

1.)

a.) $\pi_{\text{year}}(\pi_{\text{bid}}((\pi_{\text{cid}}(\sigma_{\text{zipcode}=02125} \text{ Customers})) \bowtie \text{Orders}) \bowtie \text{Books})$

b.) $\pi_{\text{zipcode}}((\pi_{\text{cid}}(\sigma_{\text{quantity}>9} ((\pi_{\text{bid}}(\sigma_{\text{price}>100} \text{ Books})) \bowtie \text{Orders}))) \bowtie \text{Customers})$

c.) $\rho_{\text{badbooks}}(\pi_{\text{cid}}((\pi_{\text{bid}}(\sigma_{\text{year}<1990} \text{ Books})) \bowtie \text{Orders}))$

$\pi_{\text{name}}(((\pi_{\text{cid}} \text{ Orders}) - \text{badbooks}) \bowtie \text{Customers})$

d.) $(\pi_{\text{name}}((\pi_{\text{cid}}((\pi_{\text{bid}}(\sigma_{\text{author}=\text{Edgar Codd}} \text{ Books})) \bowtie \text{Orders})) \bowtie \text{Customers})) \cup$
 $(\pi_{\text{name}}((\pi_{\text{cid}}(\sigma_{\text{quantity}>9} ((\pi_{\text{bid}}(\sigma_{\text{obname}=\text{Databases}} \text{ Books})) \bowtie \text{Orders}))) \bowtie \text{Customers}))$

e.) --

f.) --

2.)

a.) $\pi_{\text{pname}}((\pi_{\text{pid}}(\sigma_{\text{price}<801} ((\pi_{\text{fid}}(\sigma_{\text{aircraft}=\text{B787}} \text{ Flights})) \bowtie \text{Tickets}))) \bowtie \text{Passengers})$

b.) $\rho_{\text{notboston}}((\pi_{\text{fid}}(\sigma_{\text{from}=\text{BOS} \wedge \text{to}=\text{BOS}} \text{ Flight})) \bowtie \text{Tickets})$

$\pi_{\text{age}}((\pi_{\text{pid}}((\sigma \text{ Tickets}) - \text{notboston})) \bowtie \text{Passengers})$

c.) $\pi_{\text{price}}((\pi_{\text{fid}}(\sigma_{\text{aircraft}=\text{B777}} \text{ Flights})) \bowtie \text{Tickets})$

d.) $\pi_{\text{city}}((\pi_{\text{pid}}((\sigma_{\text{price}<501} \text{ Tickets}) \cup ((\pi_{\text{fid}}(\sigma_{\text{miles}>500} \text{ Flights})) \bowtie \text{Tickets}))) \bowtie \text{Passengers})$

e.) --

f.) --