## Bachelor of Science (B.Sc. I.T.) Semester-II (C.B.S.) Examination

## DATABASE MANAGEMENT SYSTEM <br> Paper-V

Time : Three Hours]
[Maximum Marks : 50
Note :- (1) All questions are compulsory and carry equal marks.
(2) Draw neat and labelled diagram wherever necessary.

## 1. EITHER

(A) Explain the network data model with suitable example. 5
(B) Explain the problems with the conventional file processing system.

## OR

(C) Explain the hierarchical data model with a suitable example. 5
(D) Explain three level architecture of DBMS. 5
2. EITHER
(A) Define candidate key, super key and primary key. Explain weak entity set with suitable example.
(B) Explain the following attributes giving a suitable example :
(i) Simple and Composite attribute
(ii) Null attribute
(iii) Derived attribute.

## OR

(C) Construct an E-R diagram for a Car insurance company that has a set of customers, each of whom owns one or more cars. Each car has associated with it zero to any number of recorded accidents.
(D) Explain specialization and generalization with suitable example.

## 3. EITHER

(A) Explain the following relational algebra operation with suitable example :
(i) Cartesian product operation.
(ii) Intersection operation.
(B) Explain natural join operation with suitable example.

OR
(C) Consider the following relations :

Loan (branch_name, loan_number, amount)
Borrower (customer_name, loan-number)
Write a query to find :
(i) List all loan numbers and amount of loan.
(ii) List name of all customers who have a loan at "Buldi" branch.

5
(D) Explain the following relational algebra operations with suitable example :
(i) Division
(ii) Assignment.

## 4. EITHER

(A) Explain first and second normal form with suitable example.5
(B) Explain the following :-
(i) Full functional dependency.
(ii) Transitive functional dependency.

## OR

(C) Explain BCNF with with suitable example.5
(D) Explain multivalued dependency with suitable example. 5
5. Attempt all :-
(A) Explain data redundancy and data inconsistency. $2 \frac{1}{2}$
(B) Define entity and attributes with suitable example. $2 \frac{11 / 2}{21 / 2}$
(C) Explain selection operation with suitable example. $2 \frac{1122}{21 / 2}$
(D) Define 3NF. $2 \frac{1122}{2}$

