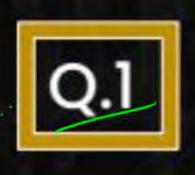TOPICS TO BE COVERED

01 Question

02 Discussion

Q.1 According to RDBMS rules, choose the correct statement from the following.

[MSQ]

A. A relation in RDBMS can have multiple attributes.
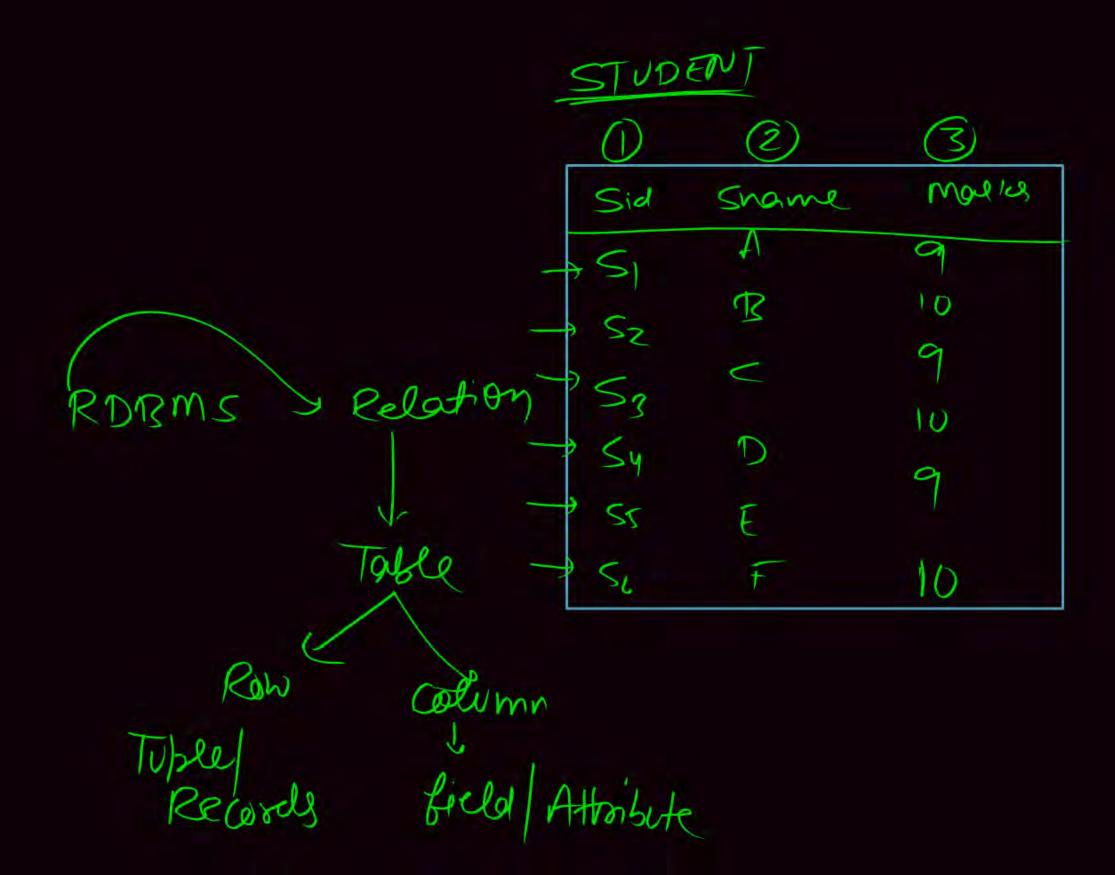
B. A relation in RDBMS is a set of rows and columns.

C. A tuple in a relation can have multiple values for an attribute.

$\downarrow$
Multivalued

D. All of the above

A & B

STUDENT

①	②	③
Sid	Sname	Marks
S1	A	9
S2	B	10
S3	C	9
S4	D	10
S5	E	9
S6	F	10

RDBMS → Relation

Relation → Table

Table
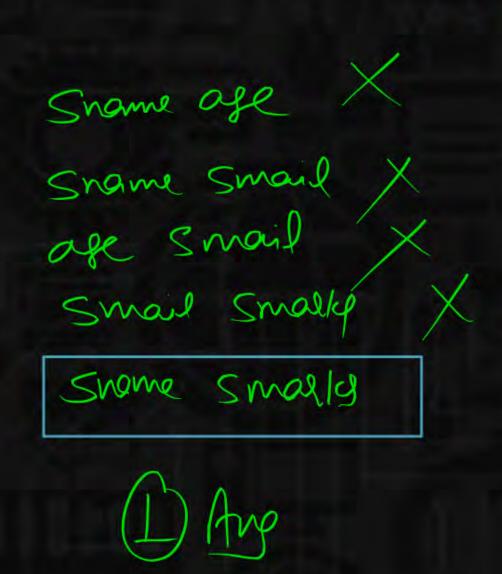- Row → Tuple / Records
- Column → field / Attribute
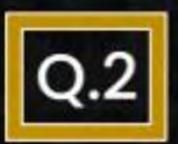
Q.2 Consider the student relation shown below with schema stud (Sname, S age, S mail, S marks),

[NAT]

Stud

Sname	Sage	Smail	Smarks
Rohit	28	R@pw.live	68
Kanika	25	K@pw.live	75
Pankaj	25	K@pw.live	75
Rohit	28	R@pw.live	88
Anjali	26	A@pw.live	75

Sname age ✗
Sname smail ✗
age smail ✗
Smail Smarks ✗

Sname Smarks

① Ans

For the above given instance how many 2-set of attributes can determine a row uniquely?

Q.3 Consider a relation schema R(A, B, C, D, E, F, H) with the given

Functional dependency set:

$\{A \to BC, C \to AD, DE \to F, C \to F\}$

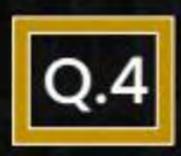The attribute closure that contains all the attributes of the relation R is?

A. AE^+ $[AE]^+ = [AEBCDF] \Rightarrow [ABCDEF]$ Ⓗ

B. CE^+ $[CE]^+ = [CEADFB] \Rightarrow [ABCDEF]$ Ⓗ

C. AEH^+ $[AEH]^+ = [AEHBCDF] \Rightarrow [ABCDEFH]$

D. All of the above $Ans (C)$

Q.4 Consider the below relation schema Stud (Rid, name, course, mail, phone) with FD set as:

[NAT]

(1) Rid → {Rid} → Trivial FD

(2) Rid → {name, mail} → Non Trivial FD

Semi Non Trivial (3) course → {course, phone}

(4) phone → {phone} → Trivial

(5) mail → {Rid, course} ⟶ Non Trivial FD

(6) name → {phone, mail, course} → Non Trivial

Trivial : 2

Non Trivial : 3

Semi Non Trivial : 1

_(6)_

The number of non-trivial FD's in the given FD set is/are?

③ Ans

Trivial FD

$X \rightarrow y$ is Trivial

If $X \supseteq y$

$AB \rightarrow A$
$AB \rightarrow B$
$AB \rightarrow AB$

Non Trivial FD

$X \rightarrow y$ is Non Trivial

iff $X \cap y = \phi$ & Must Satisfy FD Defination

$A \rightarrow B$

Roll $\rightarrow$ Branch
No

Semi Non Trivial FD

$X \not\supseteq y$ & $X \cap y \neq \phi$

$A \rightarrow AB$

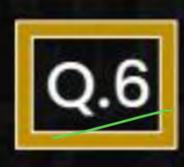$X \rightarrow y$
Neither $X \not\supseteq y$

& $X \cap y \neq \phi$

Q.5 Consider the following set of FD's:

$\{V \to W, W \to XZ, X \to YZ\}$ for relation

$R(V, W, X, Y, Z)$

Then the attribute closure of YZ^+ contains how many elements?

[MCQ]

A. 0

B. 1

C. 2

D. 3

$$[YZ]^+ = [YZ]$$

Ans [C]

Q.6 For the given FD set: $\{P \to QT, Q \to SU, V \to U\}$ of a relation $R(P, Q, T, S, U, V)$. Find the set of attributes that is Super key but not a Candidate key?

[MCQ]

(A.) (PTQ) $[PTQ]^+ = [PTQSU]$

(B.) PV $[PV]^+ = [PVQTSU] \Rightarrow [PQTSUV]$

(C.) PQV $[PQV]^+ = [PQVTSU] \Rightarrow [PQTSUV]$

(D.) QV $[QV]^+ = [QVSU]$

Ans [C]

Keys

☐ Any super set of super key is also super key.

Super key : $from[X]^+$ getting all attribute of Relational Schema R then X is super key.

Candidate key : Minimal of Super key
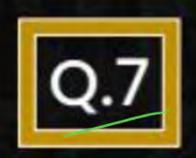
AB is c·k

(Note) Every Candidate key is a Superkey But Every Super key is Not Candidate key

C.k
P.k   are
A.k/s.k   Super
             key

Super key

⌐ Minimal → Candidate key $\left(\begin{array}{c} \text{Assume} \\ 4\ \text{C.k} \end{array}\right)$

⌐ 1 Select as → Primary key

⌐ Remaining 3ck → A.k / Secondary key

Q.7 In a schema with attribute X, Y, Z, W, V, the following set of functional dependencies are given:

$\{Y \to X, Y \to Z, ZW \to V, X \to W, V \to X\}$.

Which of the following FD is not implied by the above set? **[MCQ]**

Implied
A. $YX \to ZW$ $(YX)^+ = (YX\ Z\ W\ V)$

B. $XV \to YZ$ $(XV)^+ = (XVW)$ Not Implied

Implied
C. $ZW \to V$ $(ZW)^+ = (ZWVX)$

Implied
D. $XV \to XW$ $(XV)^+ = (XVW)$

Ans (B)

$$F: [A \to B, \ B \to C)$$

Check $A \to C$?

$[A]^+ = [A \ B \ C]$
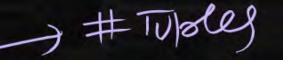
$X \to Y$ logically implied from the closure of X

$[X]^+ = [\ldots \ldots Y \ldots] $ determines Y.

Q.8

Choose the correct statement from the following.

#Tuples

A. The cardinality is defined as the number of attributes in a relation.
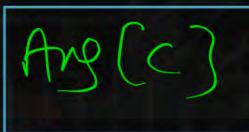
#Attributes

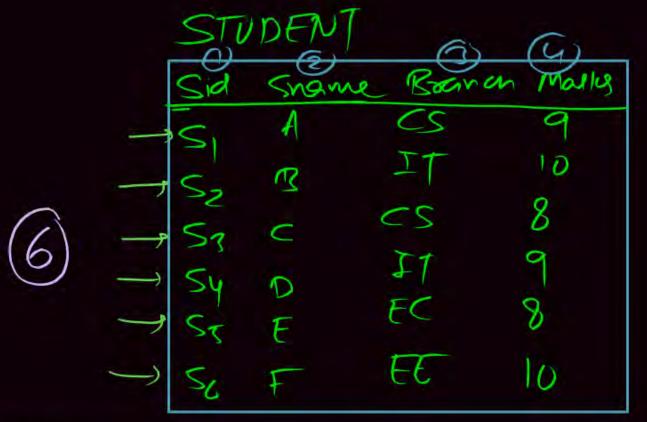B. Degree of the relation is the number of tuples in the relation.

C. Relation instance is the set of tuples of a relation at a particular instance of time.

Ans (c)

D. All of the above

STUDENT

Sid	Sname	Branch	Marks
S₁	A	CS	9
S₂	B	IT	10
S₃	C	CS	8
S₄	D	IT	9
S₅	E	EC	8
S₆	F	EE	10

⑥

Degree

(or)

Arity : Number of Attribute

④

Cardinality ⇒ Number of Tuples/Records

⑥

Relational Schema: STUDENT (Sid Sname Branch Marks)

Relational Instance: Set of Records [Snapshot]

THANK YOU GW SOLDIERS !