Q1.Ans:- The relationship between the "Product" and "Product\_Category" entities is typically represented by a one-to-many relationship.

This means that one product can belong to only one product category, but a product category can have multiple products associated with it.

Q2.Ans:-To ensure that each product in the "Product" table has a valid category assigned to it,

Foreign Key Constraint: Define a foreign key constraint on the "category\_id" column in the "Product" table. This constraint should reference the primary key column in the "Product\_Category" table, which is typically an ID field representing the category.

Disallow NULL Values: Ensure that the "category\_id" column in the "Product" table does not allow NULL values. This means every product must have a category assigned to it.

Cascade Actions: Optionally, you can specify cascade actions on the foreign key constraint. For instance, if a category is deleted from the "Product\_Category" table, you can choose to either cascade the deletion of associated products or set the category ID of those products to a default or NULL value.

Application Logic: Implement application-level checks to ensure that products are assigned to valid categories before insertion or update. This can involve validating the category ID against existing categories in the "Product\_Category" table before allowing the operation to proceed.

Q3.Ans :- This is code to Create the schema in MySql command prompt .

Create Product\_Category table

CREATE TABLE Product\_Category (

category\_id SERIAL PRIMARY KEY,

name VARCHAR(100) NOT NULL,

description TEXT

);

-- Create Product table

CREATE TABLE Product (

product\_id SERIAL PRIMARY KEY,

name VARCHAR(255) NOT NULL,

price DECIMAL(10, 2) NOT NULL,

description TEXT,

category\_id INT NOT NULL,

FOREIGN KEY (category\_id) REFERENCES Product\_Category(category\_id)

);