ASSIGNMENT 2

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Answers:

Q.1.

Tuple Relational Calculus:

{t | ∃ s ϵ products (t[Price] = s[Price] Λ s[Price] >= 10000 and s[Price] <= 20000 Λ t[Product_Type] = s[Product_Type] Λ t[Product_Name] = s[Product_Name])}

Domain Relational Calculus:

{<p,n,t> | ∃ d,de,id,q,r (<d,p,de,id,n,t,q,r> ϵ products Λ p >=10000 Λ p <=20000 Λ t = 'Electronics')}

Q.3.

Tuple Relational Calculus:

{t | t ϵ product_books (t[Year_Published] > 2001}

Domain Relational Calculus:

{<a,b,p,y> | <a,b,p,y> ϵ product_books Λ y > 2001}

Q.4.

Tuple Relational Calculus:

{t | t ϵ products (t[Date_when_added] > '2019-07-27'}

Domain Relational Calculus:

{<n> | ∃ d,p,de,id,t,q,r (<d,p,de,id,n,t,q,r> ϵ products Λ d > '2019-07-27')}

Q.5.

Tuple Relational Calculus:

{t | ∃ s ϵ past_orders (s[User_I] = 55 ∧ ∃ u ϵ products (u[Product_ID] = s[Product_ID] ∧ ∃ v ϵ retailer (v[Retailer_Name] = u[Retailer_Name] ∧ t[Retailer_ID] = v[Retailer_ID])))}

Domain Relational Calculus:

{<r_id> | ∃ i,o_id,p_id,d,q,r,re,a,u_id,v (< i,o_id,p_id,d,q,r,re,a,u_id,v> ϵ past_orders (u_id = 55 ∧ ∃ d,p,de,id,n,t,q,r_n (<d,p,de,id,n,t,q,r_n> ϵ products (p_id = id) ∧ ∃ c,co,m,r_name (<c,co,m,r_n,r_id> ϵ retailer (r_name = r_n)))))}