Purchased Note: 7, 5, 4 means three Product IDs. Similarly, 1, 1, 5 means three Quantities

Functional Dependencies are:

OID -> O_Date CID -> C_Name PID -> P_Desc

PID -> P_Price OID -> CID CID -> C_State

PID and OID -> Qty

Table 1:

OID	O_Date	CID	C_Name	C_State	P_IDesc	P_Price	P_Price	Qty
1006	10/24/22	2	Apex	NC	7,5,4	Table, Desk, Chair	800, 325, 200	1, 1, 5
1007	10/24/22	6	Acme	GA	11,4	Dresser, Chair	500, 200	4, 6

THE UNIVERSITY OF DODOMA

COLLEGE OF INFORMATICS AND VIRTUAL EDUCATION

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CP 224- DATABASE MANAGEMENT SYSTEM

Test 01

May 2022

INSTRUCTIONS TO CANDIDATES:-

1. Closed Book Examination.
2. Attempt ALL questions

Duration: 90 minutes.

Question One

Coca Cola Co. produces a wide range of products that are delivered to the customers once a week. The Coca Cola Co. keeps the information about the employees, products, and customers in a database. The database considers the following set of tables:

The company keeps the following information about each customer: customer identification number, name, address, X (longitude) and Y (latitude) coordinates of their location, amount of time (fraction of an hour) required to make a stop at a customer, type of product that is used by a customer, mean rate at which customer uses product per day in a week, standard deviation of this usage rate, the limit on how much inventory of a product can be held at a customer, initial inventory of product at a customer.

Each employee has an employee identification number, name, address (the address consists of city, state, and zip code), sex, birthday, position in the company, wage earned per hour of regular time work, wage earned per hour of overtime work, number of dependents, and number of years working for Coca Cola Co.

Each product has a product identification number, price and number of units produced per day.

a) Draw an E-R diagram for the Coca Cola Co and add the minimum and maximum relationship cardinalities. Identify the key attributes for each entity and composite key **[5 Marks]**

b) Draw a relational schema diagram then specify entity integrity constraints, and referential integrity constraints **[5 Marks]**

c) Use the relational schema to write the following queries

i. Find the name and position of the employee who produce the most significant number of products **[2 Marks]**

ii. Find names of employees involved in producing all three most bought products. **[3 Marks]**

Question Two. **[10 Marks]**

Put the table 1 in the normalised form: please show all steps.

OID = Order ID, **O_Date**= Order Date, **CID** = Customer ID,

C_Name = Customer Name, **C_State** = Customer's State,

PID = project id, **P_Desc** =Project Name,

P_Price = Product Price, **Qty** = Quantity