**1. Select the make\_name and model\_name of all vehicles which have a first production year of 1976**

/\*Relational Algebra Expression:\*/

π make\_name, model\_name

σ (first\_production\_year = '1976' )

((Make ⨯ Model )

⨝ Vehicle.fk\_make\_id = Make.make\_id ∧ Vehicle.fk\_model\_id = Model.model\_id Vehicle)

**2. Select the make\_name and model\_name of all vehicles with the color name Blue**

/\*Relational Algebra:\*/

π make\_name, model\_name

σ Color.name = 'Blue'

((((Model ⨯ Make)

⟕ Vehicle.fk\_make\_id = Make.make\_id ∧ Vehicle.fk\_model\_id = Model.model\_id Vehicle )

⟕ Inventory.fk\_vehicle\_id = Vehicle.vehicle\_id Inventory )

⟕ color\_id = Inventory.fk\_color\_id Color)

**3. Select the make\_name, model\_name and incentive amount for all vehicles with a dealer type incentive**

/\*Relational Algebra:\*/

π make\_name, model\_name, amount

σ Incentive.type = 'dealer'

(((Make ⨯ Model ⨯ Incentive )

⨝ Vehicle.fk\_make\_id = Make.make\_id ∧ Vehicle.fk\_model\_id = Model.model\_id Vehicle)

⨝ Vehicle\_Incentive.fk\_vehicle\_id = Vehicle.vehicle\_id Vehicle\_Incentive)

4. Convert the following query to relational algebra

SELECT Player.id, Team.name, City.name FROM Player

INNER JOIN Team ON Player.team\_id = Team.id

INNER JOIN City ON Team.city\_id = City.id

WHERE Player.score = 100;

π Player.id, Team.name, City.name

σ Player.score = 100

(((Player)

⨝ Player.team\_id = Team.id Team)

⨝ Team.city\_id = City.id City)

/\*5. For problem 3 above, convert your relational algebra query into a SQL query. \*/

select distinct make\_name, model\_name, amount

from Make, Model, Incentive

inner join Vehicle on Vehicle.fk\_make\_id = Make.make\_id

and Vehicle.fk\_model\_id = Model.model\_id

inner join Vehicle\_Incentive on Vehicle\_Incentive.fk\_vehicle\_id = Vehicle.vehicle\_id

Where Incentive.type = 'dealer'