BMEG3120: Exercise List 8

Consider the set F of the following functional dependencies on attributes A, B, C, D, E, F:

$$
\begin{aligned}
A &\rightarrow B \\
A &\rightarrow C \\
CD &\rightarrow E \\
CD &\rightarrow F \\
B &\rightarrow E
\end{aligned}
$$

Answer the following questions.

Problem 1. Prove $CD \rightarrow EF$ by applying Armstrong's Axioms, i.e., you can use only reflexivity, transitivity, and augmentation.

Problem 2. Prove $AD \rightarrow EF$ by repeatedly applying Armstrong's Axioms.

Problem 3. Prove that $BC \rightarrow F$ cannot be derived from F.

Problem 4. Is AD a candidate key of the table $R(A, B, C, D, E)$?

Problem 5. Is AB a candidate key of the table $R(A, B)$?