NKT/KS/17/5306

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

Paper—V

| Im | ne : I | nree Hours] [Maximum Marks | : 50 |
|----|--------|--|------|
| | Note | $\mathbf{e} := (1)$ All questions are compulsory and carry equal marks. | |
| | | (2) Draw neat and labelled diagram wherever necessary. | |
| 1. | EIT | HER | |
| | (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. | EIT | HER | |
| | (A) | Define candidate key, super key and primary key. Explain weak entity set with suit | able |
| | | 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 | h of |
| | | whom owns one or more cars. Each car has associated with it zero to any number of reco | rded |
| | | 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. 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: List all loan numbers and amount of loan. 5 (ii) List name of all customers who have a loan at "Buldi" branch. (D) Explain the following relational algebra operations with suitable example: Division (i) (ii) Assignment. 5 **EITHER** 4. (A) Explain first and second normal form with suitable example. 5 (B) Explain the following:— Full functional dependency. (i) (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.

(B) Define entity and attributes with suitable example.

(C) Explain selection operation with suitable example.

(D) Define 3NF.

 $2\frac{1}{2}$

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