NKT/KS/17/5306

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

DATABASE MANAGEMENT SYSTEM

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. 5

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. 5

(B) Explain the following attributes giving a suitable example :

(i) Simple and Composite attribute

(ii) Null attribute

(iii) Derived attribute. 5

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. 5

(D) Explain specialization and generalization with suitable example. 5

3. **EITHER**

(A) Explain the following relational algebra operation with suitable example :

(i) Cartesian product operation.

(ii) Intersection operation. 5

(B) Explain natural join operation with suitable example. 5

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. 5

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. 5

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. 2½

(B) Define entity and attributes with suitable example. 2½

(C) Explain selection operation with suitable example. 2½

(D) Define 3NF. 2½