

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

Course	: BCAR	Date	: 11-07-2026
Subject Code	: BCAR-302	Time	: 11:30am to 01:45pm
Subject Name	: Relational Database Management System (RDBMS)	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Explain the Three-Level Architecture of a DBMS. Discuss the significance of each level and how this architecture provides data abstraction.
2. Define Normalization and its primary objectives. Describe the first three Normal Forms (1NF, 2NF, and 3NF) with suitable examples for each stage.
3. Describe the Oracle Server Architecture. Specifically, explain the components of an Oracle Instance (SGA and Background Processes) and the different types of Physical Database Files.
4. Compare and contrast Stored Procedures and Functions in PL/SQL. Include their syntax, execution methods, and the different types of parameters used.
5. Explain the concept of a Cursor in PL/SQL. Differentiate between Implicit and Explicit Cursors, and detail the four essential steps in the lifecycle of an Explicit Cursor.

Section B

Answer the following (Attempt any four) (20)

1. What is a Database Management System (DBMS)? List and explain at least five advantages of a DBMS over traditional manual file systems
2. Define Functional Dependency (FD) and explain the differences between Trivial and Non-Trivial functional dependencies with examples.
3. Explain the Physical Database Structure of an Oracle Database by describing the functions of Control Files, Data Files, and Redo Log Files.
4. Differentiate between Data Definition Language (DDL) and Data Manipulation Language (DML). Provide two SQL command examples for each.
5. Discuss the benefits of using Oracle Packages in database application development.
6. Explain the concept of Exception Handling in PL/SQL and differentiate between Predefined and User-defined exceptions.

Section C

Part – A (Multiple Choice Questions) (10)

- 1 What is defined as "data about data," describing the qualities and relationships of data in a database?
- A Raw facts B Information
- C Metadata D Database System

- 2 In the three-level architecture of a DBMS, which level deals with the logical structure of the entire database and the relationships between data?
- A External Level
 - B Conceptual Level
 - C Internal Level
 - D Physical Level
- 3 Which data model represents data as a top-down tree structure where each child segment can have only one parent?
- A Network Model
 - B Relational Model
 - C Hierarchical Model
 - D Object-Oriented Model
- 4 A relation is said to be in which Normal Form if every attribute is a singly valued attribute (contains no composite or multi-valued attributes)?
- A First Normal Form (1NF)
 - B Second Normal Form (2NF)
 - C Third Normal Form (3NF)
 - D Boyce-Codd Normal Form (BCCNF)
- 5 Which Oracle background process is responsible for instance recovery by applying entries from online redo log files to data files?
- A PMON (Process Monitor)
 - B DBWn (Database Writer)
 - C LGWR (Log Writer)
 - D SMON (System Monitor)
- 6 Which category of SQL commands is used to modify the database structure, such as creating or dropping tables?
- A DML (Data Manipulation Language)
 - B DDL (Data Definition Language)
 - C TPL (Transaction Processing Language)
 - D DCL (Data Control Language)
- 7 What is the primary difference between a PL/SQL Function and a Stored Procedure?
- A A function can have OUT parameters
 - B A function must return a single value.
 - C A procedure cannot be stored in the database.
 - D A procedure cannot accept input parameters
- 8 Which type of cursor is automatically created by Oracle for internal processing of DML statements like INSERT, UPDATE, and DELETE?
- A Explicit Cursor
 - B Static Cursor
 - C Implicit Cursor
 - D Parameterized Cursor
- 9 Which locking mode allows only queries to be executed on a locked table and prohibits any other activities or updates?
- A SHARE MODE
 - B ROW EXCLUSIVE
 - C EXCLUSIVE MODE
 - D ROW SHARE
- 10 Which predefined exception is raised when a SELECT INTO statement returns more than one row?
- A NO_DATA_FOUND
 - B TOO_MANY_ROWS
 - C ZERO_DIVIDE
 - D VALUE_ERROR

Part – B (State the following statements are TRUE or FALSE)

(10)

- 1 Data refers to processed facts that reveal a specific meaning.
- 2 In the three-level architecture of a DBMS, the External Level is considered the highest level of abstraction.
- 3 Functional dependencies (FDs) are considered an important factor in distinguishing between good and bad database architectures.
- 4 A relation is in First Normal Form (1NF) if it contains composite or multi-valued attributes.
- 5 The System Global Area (SGA) is a memory structure that is shared by all server and background processes.
- 6 Data Definition Language (DDL) commands, such as CREATE and ALTER, are used to modify the actual data contents of a table.
- 7 A PL/SQL Function must include a RETURN statement because it is required to return a value.
- 8 Unlike stored procedures, database Triggers are executed implicitly by the RDBMS when a specific data manipulation event occurs.
- 9 An Explicit Cursor is automatically created by the Oracle engine to handle the internal processing of single DML statements.
- 10 The ZERO_DIVIDE exception is a predefined Oracle exception raised when a program attempts to divide a number by zero.
