ICS 321 Data Storage & Retrieval — Ex#6 Name:_____

Exercise 3.4.1 Let $R(A, B, C, D, E)$ be decomposed into relations with the following three sets of attributes: $\{A, B, C\}, \{B, C, D\}, \{A, C, E\}$. For each of the following sets of FD's, use the chase test to tell whether the decomposition of R is lossless. For those that are not lossless, give an example of an instance of R that returns more than R when projected onto the decomposed relations and rejoined.

a) $B \to E, CE \to A$

b) $AC \to E, BC \to D$

c) $A \to D, D \to E, B \to D$

d) $A \to D, CD \to E, E \to D$.

Exercise 3.4.2. For each of the sets of FD's in Exercise 3.4.1, are dependencies preserved by the decomposition?