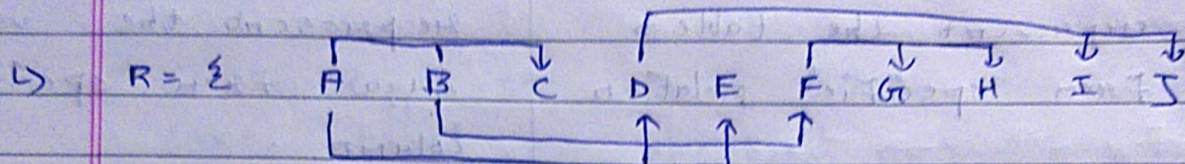


Q 5.  $R = \{A, B, C, D, E, F, G, H, I, S\}$

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



Here  $A, B$  are the essential attributes

Closure of  $(AB)^+ = ABCDEF GHI S$

$\therefore AB$  is the candidate key

	$AB \rightarrow C$	$A \rightarrow DE$	$B \rightarrow F$	$F \rightarrow GH$	$D \rightarrow IS$
BCNF	✓	—	—	—	—
3NF	✓	X	X	X	X
2NF	✓	X	X	X	X
1NF	✓	✓	✓	✓	✓

Here, the relation is in 1NF.



There is a partial dependency  $A \twoheadrightarrow DE$   
 Transitive dependency  
 $B \rightarrow F$

$$F \rightarrow GH$$

and also of all the dependency does not have  $\lambda$  as a super key

• Decomposition:

$R_1 (A \ B \ C)$

$R_2 (A \ D \ E \ I \ J)$

$\hookrightarrow$

$R_{21} (D \ I \ J)$

$R_{22} (A \ D \ E)$

$R_3 (B \ F \ G \ H)$

$\hookrightarrow$

$R_{31} (B \ F)$

$R_{32} (F \ G \ H)$

Then for the above tables are in BCNF.  
 There are 5 tables  $\Rightarrow R_1, R_{21}, R_{22}, R_{31}, \& R_{32}$