribute
 - C. Relationship
 - D. Link
- 3 Which SQL command is used to remove all records from a table but keep the structure?
- A. DROP
 - B. DELETE
 - C. TRUNCATE
 - D. REMOVE
- 4 A Primary Key must be:
- A. Unique
 - B. Non-Null
 - C. Both A and B
 - D. None of these
- 5 Which Normal Form is based on the concept of Transitive Dependency?
- A. 1NF
 - B. 2NF
 - C. 3NF
 - D. BCNF
- 6 PL/SQL stands for:
- A. Professional Language / SQL
 - B. Procedural Language / SQL
 - C. Program Language / SQL
 - D. Perfect Language / SQL
- 7 Which command is used to save changes made by a transaction permanent in the database?
- A. ROLLBACK
 - B. SAVEPOINT
 - C. COMMIT
 - D. GRANT
- 8 Which exception is raised when a SELECT INTO statement returns no rows?
- A. TOO_MANY_ROWS
 - B. ZERO_DIVIDE
 - C. NO_DATA_FOUND
 - D. LOGIN_DENIED

- 9 The _____ level of the Three-Schema architecture describes how data is actually stored on disks.
- A. Conceptual
 - B. Physical / Internal
 - C. External
 - D. Logical
- 10 Which clause is used with the SELECT statement to filter rows based on a condition?
- A. GROUP BY
 - B. ORDER BY
 - C. WHERE
 - D. HAVING

Part – B (Do as Directed)

(10)

State whether the following statements are true or false

- 1 A Foreign Key is used to establish a relationship between two tables.
- 2 DML stands for Data Definition Language.
- 3 Redundancy leads to wastage of storage space and data inconsistency.
- 4 A table can have multiple Primary Keys.
- 5 The 'ZERO_DIVIDE' exception is raised when attempting to divide a number by zero.
- 6 SQL is a procedural language.
- 7 In an ER model, a 'Weak Entity' does not have its own primary key.
- 8 Normalization is the process of organizing data in a database.
- 9 A 'Constraint' is a rule enforced on data columns in a table.
- 10 Views are actual physical tables stored in the database.
