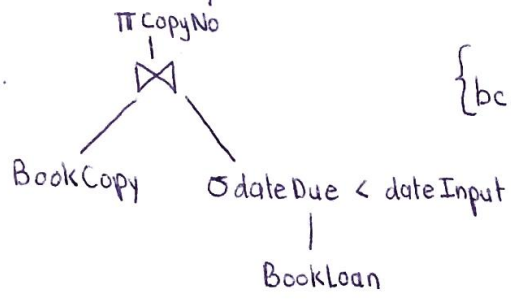
a. $\pi$ title (Book) $\quad \{b.title : Book(b)\}$

b. $\pi$ borrowerNo (Borrower) $\quad \{br.borrowerNo : borrower(br)\}$

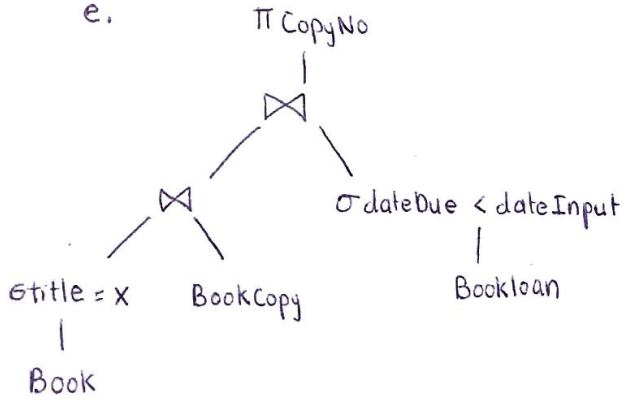
c. $\pi$ title ($\sigma$ years = 2012 (Book)) $\quad \{b.title : Book(s) \wedge b.year = 2012\}$

d.



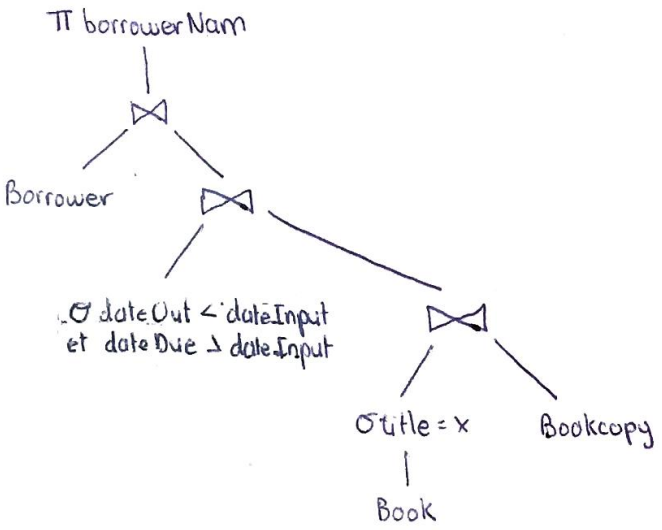

$\{bc.copyNo : Bookcopy(bc) \wedge (\exists bl : Bookloan(bl) \wedge bc.copyNo = bl.copyNo \wedge bl.datedue < dateInput)\}$

e.



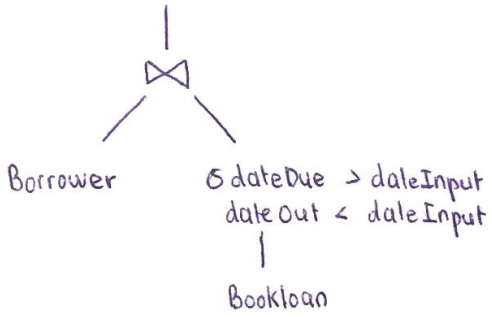

$\{bc.copyNo : BookCopy(bc) \wedge (\exists b \exists bl : Book(b) \wedge Boolaan(bl) \wedge bc.copyNo = bl.copyNo \wedge bl.dateDue < dateInput \wedge bc.ISBN = b.ISBN \wedge b.title = x)\}$

f.




$\{br.borrowerName \cdot Borrower(br) \wedge (\exists bl \exists bc \exists b : Bookloan(bl) \wedge BookCopy(bc) \wedge Book(b) \wedge br.borrowerNo = bl.borrowerNo \wedge bl.CopyNo = bc.CopyNo \wedge bc.ISBN = b.ISBN \wedge (bl.dateDue \geq dateInput \wedge dateOut < dateInput) \wedge b.title = x)\}$

g) $\pi$ borrowerName




$\{ br.borrower : Borrower(br) \wedge (\exists bl : Bookloan(bl) \wedge br.borrowerNo = bl.borrowerNo \wedge (bl.dateDue > dateInput \wedge bl.dateOut < dateInput)) \}$

h) $P_R(copyCount) \tilde{\jmath} count$ copyNo ($\sigma$ ISBN = "0-321-52306-7" (BookCopy))

i) $Pr(copyCount) \tilde{\jmath} count$ copyNo ((($\sigma$ ISBN = "0-321-52306-7" (BookCopy)) ⋈ (($\sigma$ dateDue < dateInput (BOOKLOAN))