

## Paper : IV

### Relational Database Management System

1. Define following terms :

- |                          |                            |
|--------------------------|----------------------------|
| (i) Super Key            | (ii) Functional Dependency |
| (iii) Degree of Relation | (iv) SELECT Operation      |
| (v) GRANT Command        | (vi) Tuple Variable.       |

#### UNIT-I

2. (a) What do you mean by union compatible relations? Explain Union, Intersection cross product and Difference operations. 10
- (b) What is complete set of Relational Algebra Operation? Explain. 8

3. (i) Explain following terms using Tuple Oriented Relational Calculus :

- (a) Tuple variable, (b) Well formed formula  
(c) Free & bound variable, (d) Free & bound variable.
- (ii) Write the query for the following database schema :  
deposit (branch\_name, acc\_no, cname, balance)  
branch (branch\_name, assets, bcity)  
customer (cname, houseno, ccity)

Write the Query for :

- (i) Find the names of all branches located in Kernel.  
(ii) Find all customers having an account at both the DSC and Model Town branch.

#### UNIT-II

4. (a) Consider the following two sets of FDs :

$$X = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\} \text{ and}$$
$$Y = \{A \rightarrow CD, E \rightarrow AH\}$$

check whether they are equivalent.

(b) Define normalization and following normal forms :  
1NF, 2NF & 3NF.

5. Define following :

- (i) Functional Dependency
- (ii) Fully Functional Dependency
- (iii) Trivial Dependency
- (iv) Non-Trivial Dependency
- (v) BCNF
- (vi) 3NF.

### UNIT-III

6. (a) What do you mean by Foreign key constraint ? Explain how will you apply foreign key constraint at column level and table level.
- (b) Explain difference bet. Alter table command and Update command in SQL with an example.
7. (a) What data types are available in SQL ? Explain. 8
- (b) What is DDL commands ? Explain two Data Definition commands with their purpose, example.
- (c) Define Rollback and Commit commands.

### UNIT-IV

8. (a) What do you understand by cursors ? Why are they used in PL/SQL ? 12
- (b) What is meant by variable and constants ? What is the difference between them ? 6
9. (a) Explain the structure of a simple PL/SQL block. 6
- (b) Explain Iterative statement used in Oracle PL/SQL. Give example of all the types. 12