

6.17.

a) $tmp1 \leftarrow \text{Flight_num} \text{ FMIN}(\text{leg_num}) \text{ (FLIGHT_LEG)}$

$tmp2 \leftarrow tmp1 * \text{FLIGHT_LEG}$
 $\text{leg_number} = \text{leg_number}$

$tmp3 \leftarrow \text{Flight_num} \text{ FMAX}(\text{leg_num}) \text{ (FLIGHT_LEG)}$

$tmp4 \leftarrow tmp3 * \text{FLIGHT_LEG}$
 $\text{leg_number} = \text{leg_number}$

$tmp5 \leftarrow tmp2 * tmp4$
 $\text{Flight_number} = \text{Flight_number}$

$ANS \leftarrow \pi_{\text{Flight_number}, \text{Departure_airport_code}, \text{Arrival_airport_code}} (tmp5)$

b) $tmp1 \leftarrow \sigma_{\langle \text{Departure_airport_code} = "IAH" \rangle \text{ AND } \langle \text{Arrival_airport_code} = "LAX" \rangle} \text{ (FLIGHT_LEG)}$

$tmp2 \leftarrow tmp1 * \text{FLIGHT_LEG}$
 $\text{leg_number} = \text{leg_number}$

$tmp3 \leftarrow tmp2 * \text{FLIGHT}$
 $\text{Flight_number} = \text{Flight_number}$

$tmp4 \leftarrow \pi_{\text{Flight_number}, \text{Weekdays}} (tmp3)$

②

c) $\text{tmp1} \leftarrow \sigma_{\text{city} = \text{"Houston"}} (\text{AIRPORT})$

$\text{tmp2} \leftarrow \sigma_{\text{city} = \text{"Los Angeles"}} (\text{AIRPORT})$

$\text{tmp3} \leftarrow \text{tmp1} * \text{FLIGHT_LEG}$
 $\text{Airport_code} = \text{Departure_airport_code}$

$\text{tmp4} \leftarrow \text{tmp3} * \text{tmp2}$
 $\text{Airport_code} = \text{Arrival_airport_code}$

$\text{tmp5} \leftarrow \text{tmp4} * \text{FLIGHT}$
 $\text{Flight_number} = \text{Flight_number}$

$\text{ANS} \leftarrow \pi_{\text{Flight_number, Departure_airport_code,}} \\ \text{scheduled_departure_time, arrival_airport_code,} \\ \text{scheduled_arrival_time, weekdays}} (\text{tmp5})$

d) $\text{tmp1} \leftarrow \sigma_{\text{Flight_number} = \text{"CO197"}} (\text{FARE})$

$\text{ANS} \leftarrow \pi_{\text{Flight_number, Fare_code, Amount, Restrictions}} (\text{tmp1})$

e) $\text{tmp1} \leftarrow \sigma_{\text{Flight_number} = \text{"CO197"} \text{ AND}} \\ \text{Date} = \text{"2009-10-09"}} (\text{LEG_INSTANCE})$

$\text{ANS} \leftarrow \pi_{\text{Number_of_available_seats}} (\text{tmp1})$