**Functional Dependencies – Assignment 6**

Functional dependencies are a relationship between two sets of attributes in a relational database. A functional dependency between two sets of attributes A and B is denoted by A → B, which means that if two tuples agree on the attributes in A, they must also agree on the attributes in B.

1. **Customer Table**

**Functional Dependencies:**

{Customer\_ID} → {F\_Name, L\_Name, Address, Email, C\_Points, C\_Gifts, C\_History**}**

**Reasoning:**

Customer\_ID is the primary key of the Customer table, meaning that each customer has a unique Customer\_ID. This implies that knowing a customer's ID uniquely determines all other attributes of that customer. Therefore, all other attributes are functionally dependent on Customer\_ID.

1. **Item Table**

**Functional Dependencies:**

{Item\_ID} → {Item\_Name, Item\_Price, Item\_Quantity}

**Reasoning:**

Item\_ID is the primary key of the Item table, meaning each item is uniquely identified by its Item\_ID. Therefore, knowing an item's ID uniquely determines its name, price, and quantity.

1. **Store Table**

**Functional Dependencies:**

{Branch\_ID} → {Branch\_Name, Branch\_Location, Branch\_Stock}

**Reasoning:**

Branch\_ID is the primary key of the Store table, meaning each store branch is uniquely identified by its Branch\_ID. Knowing a branch's ID uniquely determines its name, location, and stock.

1. **Billing Table**

**Functional Dependencies:**

{Transaction\_ID} → {Taxes, Total\_Amount, Discounts, Payment\_Method, Status, Returns, Transaction\_Date}

**Reasoning:**

Transaction\_ID is the primary key of the Billing table, meaning each transaction is uniquely identified by its Transaction\_ID. Therefore, knowing a transaction's ID uniquely determines all other attributes of that transaction.

1. **Employee Table**

**Functional Dependencies:**

{E\_ID} → {F\_Name, L\_Name, Address, Email, E\_Hours, P\_Number, E\_Wage, Banking\_Info}

**Reasoning:**

E\_ID is the primary key of the Employee table, meaning each employee is uniquely identified by their E\_ID. Knowing an employee's ID uniquely determines all other attributes of that employee.

These functional dependencies reflect the constraints that the primary keys impose on the tables, ensuring that each tuple in a table is uniquely identified by its primary key, and all other attributes are dependent on that primary key.