Problem 1 (10 points): Consider a relation about students in a university. The relation stores students’ names, social security numbers, street address, city, state, zip code, area code, and 7-digit phone number. What FD’s would you expect to hold? List all that you can think of.

Note: For the following problem, you will only get credit if you show your work.

Problem 2 (40 points): Given a relation R with four attributes ABCD and a set of FD’s {AB → C, C → D, D → A}

  (a) Use the attribute closure algorithm discussed in class, find all the non-trivial FDs that can be derived from the given FDs. Note: an FD X → Y is said to be trivial if Y ∈ X (e.g. AB → A is an example of a trivial FD).

  (b) What are all the candidate keys of R?