Exam. Code   :   103205
Subject Code :   1178

B.A./B.Sc. 5ᵗʰ Semester
COMPUTER SCIENCE
(Database Management System & Oracle)

Time Allowed—3 Hours]   [Maximum Marks—75

Note :— Attempt any **FIVE** questions. All questions carry equal marks. The students can use only non-programmable and non-storage type calculator.

1. Discuss the three level architecture of database management system. Explain the various types of data independence. How mapping is performed between different levels of database architecture ? Explain.
                                                                15

2. What are the different threats to the security of database ? How can security of database be enforced ? Explain.   15

3. Write short notes on following :—
    (a) Distributed Databases   5
    (b) Knowledge Base Systems   5
    (c) Object Oriented Databases.   5

4. (a) What is Normalization and explain Domain Key Normal Form ?   10
    (b) Differentiate between relational algebra and relational calculus.   5

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5. (a) Compare the features of Network, Hierarchical and Relational model with the help of examples. 10

   (b) Explain the ACID properties of the transaction. 5

6. Write the relational algebra, relational calculus and SQL queries for the following :

   Loan (branch-name, loan-number, amount)

   Borrower (customer-name, loan-number)

   Account (account-no, branch-name, balance)

   Depositor (customer-name, account-no)

   (a) Find all loan numbers for loan with amount greater than Rs. 1,500. 7.5

   (b) Find the names of all the customers who have the loan from the "XYZ" branch and find the loan amount. 7.5

7. (a) Explain the difference between a FUNCTION, PROCEDURE and PACKAGE in PL/SQL. 10

   (b) Explain Implicit and Explicit cursors. 5

8. (a) What are database triggers and explain the types of triggers ? 10

   (b) If a table contains duplicate rows, does a query result display the duplicate values by default ? How can you eliminate duplicate rows from a query result ? 5