

IMS ENGINEERING COLLEGE	Section: IMSEC/QM/ 5.3
	Page 1 of 2
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Subject Name: Database Management System	Subject Code	NCS-502
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ASSIGNMENT 3

Objective: Understand the relational logic of any schema and normalized for decomposition.

Outcome: Ability to understand complexity and simplification of schema with defined rule.

Q1. Consider the universal relation $R=(A,B,C,D,E,F,G,H,I,J)$ and the set of FD's

$F=\{AB \rightarrow C, A \rightarrow DE, B \rightarrow F, F \rightarrow GH, D \rightarrow IJ\}$.

(I) what is the key of R?

(II) Decompose R into 2NF and 3NF.

Q2. Let $R=\{A,B,C,D,E\}$, $R_1=(A,D)$, $R_2=(A,B)$, $R_3=(B,E)$, $R_4=(C,D)$ and $R_5=(A,E)$. let the

functional dependencies be $A \rightarrow C$, $B \rightarrow C$, $C \rightarrow D$, $DE \rightarrow C$, $CE \rightarrow A$. Is the decomposition of R into R_1, R_2, R_3, R_4, R_5 lossless?

Q3. $A \rightarrow B$, $B \rightarrow CD$, $C \rightarrow E$, $E \rightarrow F$. Find super key and candidate key.

Q4. Explain why 4NF is a normal form more desirable than BCNF with example.

Q5. Let $R=\{A,B,C,D,E\}$, $R_1=(A,D)$, $R_2=(A,B)$, $R_3=(B,E)$, $R_4=(C,D)$ and $R_5=(A,E)$. let the

functional dependencies be $A \rightarrow C$, $B \rightarrow C$, $C \rightarrow D$, $DE \rightarrow C$, $CE \rightarrow A$. Is the decomposition of R into R_1, R_2, R_3, R_4, R_5 lossless?