# Assignment 3

ID# Name: Signature:

1. Consider the schema ABCDEF with the following FDs: V = {FC→ EB, C→A, EB→CD, E→AC, A→B}.
   1. What are the keys for this table? Provide justifications.
   2. Write a CREATE ASSERTION statement to enforce constraint FC→ EB.
   3. Calculate the minimal cover of V. Show the results after each step.
   4. Use the 3NF synthesis algorithm to obtain a lossless and dependency preserving decomposition into 3NF.
2. (Consider schema(R, F), where R=ABCDE, F={C→EA, E→D, DB→C, AC→E}
3. Find all the keys of the relation, and for each one, prove it is indeed a key.
4. Decompose the schema into a set of BCNF schemas. Is this decomposition lossless? Is it dependency-preserving? Explain your answer to get full credits.
5. What is the attribute closure of EAB?
6. What is the minimal cover of F? Describe each step for full credits.
7. Decompose the schema into a set of 3NF schemas. Is this decomposition lossless? Is it dependency-preserving? Explain your answer to get full credits.