**CS 630 HW1**

**Q 1**

1. Πyear((( σzipcode = ‘02125 ’ Customers ) ⨝ Orders) ⨝ Books)
2. Πzipcode((σprice>100 ((σquantity>=10 Orders) ⨝ Books)) ⨝ Customers)
3. Πcname(((σyear>=1990 Books) ⨝ Orders) ⨝ Customers)
4. ρ(T, σauthor = ‘Edd Codd ’ Books)

ρ(F, Πcname((σquantity>=1 (T⨝ Orders) ) ⨝ Customers))

ρ(D, σbname = ‘Databases ’ Books)

ρ(G, Πcname((σquantity>=10 (D⨝ Orders) ) ⨝ Customers))

F U G

1. ρ(T, (Order ⨝ Books))

Πcname((σquantity\*price>1000 T) ⨝ Customers)

1. Πauthor ((σquantity=1 Orders) ⨝ Books)
2. ρ (P,Πbname,zipcode ((Books ⨝ Orders) ⨝Customers))

ρ (Q,Πbname,zipcode ((Books ⨝ Orders) ⨝Customers))

ρ(F, P ⨝ P.zipcode=Q.zipcode Q)

Πbname(P - F)

**Q 2**

1. Πpname (σprice<=800((σaircraft=”B787” Flights) ⨝ Tickets) ⨝Passengers)
2. Πage (((σto=BOS’ v from=’BOS’ Flights) ⨝ Tickets) ⨝Passengers)
3. Πprice ((σaircraft=’B777’ Flights) ⨝ Tickets)
4. Πcity ((σmiles>500 v price<=500 (Flights ⨝ Tickets)) ⨝Passengers)
5. Πfrom ((σcity=’Boston’ v city=’Chicago’ Passengers) ⨝ Flights )
6. ρ(F1, Flights) ρ(F2, Flights)

ρ(G, F1 x F2)

ρ(H, (σF1.from <> F2.to G ) Ո (σF1.to = F2.from G) )

Πpname ((H ⨝ Tickets) ⨝ Passengers)