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Q1:

① at relation Trips \Rightarrow Identity number is foreign key reference to attribute Identity-number at relation sales agents

at relation Expenses \Rightarrow trip id is foreign key reference to attribute Trip id at relation Trips

② Insert $\langle 123, 'Ahmed', 'Mohamed', 200 \rangle$
into sales agents

insert $\langle 123, 'Hadi', 'Nabbus', '12-Dec', 111 \rangle$
into Trips

insert $\langle 111, 155, 5 \rangle$ into Expenses

insert violate: insert $\langle 222, 200, 4 \rangle$ into Expenses

insert not violate: insert $\langle 111, 51, 1 \rangle$ into Expenses

Q2:
1.

$$\begin{aligned} Q2: (1) \quad R_1 &\leftarrow \text{Enroll} \div \text{STUDENT} \\ R &\leftarrow \pi_{ssn}(R_1) \end{aligned}$$

2.

$$\begin{aligned} Q2: (2) \quad R_1 &\leftarrow \sigma_{\text{semester}=2 \text{ AND year}=2018}(\text{Enroll}) \\ R_2 &\leftarrow \sigma_{\text{name}='Ruba'}(\text{STUDENT}) \\ R &\leftarrow \pi_{\text{grade}}((R_1) * (R_2)) \end{aligned}$$

3.

$$\begin{aligned} Q2: (3) \quad R_1 &\leftarrow \sigma_{\text{dept-name}='Physics'}(\text{course}) \\ R &\leftarrow \pi_{ssn}((\text{Enroll}) * (R_1)) \end{aligned}$$

4.

$$Q_2: (4) \quad R_1 \leftarrow \sigma_{name = 'Data base'} (Course)$$

$$year, semester \uparrow avg (grade) (R_1)$$

5.

$$Q_2: (5) \quad R_1 \leftarrow \sigma_{major = 'cs'} (\text{~~course~~ Student})$$

$$R_2 \leftarrow (Enroll) * (R_1)$$

$$R \leftarrow \pi_{name, course} (R_2) \bowtie_{course * = course *}$$

(Course)