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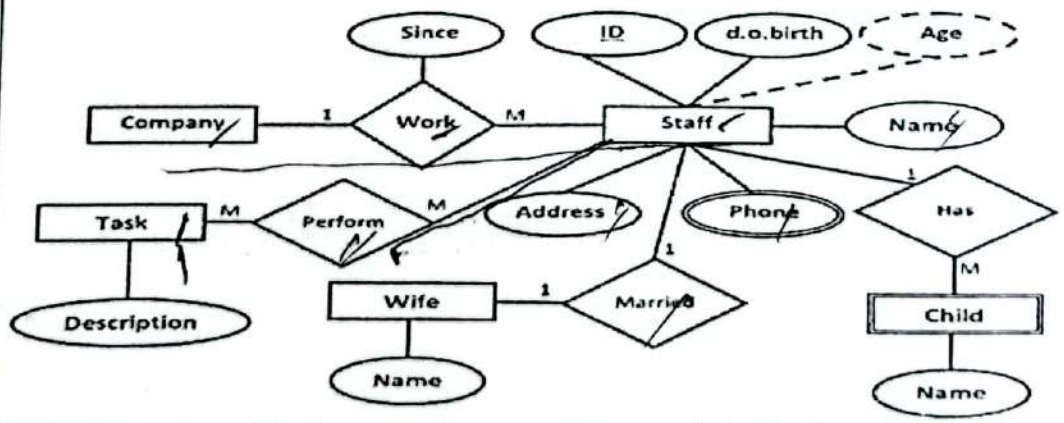
Daffodil International [illegible]

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Midterm Examination, Fall 2024
Course Code: CSE311, Course Title: Database Management System
Level: 3, Term: 2, Batch: 61

Time: 01:30 Hrs **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	FastTrack Logistics, a growing logistics company, prides itself on providing real-time tracking information for the packages it delivers. To achieve this, FastTrack relies on an integrated information system to monitor each package's journey from the origin to the final destination. The core of the system is the Packages being delivered. Each package is identified by a unique Tracking Number and is characterized by attributes such as Weight, Dimensions, Declared Value, Destination Address, and Estimated Delivery Date. Packages are dropped off at Distribution Centers, each identified by a unique Center ID, along with attributes like Type (e.g., Regional, National) and Location (Address). A package can only be processed at one Distribution Center. Packages are transported through various Delivery Routes, each with a unique Route Number. Delivery Routes can involve different transportation types, such as Truck or Airplane, and are defined by a Route Schedule, Starting Point, and End Point. Additionally, each package can be tracked through Status Updates, where a record is made every time the package reaches a checkpoint (e.g., "Package Received", "In Transit", "Out for Delivery", "Delivered"). Each Status Update is identified by a unique Status ID, Timestamp, and Current Location. Status updates are closely associated with the package and are uniquely defined by the Tracking Number along with the Timestamp at each checkpoint. Using the scenario above, **Design** an E-R diagram for the FastTrack Logistics delivery system. Identify the entities, relationships, and attributes. Be sure to indicate primary keys, composite keys, and cardinalities for each relationship.	[7]	CO1
2.	 **Explain** How above ER diagram can be converted into a relational schema.	[4]	CO1

Fearing death doesn't mean running from it, but rather preparing for it

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3. **Apply** the necessary SQL queries or sub queries to answer the following queries based on the two tables: [8] CO2

Table 1: Books:

Book ID	Title	Author	Genre	Price
1001	The Catcher in the Rye	J.D. Salinger	Fiction	15.99
1002	To Kill a Mockingbird	Harper Lee	Fiction	12.99
1003	A Brief History of Time	St.Hawking	Non-Fiction	18.5
1004	The Art of War	Sun Tzu	Philosophy	14
1005	The Great Gatsby	F. Scott Fitzgerald	Fiction	10.99

Table 2: Customers

Customer ID	Name	Email	Phone Number	Membership Status
C001	Alice Johnson	alice.johnson@example.com	555-1234	Active
C002	Bob Smith	bob.smith@example.com	555-5678	Inactive
C003	Carol Davis	carol.davis@example.com	555-8765	Active
C004	David Lee	david.lee@example.com	555-4321	Active
C005	Emily Brown	emily.brown@example.com	555-6789	Inactive

a) Retrieve the Book ID and Title of books that are priced higher than the average price of all books.
b) Delete the record of the book with Book ID 1004 from the table
c) Find the Author of the most expensive book in the 'Fiction' genre.
d) ~~Here's a rewritten version of the sentence:~~
e) Display the Title and Price of books that cost less than any book authored by 'Stephen Hawking'.
f) List all the active [Membership status] customer details.
g) Update the Price of all books in the 'Philosophy' genre by increasing it by 10%
h) Display the highest price of books in the 'Fiction' genre in Table 1.

4. [6] CO1

Admission ID	Patient Name	Phone	Diagnosis	Treatment	Medication ID	Medications Ordered	Dosage	Total Cost
A001	John Doe	12345678	Flu	Rest, Hydration	M001	Pain Reliever	2	150
A002	Alice Smith	98765432	Cold	Rest	M002	Antihistamine	1	75
A003	John Joe	85889678	Flu	Rest, Hydration	M001	Pain Reliever	2	150
A004	Bob Johnson	55555555	Fever	Antibiotic	M003	Antipyretic	3	120

Simplify and break down the process of normalizing the table shown in figure up to 3rd Normal Form. State any assumptions you make about the data shown in this table. Consider that Composite key is(Admission ID and Medication ID)