(c) What is the need of join ? How many types of join ? Explain through suitable example. (CO3)

4. (a) What do you mean by normalization ? Why is it important for database ? How BCNF is more stronger than 3NF ? (CO4)

(b) Explain all the aggregate and mathematical function with syntax and suitable example. (CO4)

(c) Explain the following terms : (CO4)

Single Valued Functional Dependency, Multivalued Functional Dependency,

Trivial Functional Dependency, Partial dependency, Transitive dependency.

5. (a) What do you mean by concurrency ? Why concurrency control is needed ? (CO5)

(b) Explain the difference between serializable and conflicting schedule with suitable example. (CO5)

(c) Why recovery is needed ? Explain the deferred update and immediate update recovery techniques. (CO5)

H Roll No. .....

TCS–503

B. TECH. (CSE)
(FIFTH SEMESTER) END SEMESTER EXAMINATION, Jan., 2023

DATABASE MANAGEMENT SYSTEM

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) Explain the three tier architecture of DBMS with suitable example. (CO1)

(b) What is Database language ? How many types of Database languages are there ? Explain with example. (CO1)

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(c) What are the limitations of hierarchical model ? How can we overcome from this problem ? (CO1)

2. (a) Draw the ER diagram for a company needs to store information about employees (identified by ssn, with salary and phone as attributes), departments (identified by dno, with dname and budget as attributes) , and children of employees (with name and age as attributes). Employees work in departments each department is managed by an employee, a child must be identified uniqueiy by name when the parent (who is an employee, assume that only one parent works for the company) is known. We are not interested in information about a child once the parent leaves the company. (CO2)

(b) Explain the concept of specialization, generalization and aggregation with example. (CO2)

(c) Explain about integrity constraints over relations. (CO2)

3. (a) Consider the following relations and write the SQL : (CO3)

employee (emp_no, emp_name, job, hiredate, Basic_sal, comm)

dept (dept_no, emp_no, dept_name, dept_loc)

Note : Assume that tables are already created.

(i) List the name of employee who belong to "MCA' department.

(ii) Define the emp_no of employee as a primary key.

(iii) Define the emp_ no of dept table as a foreign key in the reference of emp _no attribute of employee table.

(iv) List the name of employee who is not getting any commission.

(v) Increase the width of dept_loc from char(10) to varchar(15).

(b) What do you mean by set operators used in Relational Alzebra ? Explain with syntax and suitable example. (CO3)