Q.P. Code: 24224

[Total Marks 80]

(3 Hours)

i. Q. 1. is Compulsory.
ii. Attempt any three from the remaining.
iii. Assume suitable data.

Q 1
a   Explain Data Independence   5
b   Explain Recursive queries and Nested queries   5
c   What are different Keys in ER diagram?   5
d   Explain Join Operations in relational algebra   5

Q 2
a   Explain different indexing types in database management system   10
b   Explain need of Normalisation along with all the normal forms   10

Q 3
a   Consider the following employee database.   10
    - **Employee(empname, street, city, date_of_joining)**
    - **Works(empname, company_name, salary)**
    - **Company(company_name, city)**
    - **Manages(empname, manager_name)**

    Write SQL queries for the following statements:
    1. Modify the database so that employee "Amruta" now leaves in "Konkan"
    2. Find number of employees in each city with date_of_joining as "01-Aug-2017"
    3. list name of companies starting with letter "A"
    4. Display empname , manager_name , street , city only for employees having manager

b   Explain in detail different database users   10

Q 4
a   Construct a dependency diagram of relation R and normalize it up to the BCNF Normal form   10
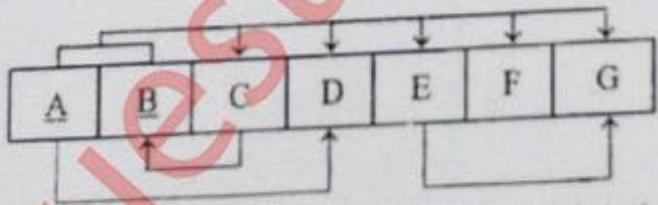
b   Explain different types of operators in relational algebra   10

Q 5
a   Explain the difference between stored procedure and functions in SQL   10
b   Draw EER diagram for Library Management System showing aggregation.   10

Q 6   Write a short note on:
a   Specialization and Generalization   5
b   DCL commands   5
c   Cursors and its types   5
d   Hashing techniques   5

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