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44 (3) BCA-HC-3036/3.3

2023

DATABASE MANAGEMENT SYSTEM

Paper : BCA-HC-3036/3.3

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. 2×5=10

- (a) Define Fixed length records and variable length records.
- (b) What do you mean by DML and DDL?
- (c) Define physical model.
- (d) Define candidate key with an example.
- (e) Differentiate between strong and weak entity.

Contd.

2. Answer **any eight** questions : $5 \times 8 = 40$

- (a) Distinguish between Traditional File Approach vs. DBMS approach.
- (b) Briefly explain the different types of DBMS users.
- (c) Briefly explain the different types of constraint used in SQL.
- (d) Explain the role of DBA.
- (e) Write the steps of conversion for ER model into relational schema.
- (f) Explain the 2NF and 3NF with example.
- (g) Explain the ANSI/SPARC 3 level architecture with diagram.
- (h) Briefly explain the different types of attributes in ER diagram.
- (i) Draw an ER diagram for bank database with 5 entities and 5 attributes for each entity. Specify the cardinality ratio on each of the relationships existing between entities.

(i) Briefly explain the functional dependency.

3. Consider the following relational schema :

10

Employee (empno,name, office, age)

Books(isbn,title,authors,publisher)

Loan(empno, isbn,date)

Write the following queries in relational algebra.

(a) Find the names of employees who have borrowed a book Published by McGraw-Hill.

(b) Find the names of employees who have borrowed all books Published by McGraw-Hill.

(c) Find the names of employees who have borrowed more than five different books published by McGraw-Hill.

(d) For each publisher, find the names of employees who have borrowed ?

Create tables *Department* and *Employee* with the attributes given below :

Employee (EmpNo, Empname, Address, Dno)

Department (Dno, Dname, Location)

Dno in Employee is a foreign key.

Write appropriate queries to perform the following operations :

- (a) To insert values in the tables.
- (b) To retrieve the names and addresses of all Employees working in the Finance department.
- (c) To print the location where Administration department is located.
- (d) To delete all information regarding a particular employee.