

# Homework 3

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## 14.26

**a**

**i.**

$A \rightarrow B$  Does not hold.

**ii.**

$B \rightarrow C$  Dependency holds.

**iii.**

$C \rightarrow B$  Does not hold.

**iv.**

$B \rightarrow A$  Dependency holds.

**v.**

$C \rightarrow A$  Does not hold.

**b**

Since a candidate key is a set of attributes  $x$  such that  $x \rightarrow ABC$ ,  $x$  can only be B, thus B is the only candidate key.

## 14.31

a.

The Books relation is in 1NF since book title  $\rightarrow$  book\_type and book\_type  $\rightarrow$  List\_price

b.

BCNF:

book1(Book\_title, Authurname)

book2(Book\_title, Publisher)

book3(Book\_title, Book\_type)

book4(Book\_title, list\_price)

book5(Authurname, Author\_affil)

## 28.15

There is only one frequent itemset of size 3, milk,bread,eggs. We can try the rule milk,eggs  $\rightarrow$  bread. The confidence of this rule is  $0.3/0.3$  which is higher than the min confidence value of 0.7. We can also try is bread  $\rightarrow$  milk,eggs. The confidence of this rule is  $0.3/0.4$  which again is higher than the required minimum confidence.