Roll No. _____ Name _____ Section ____

National University of Computer and Emerging Sciences, Lahore Campus

Course:	**Database Systems**	**Course Code:**	**CS2005**
Program:	**BS(CS, DS, SE)**	**Semester:**	**Spring 2023**
Duration:	**60 Minutes**	**Total Marks:**	**25**
Paper Date:	**28-Feb-23**	**Weight**	**15%**
Section:	**ALL**	**Page(s):**	**2**
Exam:	**Midterm-I**		

Instruction/Notes: **Solve the questions in the given order.**
You will not get any credit if you do not show proper working, reasoning, and steps as asked in the question statements.

Consider the following database for an Online fruit and vegetable shop FreshFruVeg . A customer can order fruits and vegetables, and the shop delivers the required items on the same day.

The attribute CID is a foreign key in the ORDER table, and attributes OID and IID are foreign keys in the ORDERdetail table. The attribute AmountKg indicates the amount in kilograms ordered by the Customer. The price of the items (fruit/vegetable) are not fixed and may differ daily depending on the economic changes.

ORDERdetail

OID	*IID*	AmountKg	PricePerKg
1	1	1	100
1	3	2	95
3	5	2.5	50
2	1	6	95
1	5	1	80
1	4	2	200
2	4	1.5	55
4	8	2	75

ORDER

OID	CID	date
1	4	12-jan-2023
2	4	28-dec-2022
3	5	10-jan-2023
4	2	12-jan-2023

CUSTOMER

CID	Name	Age	Gender
1	Tahreem	25	F
2	Izaan	50	M
3	Isbah	42	F
4	Ismail	25	M
5	Alia	18	F
6	Khadija	25	F

ITEMS

IID	IName	Type
1	Apple	Fruit
8	Orange	Fruit
3	Bringle	Vegetable
5	Ocra	Vegetable
6	Potato	Vegetable
4	Strawberry	Fruit

Q1. *(5 points)* Write the result of the following queries for the database state given above and **explain in one sentence what these queries are doing.**

a. Select OID from Order join Customer on Order. CID = Customer.CID where Gender ='M'
Except (Select O.OID from Orderdetails as O join Item as I on O.IID = I.IID where I.Type = 'fruit' **Intersect**
Select O.OID from Orderdetails as O join Item as I on O.IID = I.IID where I.Type = 'vegetable')

b. Select O.OID, O.CID
From Order O join Orderdetail OD on O.OID=OD.OID
Groupby O.OID, O.CID
Having sum(OD.AmountKg * OD.PricePerKg) > 300

Q2. *(15 points)* Specify the following queries in ***SQL***

a. Print the CID of the teenage customers who have placed an order before 1-Jan-2023.
b. Retrieve the name of Items that are **not** ordered by any customer.
c. Print the CID of the Customers who have placed more than three orders **in a day.**

PTO for Question 3

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Q3. *(5 points)* Apply the following operations on the above database. **State clearly if the operation would be carried out successfully or not**.

Explain your answer briefly. In case of a successful operation, indicate the changes that will be made to the above database (i.e., clearly point out which rows are updated/deleted). In case of failure, explain why it failed.

Please note that all operations are independent.

Assume the referential integrity constraint on foreign keys (ORDERdetail.OID, ORDERdetail.IID, ORDER.CID) is ON DELETE/UPDATE CASCADE.

a) INSERT INTO Order VALUES (6, 8, 12-Jan-2023)

b) DELETE FROM Order WHERE OID= 2

c) DELETE FROM Customer WHERE Age=25

d) UPDATE OrderDetail SET PricePerKg = 100 Where IID >4

e) UPDATE OrderDetail SET IID = 4 Where IID = 5