COMPSCI 2DB3
Assignment 6
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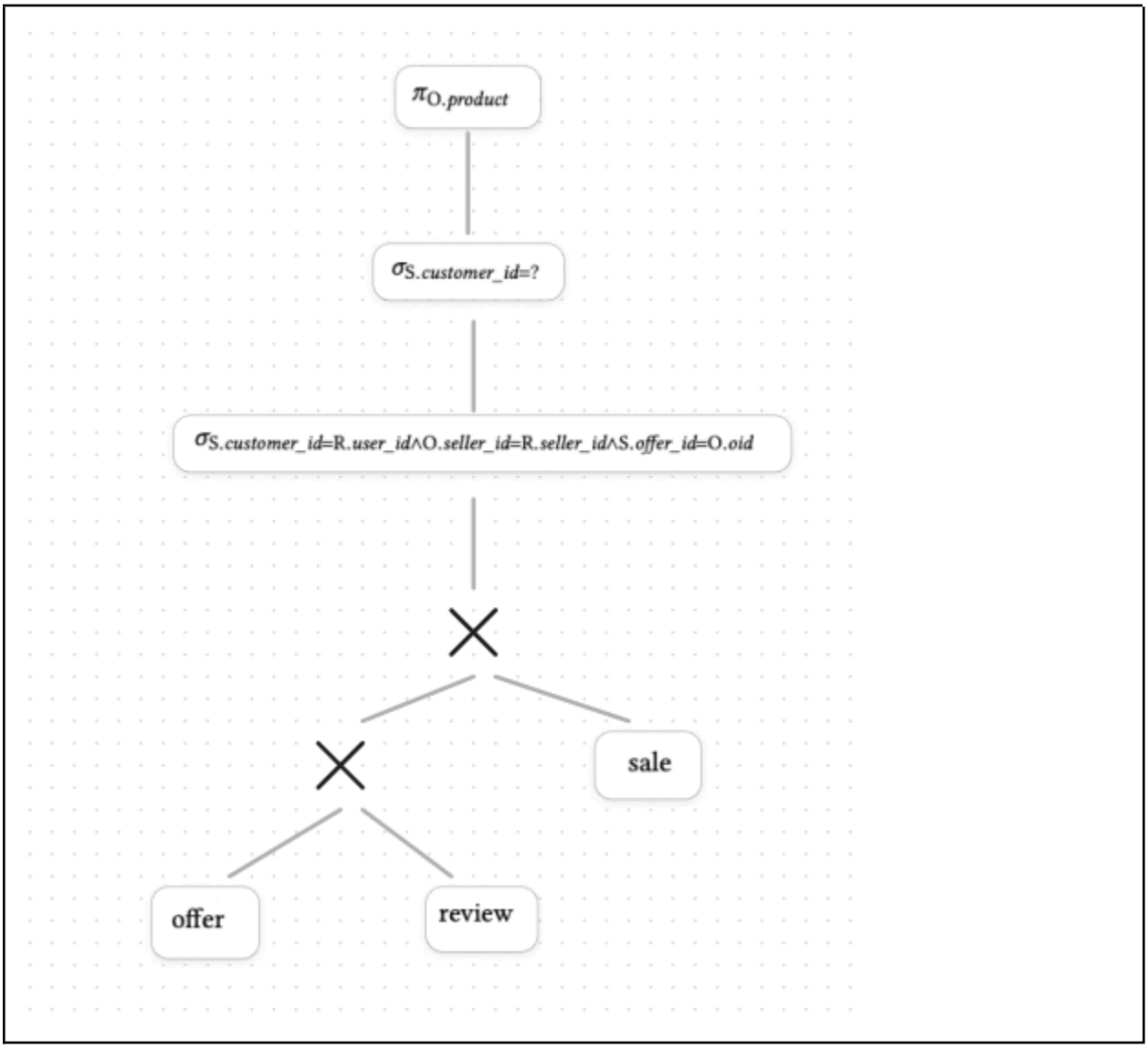
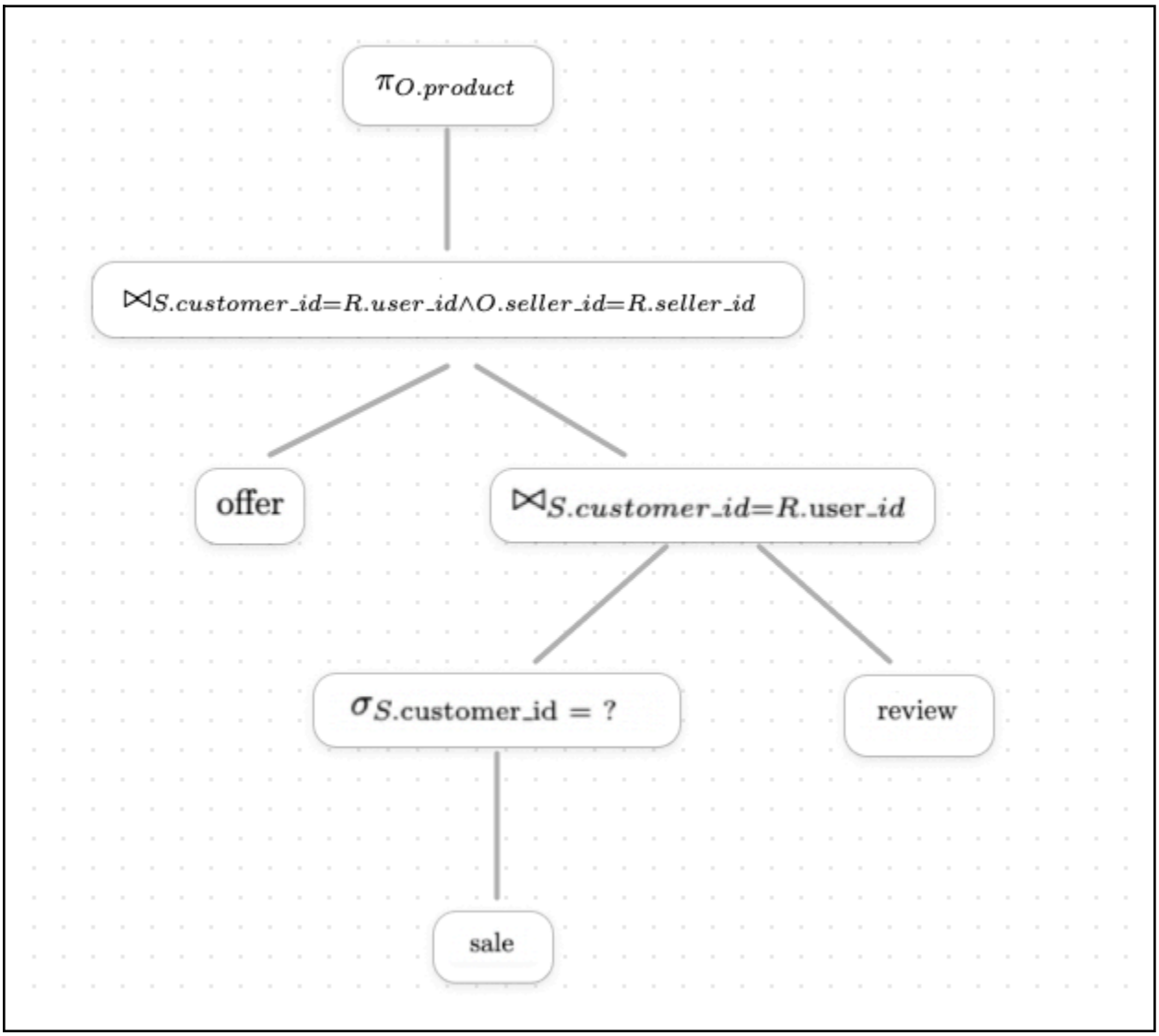
Part 2

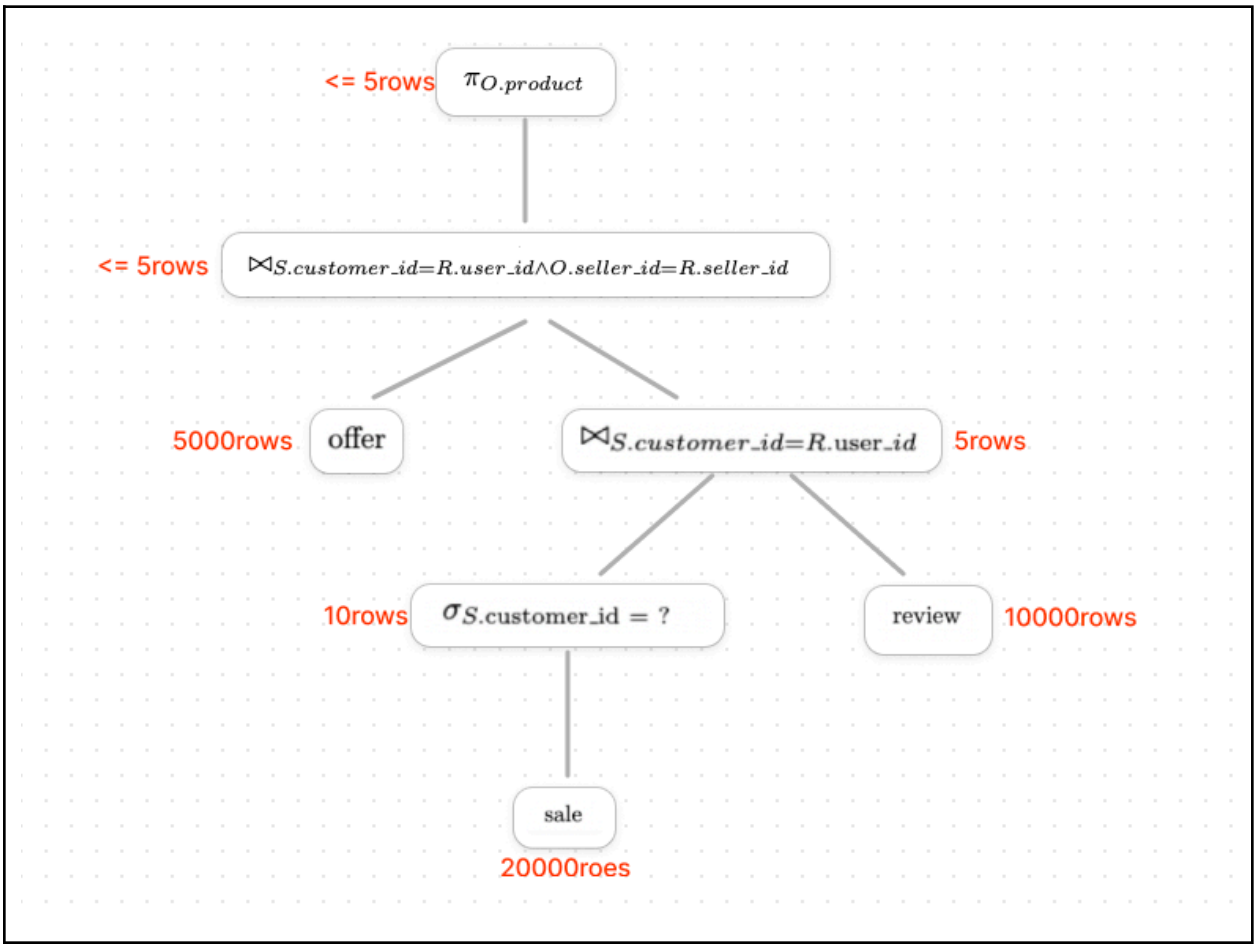
Question 1



Question 2


$\pi_{O.product}$
$\bowtie_{S.customer\_id=R.user\_id \wedge O.seller\_id=R.seller\_id}$
offer
$\bowtie_{S.customer\_id=R.user\_id}$
$\sigma_{S.customer\_id\ =\ ?}$
review
sale

Question 3



Question 4

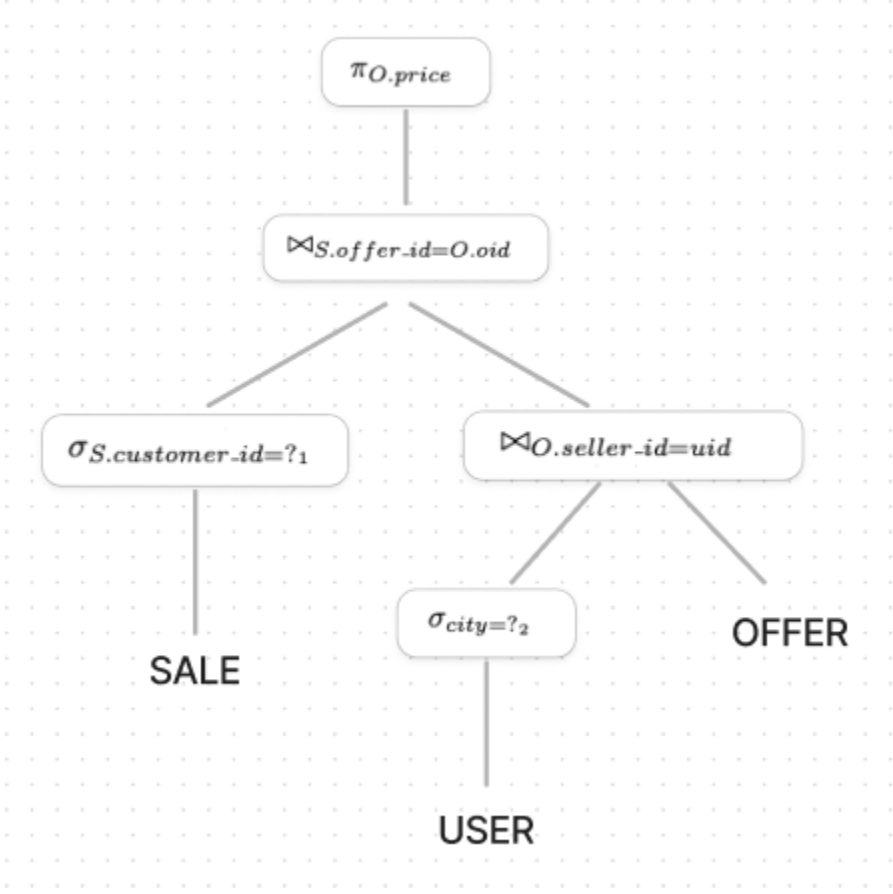
Next, we code a query which satisfies the relational algebra equation. We take inspiration from the Q5 code format provided.

```
SELECT o1.product
FROM offer o1, review r1, sale s1
WHERE s1.customer_id = ? AND
o1.seller_id = r1.seller_id AND
s1.customer_id = r1.user_id AND
s1.offer_id = o1.oid ;
```

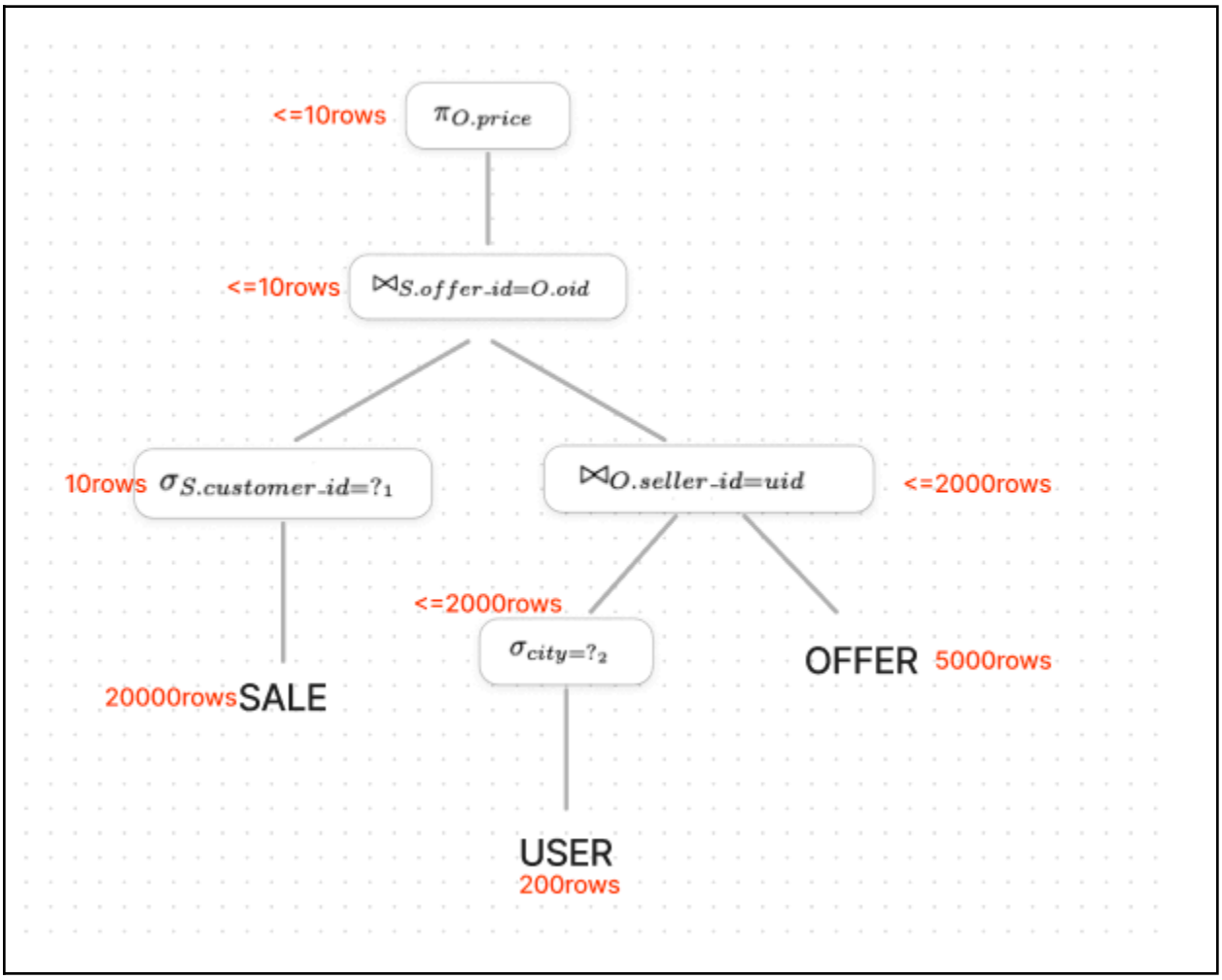
Question 5

$$A := S.offer\_id = O.oid \rho_O(\text{offer})$$
$$B := \rho_S(\sigma_{\text{offer\_id}}(\text{sale})) \bowtie A$$
$$C := \rho_U(\sigma_{uid=?1}(\text{user})) \bowtie_{U.uid=customer\_id} B$$
$$D := (C \bowtie_{seller\_id=uid} \sigma_{\text{city}=?2}(\text{user}))$$
$$E := \pi_{\text{price}} D$$

Question 6



Question 7


<=10rows
$\pi_{O.price}$
<=10rows
$\bowtie_{S.offer\_id=O.oid}$
10rows
$\sigma_{S.customer\_id=?_1}$
$\bowtie_{O.seller\_id=uid}$
<=2000rows
<=2000rows
$\sigma_{city=?_2}$
OFFER 5000rows
20000rowsSALE
USER
200rows