Phi Phan

CSCI 4125

Dr. Wagner

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**Part A. Short Answer (10 points)**

Answer the two questions given the following database schema and relational database instance containing three relations:

ITEM (ID, Name, Size)

ID is the primary key for ITEM.

PURCHASE (CustomerID, ItemID, PurchaseDate)

CustomerID, ItemID, and PurchaseDate is the (composite) primary key for PURCHASE.

CustomerID is a foreign key that references CUSTOMER.ID.

ItemID is a foreign key that references ITEM.ID.

CUSTOMER (ID, Name, Address)

ID is the primary key for CUSTOMER.

ITEM records:

(1, Monster Truck, 12)

(2, Jet Pack, 8)

(3, Flux Capacitor, 20)

(4, Royale with Cheese, 5)

(5, Bat Mobile, 22)

PURCHASE records:

(2, 3, 1/1/2018)

(3, 3, 1/1/2018)

(1, 4, 5/30/2016)

(1, 4, 9/5/2018)

(3, 1, 12/31/2017)

(3, 5, 6/1/2016)

CUSTOMER records:

(1, Dr. Jones, Chicago)

(2, Doc Brown, Los Angeles)

(3, Dr. Venkman, New York)

1. For each table, construct a new tuple that does not violate any constraints. Make sure that you consider the existing values.

ITEM records:

(1, Monster Truck, 12)

(2, Jet Pack, 8)

(3, Flux Capacitor, 20)

(4, Royale with Cheese, 5)

(5, Bat Mobile, 22)

**(6, Hot Wheels, 21)**

PURCHASE records:

(2, 3, 1/1/2018)

(3, 3, 1/1/2018)

(1, 4, 5/30/2016)

(1, 4, 9/5/2018)

(3, 1, 12/31/2017)

(3, 5, 6/1/2016)

**(2, 6, 8/29/2000)**

CUSTOMER records:

(1, Dr. Jones, Chicago)

(2, Doc Brown, Los Angeles)

(3, Dr. Venkman, New York)

**(4, Dr. Octopus, New York)**

2. Which records can be removed from ITEM without violating any constraints?

**(2, Jet Pack, 8)**