A–1141

BCA(N)-201

Database Management System

Examination, June 2025

Time : 2:00 Hrs.   Max. Marks : 70

Note :– This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

Long Answer Type Questions   2×19=38

Note :– Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Discuss the purpose and characteristics of a Database Management System (DBMS). Explain the components of a DBMS and evaluate the merits and demerits of using a DBMS over traditional file systems.

2. Explain the concept of Data Models in Database Systems. Discuss the different types of data models with emphasis on the Entity-Relationship (ER) model. How does the ER model help in database design ?

3. Define the Relational Data Model and explain its key components such as Relation, Tuple, Attribute, Cardinality. Degree, and Domain. Illustrate with examples how a relational database is structured and its advantages.

4. What is SQL ? Discuss the basic structure of SQL queries and its main components. Provide an overview of the various SQL data types and SQL commands. Explain the role of relational operators and aggregate functions in SQL.

5. What is Normalization ? Explain its importance in database design. Describe the different normal forms (1NF, 2NF, 3NF, BCNF, 4NF, and 5NF) with examples and discuss the advantages of normalizing a database.

Section–B

Short Answer Type Questions   4×8=32

Note :– Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What are the components of a DBMS ? Describe their functions briefly.

2. Explain the differences between Centralized DBMS, Distributed DBMS, and Client-Server DBMS.

3. What is the difference between a relation and a table. Explain with examples.

4. What are Compound Conditions and Logical Operators in SQL ? Explain the use of AND, OR, and NOT operators with examples.

5. What is the role of a Database Administrator (DBA) ? Explain the key responsibilities of a DBA.

6. Explain the concept of keys in a database. Discuss the types of keys, including Primary Key, Foreign Key, and Candidate Key, with examples.

7. Describe the importance of database backup and recovery. What are the different types of database failures and recovery strategies ?

8. What are Integrity Constraints in a relational database ? Explain Entity Integrity, Referential Integrity, and Domain Constraints with examples.

****