

Department of Computer Science

University of Delhi

MCSE 204: Database Applications (CIA-I)

Time: 1 hour

June 17, 2022

Maximum Marks: 15

1. Mr. X wants to set up a database to record details related to customers, salespeople, products, etc., for his recently launched grocery store. For smooth functioning, he has listed out the following requirements. [7]

- A salesperson may manage many other salespeople.
- A salesperson is managed by only one salespeople.
- A salesperson can be an agent for many customers.
- A customer is managed by one salespeople
- A customer can place many orders
- An order can be placed by one customer and may contain many inventory items
- An inventory item may be listed on many orders and can be assembled from many parts
- A part may be assembled into many inventory items
- Many employees assemble an inventory item from many parts
- A supplier supplies many parts and a part may be supplied by many suppliers.

Construct an E-R diagram that models the above scenario.

2. Consider the relation *Employee*(*Name*, *Manager*, *Salary*) given below. [1]

Name	Manager	Salary
Amit	Prakash	10000
Arun	Ankit	5000
Aditya	Prakash	7000

What is the output of the following SQL query?

```
SELECT Count(*)
FROM ( (SELECT Name, Manager
        FROM Employee) AS S
      NATURAL RIGHT OUTER JOIN (SELECT Salary
                                FROM Employee) AS T );
```

3. What does the following SQL query list? Justify your answer. [2]

```
SELECT Student_name
FROM Students
WHERE class_name=(SELECT class_name
                  FROM Students
                  WHERE math_marks=100);
```

4. Write a sql query to delete duplicate records from the relation *Employee*(*Name*, *Manager*, *Salary*). [2]

5. The relation *Employee*(*Name*, *Salary*) contains the names and salaries of different employees. Assuming that no two employees have the same salary, what does the following SQL query list? Justify your answer. [3]

```
SELECT Name
FROM Employee as B
WHERE (SELECT count(*)
       FROM Employee as T
       WHERE T.Salary > B.Salary) < 5
```