National University of Computer and Emerging Sciences, Lahore Campus

	Course: Program: Date: Quiz Section	Database Systems BS (Computer Science) Mon 3-Apr-2023 3 BCS-4C	Course Code: Semester: Total Marks: Max. Time:	CS2005 Spring 2023 10 10 min.

Q. Consider the relation schema R (A, B, C, D, E, F), with FDs $F= \{A \rightarrow BC, B \rightarrow D, CF \rightarrow E, E \rightarrow F\}$. Identify the best normal form that R satisfies (1NF, 2NF, 3NF, or BCNF). Justify your answer. If R is not in BCNF, decompose it into a set of BCNF relations and show your steps. Indicate which dependencies if any are not preserved by the BCNF decomposition.

Ans:
Keys are {AE} and {AF}. HNF= 1NF, as FD1: A $\rightarrow$ BC violate 2NF.
BCNF Schema is R11(A_E), R12(E F), R3(A B C), R4(B D); FD3: CF $\rightarrow$ E.