

Assignment 3.1
UNIT III
MCA 201(DBMS)

Note : All questions are compulsory

1. Define Normalization and Denormalization .
2. Define 1 NF, 2NF and 3 NF
3. Define functional dependencies with its significance in database designing.
4. Consider the following set F of functional dependencies on the relation schema $r(A, B, C, D, E, F)$:
 $A \rightarrow BCD$
 $BC \rightarrow DE$
 $B \rightarrow D$
 $D \rightarrow A$
 - a. Compute B^+ .
 - b. Prove (using Armstrong's axioms) that AF is a super key.
 - c. Compute a Closure for the above set of functional dependencies F ; give each step of your derivation with an explanation.
 - d. Give a 3NF decomposition of r .
 - e. Give a BCNF decomposition of r using the original set of functional dependencies.
5. Normalize the following schema, with given constraints, to 3NF.
books(accessionno, isbn, title, author, publisher)
users(userid, name, deptid, deptname)
 $accessionno \rightarrow isbn$
 $isbn \rightarrow title$
 $isbn \rightarrow publisher$
 $isbn \rightarrow \rightarrow author$
 $userid \rightarrow name$
 $userid \rightarrow deptid$
 $deptid \rightarrow deptname$