1. For each of the following schema decompositions, determine whether or not it is a dependency preserving decomposition.
   (a) Schema R(A, B, C, D) with FDs F = {A → BCD, C → D} and decomposition {R1(A, B, C), R2(C, D)}.
   (b) Schema R(A, B, C, D) with FDs F = {A → BCD, C → D} and decomposition {R1(A, C), R2(A, B, D)}.
   (c) Schema R(A, B, C, D, E) with FDs F = {AB → C, AC → D, E → ABCD} and decomposition {R1(A, B, C), R2(A, B, E), R3(A, C, D)}.

2. Consider the schema R (A,B,C,D) with FDs
   F = { ABC → D, D → A}
   (a) Is R in BCNF? Explain.
   (b) Is R in 3NF? Explain.

3. Consider the schema R (A,B,C,D,E) with FDs
   F = { A → E, CD → A, E → B, E → D, A → BD}
   (a) Is R in 3NF? Explain.
   (b) If R is not in 3NF, find a 3NF decomposition of R.
   (c) Is your decomposition in (b) in BCNF?

4. Consider the schema R (A,B,C,D,E) with FDs
   F = {AB → CDE, AC → BDE, B → C, C → B, C → D, B → E}
   (a) Is R in 3NF? Explain.
   (b) If R is not in 3NF, find a 3NF decomposition of R.
   (c) Is your decomposition in (b) in BCNF?