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Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
Midterm Examination, Fall 2025
Course Code: SE 223; Course Title: Database System
Sections & Teachers: NJ(A), TRT (B, C, E, P), CP(D, O), KRA(F, I, J), SS(G), KMH(H), MMSI(K, L), AR(M, N)

Time: 1:30 Hrs **Marks: 25**

Answer ALL Questions

A "*Restaurant Management System*" is used to manage the operations of a restaurant. The system stores data in several tables. Among these, two tables are given below for study and analysis.

Table: Order

OrderID	ItemType	Date	TotalAmount	Cid
OR001	Chinese	11-10-24	5000 tk	C101
OR002	Bangla	10-12-24	4500 tk	C103
OR003	Thai	05-02-25	5500 tk	C101

Table: Customer

CID	CustomerName	City	Phone
C101	Rafiq Ahmed	Dhaka	01811111111
C102	Sadia Rahman	Dhaka	01822222222
C103	Kamal Hossain	Chittagong	01833333333

Consider the given tables and answer the following Questions 1, 2, and 3.

1.	*a)*	Using Scenario 1, **Identify** and describe the schema of the given tables and explain what an Entity is with an example from any one of the tables.	[Marks-3]	CLO-1, Level-4]
	b)	**Analyze** the components required to design a '*Restaurant Management System*' and explain how they work together.	[Marks-2]	
	c)	**Explain** the three levels of data abstraction for the System.	[Marks- 3]	
	d)	**Analyze** which type of data independence (logical or physical) is most relevant when adding a new column, and justify your answer.	[Marks-2]	
2.	*a)*	**Solve** relational algebra to the following questions: a) Find the names and phone numbers of all customers located in Dhaka. b) Display customer names along with their order items. c) Find the customer name who ordered more than 5000tk or from Chittagong. d) Find all customers who have never placed any order. e) List all customers from Dhaka, and ordered Thai.	[Marks-5]	CLO-2 *Level-3*

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3.	*a)*	**Show** the results of Right Join, Full Outer Join for the given tables.	[Marks- 2]	CLO- 3, Level-3
	b)	Using question 3, **Solve** SQL commands to express each of the following queries: I. Create both tables with appropriate key attributes. II. Add the *FavouriteFoodType* column to the Order table. III. Insert the sample data provided earlier into both these tables.	[Marks-3]	
4.		QuickRide is a ride-sharing platform operating across major cities in Bangladesh, connecting passengers with drivers for convenient transportation. Each driver has a unique driver ID, name, phone number, email, and joining date. Drivers provide vehicle details, including registration number, model, vehicle type (Bike, Car, CNG), and can own multiple vehicles but use only one per trip. Passengers register with a passenger ID, name, phone number, email, and can save multiple locations, like home or office, with complete addresses. Each trip has a trip ID, pickup location, drop-off location, pickup time, drop-off time, distance, total fare, and payment method. After completing a trip, both passengers and drivers rate each other on a 1-5 star scale with optional comments and a timestamp. **Illustrate** an ERD for the QuickRide System, specifying entities, their attributes, and the relationships between them with appropriate cardinalities.	[Marks-5]	CLO-2 *Level-4*