CS & IT



ENGINERING

Database Management System

FD's & Normalization

DPP-07 Discussion Notes



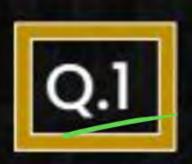
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TOPICS TO BE COVERED

01 Question

02 Discussion



Consider the following two relational schemas

RIPARS) (P-B, R-S) CHECK 2NF

Schema 1: R (P, Q, R, S)

Schema 1: R (P, Q, R, S)

(Pe) - (Po RS) idate less
Schema 2: R1(P, Q, R) R2(Q, S) and the following statemen



If the only functional dependencies that hold on the relation in the schema 1 are $P \rightarrow Q$, $R \rightarrow S$, then relation R is in BCNF.

If the only FD that hold on the relation in the schema 2 are $P \rightarrow Q, P \rightarrow R, Q \rightarrow P, P \rightarrow S$ then the relation R1 and R2 are in BCNF.

> Which of the following statements are true? Only S2 is true Only S1 is true

Both S1 & S2 are true

Neither S1 nor S2 are true



Schema 2:

$$R_{2}(QS)$$

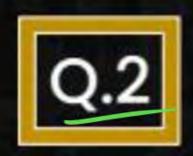
$$(QS)^{t}=(QS)PR)$$

$$(QS)^{t}=(QS)$$

$$(QS)^{t}=(QS)$$

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$$(QS)^{t}=(QS)$$



Assume that a relation is in 3NF under which of the following conditions R can violate BCNF?





The table consists two candidate keys that share a common attribute.



The table consists of two non-overlapping candidate keys.

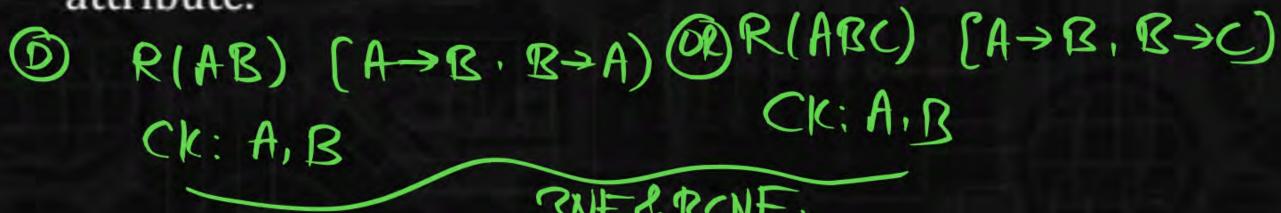


The table has a unique candidate key consisting of one attribute.





The table consists of two candidate keys each consisting of one attribute.





@ R(ABCD) [AB->CD, D>A)

Canadidate key = (AB, DB)

Check 3NF

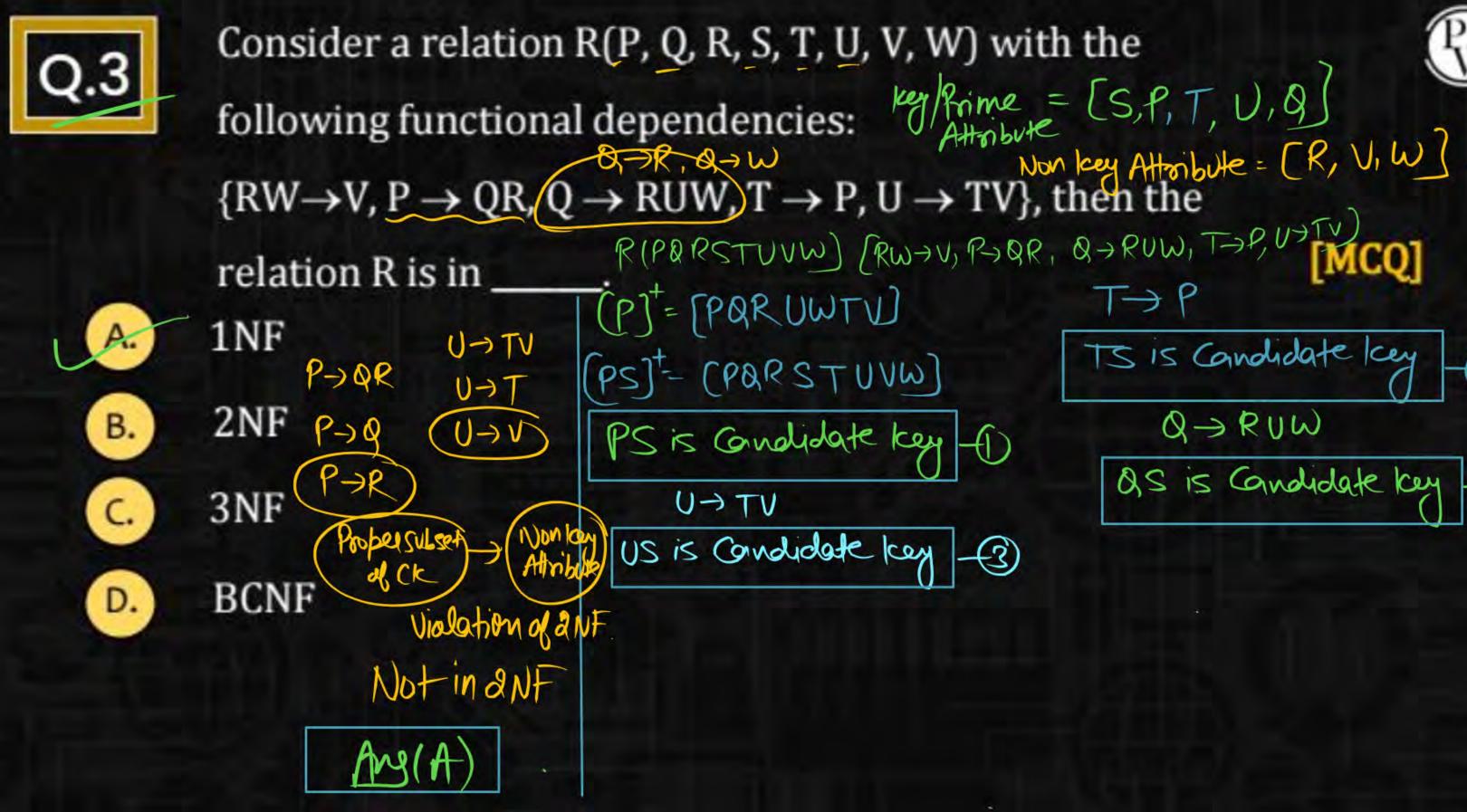
ARSOD VENT; ARIS Super DODA; VRNT; Ais keyplanne Attendate So Risin RNF BCNF

ABJCD VRCNF

DJA X Fail BCNF

DIS NOT SIDER

KUY



TS 15 Candidate 10 Q -> RUW QS is Candidate ke Q.4

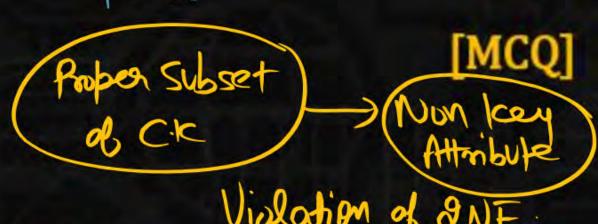
Consider the following statements



21: If the proper subset of candidate key determines nonprime attribute, then it is violation case of 2NF.

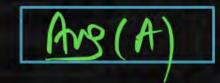
Folger S2: If $P \rightarrow Q$ and $Q \rightarrow R$ are two FD's then $P \rightarrow Q$ is known as transitive dependency

Which of the statements are/is true?



Only S1 is true

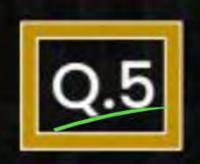
C. Only S2 is true



P-A, A-R

then P-) R is transitive FD

- B. Both S1 & S2 are true
- D. Neither S1 nor S2 are true



Consider the following statements about Boyce - Codd Normal Form (BCNF)



The determinant for each functional dependency must be a super key.

S2: Transitive dependencies does not result in abnormalities

only S1 is true In 3NF already

We salve this Problem

Only S2 is true if P is in BCNF then

already its in 3NF also

is a Super leave

Super leave

Every determinant

Super leave

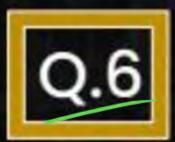
Super

В.

Both S1 & S2 are true

Neither S1 nor S2 are true





Consider a table/Relation R has one candidate key, then which



of the following is always true?

If R is in 2NF, then it is also in 3NF.



If R is in 3NF, then it is also in BCNF.



If R is in 2NF, but it is not in 3NF.



None of the above.



Not: PLZ Read the options cone fully

R(ABC) [A +B, A+C] = Risin 2NF Gendidate key=[A]

Risin 2NF also



Check 3NF?

A >RV

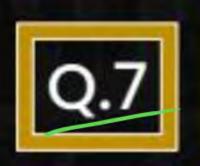
& RISINSINF

Check BCNF?

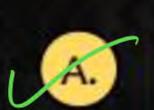
then HOLE is in BCNF.

But Assumption is one CK 4 R is in 3NF then it will be in BCNF)

A-)BUBCNF A-)CUBCNF



Let's suppose, dependencies have to be preserved and BCNF decomposition is not possible. Which of the following normal forms can be still achievable (while preserving dependencies)?



1NF



2NF



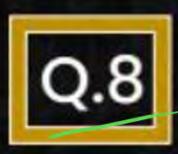
3NF



4NF

					LIMBQ
	INF	2NF	- 3NF	BCNF	
Lossless	/				
Dependency Preserving				May/May	ynot

Ang(A)(B) &(C)



Consider a relation R(P, Q, R, S, T) with the set of FD's

-ARS

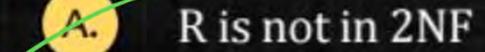
T-> Q

TOR

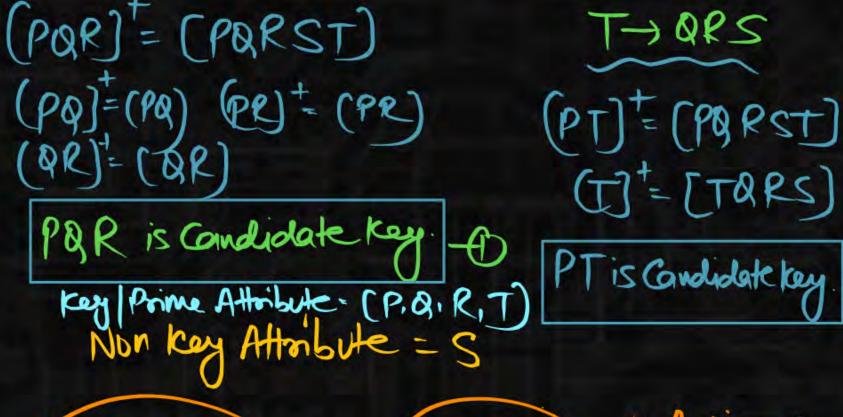
 $\{PQR \rightarrow ST \text{ and } T \rightarrow QRS\}$ which of the following statements is

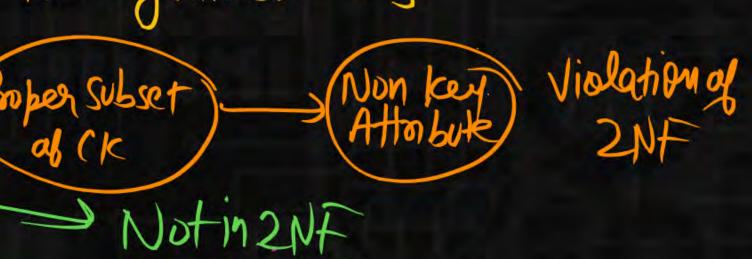
true?

RIPARST) (PAR -> ST, T-> QRS)



- R is in 2NF but not in 3NF
- R is in 3NF but not in BCNF
- R is in BCNF





T-) QRS

(I) = [Tars)



